Industry Agenda

Harnessing Public-Private Cooperation to Deliver the New Urban Agenda

Prepared in collaboration with PwC

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Foreword

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The world is experiencing an unprecedented transition from predominantly rural to mainly urban living, with more than 55 percent of the world's population already living in urban areas and this figure is set to rise to 70 percent by the middle of 21st century. While rapid and spontaneous urbanization has presented the world's cities with major environmental, economic and social challenges, cities also provide a positive force underpinning social, political and economic transformation. Habitat III consecrated the new paradigm shift of urbanization as a positive force for growth. With the adoption of the New Urban Agenda in Quito in October 2016 and previously the 2030 Agenda for Sustainable Development in September 2015, urbanization is considered worldwide as an endogenous source of development, employment and prosperity.

The Habitat Agenda adopted at the United Nations Conference on Human Settlements in Istanbul in 1996 was persuasive in establishing the need to create sustainable human settlements, recognizing the fundamental right to adequate housing and reinforcing the role of local authorities in achieving sustainable development. However, implementation, financing and monitoring were not uniformly achieved in cities around the world.

Habitat III provided a critical milestone to shape the vision for the future of urbanization and brought together all actors to achieve the key priorities and objectives. The New Urban Agenda is a set of strategies that provide concrete actions to achieve sustainable urban development, setting out clear funding mechanisms and effective means of implementation and monitoring.

The New Urban Agenda is an ambitious agenda which aims at paving the way towards making cities and human settlements more inclusive and ensuring that everyone can benefit from urbanization. The strategies embodied in the New Urban Agenda comprise national urban policies, rules and regulations, urban planning and design, financing urbanization and of course, their local implementation. These five strategies are the key principles for achieving sustainable development and growth. Now is the time for transformational urbanization to be promoted as a centerpiece of development policy at the international, national and local level.

As this World Economic Forum report emphasizes, the future of cities largely depends on the way urbanization is managed and public-private collaboration is leveraged to implement the New Urban Agenda and advance sustainable urban development. I would like to thank the World Economic Forum for recommending the key actions that must be taken to shape the outcomes of the New Urban Agenda and achieve sustainable urban development over the next twenty years.

Foreword

Our cities are facing an uncertain future. The challenges of urbanisation, resource depletion and climate change mean that the world's great cities need to adapt to survive and thrive over the coming decades. The United Nations' New Urban Agenda and global frameworks for sustainable development provide guidance to build strategies for successful urban transformation. At the same time, new business models and emerging technologies are disrupting the development of urban infrastructure and the provision of urban services. These can be harnessed to address city challenges and achieve positive transformation.

To achieve this, city leaders and the private sector need to be engaged in an environment based on integrity and trust to encourage the private sector to commit its resources, skills and experience towards the development and operation of the efficient, liveable, resilient and prosperous cities that the world needs.

This World Economic Forum report highlights the contribution of the private sector and recommends transformative actions that need to be taken by both the public and private sectors to establish the ecosystem for a collaborative and integrated way forward.

Gregory Hodkinson
Chairman, Arup
Group, United
Kingdom

Cities are synonyms of progress and growth, but some have become niches of poverty and inequality presenting city authorities with complex challenges. Cities are constantly evolving and are transitioning faster than at any point in history and managing this change is becoming a difficult proposition. City authorities are closest to the citizens and ground level realities and therefore play a key role in providing the impetus for progress. It is fundamental that city authorities are empowered, to enable them to meet their obligations and reach the objectives to realize sustainable urban development. The participation of city authorities is vital in evaluating the results, the outcomes and the implementation of the New Urban Agenda.

With the formal adoption of the New Urban Agenda, the Municipality of Quito has commenced the process of translating the principles of the New Urban Agenda into policies and actions that provides all citizens with an opportunity to benefit from economic growth, inclusiveness and the right to live in harmonious, safe and resilient environment with high level of public services. We are promoting a culture of collaboration and will work with the private sector and civil society to address the most pressing urban development challenges facing our city.

We welcome the participation of the private sector and the value they bring in terms of innovation, expertise and resources to support city authorities. We would like to thank the World Economic Forum for producing such a comprehensive report on harnessing the private sectors capabilities to realise the New Urban Agenda. We will consider the guidance and the strategic actions that must be taken in engaging with the private sector and establishing effective public private cooperation to deliver urban infrastructure and services projects in Quito.

Mauricio Rodas
Mayor of Quito,
Ecuador

Foreword

Hazem Galal
Global Leader,
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Inclusive and sustainable growth is vital for social harmony and equity among city inhabitants. The New Urban Agenda, recently adopted at Habitat III in Quito, sets out the key priorities and goals for holistic urban development. It provides guidance to cities on how to develop and implement transformational strategies and initiatives that will help them face the urban challenges and achieve social, environmental and economic prosperity for all.

However, lack of sufficient public funds, limited capabilities and unclear governance structures often hinder the realization of a city's vision for sustainable urban development. Collaboration of all stakeholders is fundamental as government entities alone cannot address the growing urbanisation challenges. Government bodies at both the national and local levels need to transition from a "business as usual" approach to more innovative approaches that promote the Co-Creation and Co-Development of urban services together with private sector and all other stakeholders. Cooperation with the private sector enhances value for all aspects of the urban value chain – planning, design, funding, implementation and delivery.

In this report we highlight how to engage the private sector in the implementation of the New Urban Agenda and the achievement of its desired outcomes. Both the government and private sector must play their part to deliver on the objectives of the New Urban Agenda by prioritising their actions to reflect a city's unique context, immediate and long term priorities and the created impact to achieve sustainable development. The recommendation of the report is further substantiated with a range of case studies and examples from developed and developing cities. The examples depict the journey of engaging private sector and achieving success in urban transformation.

We believe the report will provide urban managers with insights to support them in making better policy decisions and strategic choices and will also provide the private sector leaders with ways to connect better with government and play their role more effectively in sustainable urban development initiatives.

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Every week, nearly 1.5 million people become urban dwellers. Cities are evolving faster than ever and encountering unprecedented demographic, environmental, economic and social challenges. Accelerated urbanisation across the globe is attributed to natural population growth, migration, the extension of urban boundaries and the development of new cities.

Sustainable Urban Development is the current global priority, however most cities lack the capacity and resources to ensure that the city develops in a sustainable manner. Multistakeholder cooperation is essential to fill this gap and build transformation strategies to better shape positive urbanization outcomes and lead cities towards growth, well-being and prosperity for all.

The World Economic Forums Shaping the Future of Urban Development and Services initiative, conducted a global survey to understand the preparedness and role of multiple stakeholders including the public sector, private sector, civil society and academia. The survey found that the private sector is better prepared and recommends greater public private sector cooperation to drive urban transformation across all aspects of the urban value chain, which includes policy-making, planning, design, financing, implementation, operation and maintenance and monitoring of urban development projects.

The focus of this report is to present a taxonomy of recommendations, with reference cases from around the world, to build effective public private cooperation and help the public sector understand the convergence of the outcomes of the multiple global frameworks like the Habitat III New Urban Agenda, the Sustainable Development Goals, COP 21, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Addis Ababa Action Agenda 2015 and drive cities towards social, environmental and economic sustainability.

We believe this work will assist both the public and private sector to synergize and establish an enabling environment that drives cooperation, mutual trust and commitments between the two to achieve sustainable urban development.

Executive Summary

1. Background

Cities are evolving faster than ever, putting them on the cusp of major transformation which, if managed well, could either lead to unprecedented economic growth and prosperity for all, or drive them to social decline, economic collapse and environmental damage. Rapid urbanization, the fundamental driver of this evolution, is posing major challenges to cities in advanced and emerging economies, with the greatest impact on the latter. Cities are faced with numerous and often elusive challenges, such as a demand-and-supply gap in basic urban infrastructure and services, as well as increasing social polarization, crime, climate change effects, pollution, traffic congestion, informal dwellings, unemployment, poor governance and lack of trust in government, unplanned development, budgetary restriction and administrative limits.

Regardless of the impact of these challenges, cities are expected to provide a better standard of living, and increase community cohesion, wellness and happiness while progressing towards sustainable development. Cities must develop urban strategies that are people-centric and provide a platform that helps them thrive rather than just survive. Fundamental principles, such as equality, integrity, trust, inclusion, affordability, accessibility, social cohesion, a sense of belonging and resilience, should be strengthened while innovation and entrepreneurship should be promoted to build long-term economic progress and social and environmental sustainability.

Sustainable urban development agreements are launched regularly to guide cities in addressing the challenges and opportunities and the mega trends requiring transformation. Such agreements as Habitat I and II, the Millennium Development Goals, Rio+20, COP and the Hyogo Framework for Action have unquestionably led to transformation.[1] According to the UN-Habitat *World Cities Report 2016*, however, their implementation and monitoring have been uneven across regions and holistic development has not been achieved.

2. New Urban Agenda

In recognition of the new challenges facing cities and the need to reinvigorate the global commitment to sustainable urbanization, the United Nations General Assembly convened the Habitat III conference, the third in the series of United Nations Conferences on Housing and Sustainable Urban Development, in Quito, Ecuador, on 17-20 October 2016. Member States of the General Assembly decided on the following conference objectives: [2]

– Secure renewed political commitment for sustainable urban development
– Assess the 1996 Habitat Agenda (Habitat II) accomplishments to date
– Address poverty, and identify and address new and emerging challenges

The conference resulted in the adoption of the New Urban Agenda, a concise, focused, forward-looking and action-oriented plan that provides a new global strategy on urbanization for the next two decades. The New Urban Agenda embodies three key guiding principles[3] (see table below).

Guiding Principles	Leave no one behind, by ending poverty in all its forms and dimensions, including the eradication of extreme poverty	Ensure sustainable and inclusive urban economies and opportunities for all	Ensure environmental sustainability
Actions	– Ensuring equal rights and opportunities, socioeconomic and cultural diversity, and integration in the urban space – Enhancing liveability, education, food security and nutrition, health and well-being, including by ending the epidemics of HIV/AIDS, tuberculosis and malaria – Promoting safety and eliminating discrimination and all forms of violence – Ensuring public participation providing safe and equal access for all – Providing equal access for all to physical and social infrastructure and basic services, as well as adequate and affordable housing	– Leveraging the agglomeration benefits of well-planned urbanization, including high productivity, competitiveness and innovation – Promoting full and productive employment and decent work for all – Ensuring the creation of decent jobs and equal access for all to economic and productive resources and opportunities – Preventing land speculation, promoting secure land tenure and managing urban shrinking, where appropriate	– Promoting clean energy and sustainable use of land and resources in urban development – Protecting ecosystems and biodiversity, including adopting healthy lifestyles in harmony with nature – Promoting sustainable consumption and production patterns – Building urban resilience – Reducing disaster risks and mitigating and adapting to climate change

Source: Adopted Draft of the New Urban Agenda

The **key components**[4] of the New Urban Agenda that provide strategic direction to enable successful transformation are:

- **Urban rules and regulations:** Ensure outcomes in terms of the quality of urban settlements based on the set of rules and regulations that are framed and made effective; strengthen urban legislation, providing predictability and direction to urban development plans to enable social and economic progression

- **Urban planning and design:** Strengthen urban and territorial planning to best utilize the spatial dimension of the urban form and deliver the advantages of good urban design

- **Municipal finance:** Establish effective financing frameworks, enabling strengthened municipal finance and local fiscal systems in order to create, sustain and share the value generated by sustainable urban development

3. Ensuring success: Recognizing the private sector's role and capabilities

To respond to the challenges of urbanization and implement the New Urban Agenda over the next 20 years, the role of the private sector in the delivery of urban infrastructure and services must be recognized. It is no longer merely the province of national, regional and local governments to deliver urban infrastructure and services. Working in isolation and with a business-as-usual approach is no longer viable. The private-sector contribution is increasingly required for all aspects of the urban value chain, including policy-making, planning, design, implementation, operation and maintenance, and monitoring, as well as for the financing of urban services delivery. According to a global survey on urban services conducted by the World Economic Forum Shaping the Future of Urban Development and Services Initiative, the private sector is better prepared than government agencies to drive urban transformation, and can contribute across the entire urban value chain (see Figure 1).

Figure 1: Participation across the Urban Value Chain
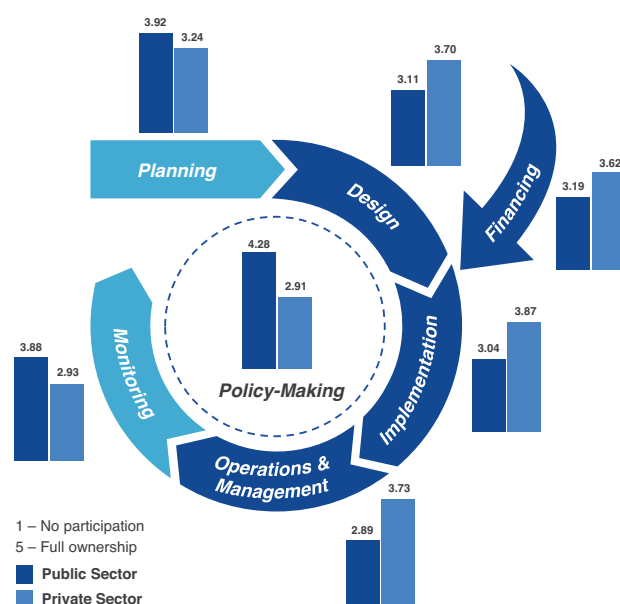
Source: World Economic Forum, Shaping the Future of Urban Development and Services Initiative, Global Survey on Urban Services (October-December 2015)

The involvement of the private sector has been pivotal for the success of many urban services delivery projects, not only in advanced but also in emerging economies. The public-private cooperation that enable the development and management of infrastructure and the provision of public services are the strategic way to meet the growing infrastructure needs of the urbanized world.

Private-sector cooperation offers multiple benefits in the implementation of transformation strategies by helping the public sector overcome municipal budget deficits, providing additional investment in the form of private-sector capital, maintaining a pipeline of much needed projects and accelerating economic development. The private sector brings innovative approaches in spatial planning and human-centred urban design, while ensuring greater efficiency,

better cost and time commitments and budgetary certainty in the implementation and management of long-term urban services delivery projects, leading to improved outcomes. To better guarantee sustainable urban development from public-private cooperation, it is essential to adopt a multistakeholder approach that also engages civil society, academia and communities at all stages of the urban value chain.

4. Setting the right ecosystem

Public-private cooperation is required to build sustainable urban transformation agendas. This involves dialogue and cooperation between multistakeholders, including business, government and civil society. The public and private sectors must create a structured process to engage relevant stakeholders, either through informal consultation or formal engagements, to drive cities towards social, environmental and economic sustainability, while enhancing urban equity, quality of life, social services, resiliency, trust, integrity, innovation, cohesion and inclusiveness. Another dimension that needs dedicated focus is addressing the challenges of affordability in housing and urban services. As per the *World Cities Report 2016*, housing accounts for 70% of land use in most cities and, by 2025, additional affordable housing will be required to accommodate 1.5 billion people. To meet this demand, public-private cooperation must address the cost of construction and retrofit by unlocking the land potential and leveraging technologies, leading approaches and emerging business models.

A. Public-sector action

– **Engaging the private sector early in the planning and design process**
Urban infrastructure and services delivery will be more effective and improve outcomes if they include the private-sector perspective during the planning and design stages. The private-sector experience and critical knowledge of the potential economic scenarios and risks involved will help the public sector to understand key concerns and elicit suggestions for improvement.

– **Adopting a life-cycle approach**
Adopting a life-cycle approach that takes into consideration the reinvestments, total costs and expected returns throughout the life of an asset, from acquisition to disposal, provides clearer visibility on the required capital investments and operational expenses. It also gives a better understanding of when and how to engage the private sector during the life cycle.

– **Building on the circular and sharing economy**
Resource constraints driven by rising global consumption and the underutilization of assets are threatening economic and environmental stability. The concepts of the circular and sharing economy offer new models for growth by decoupling consumption from resource constraints and optimizing the use of assets. While the circular economy focuses on the end life and the restorative value of an asset, the sharing economy focuses on doing more with less while using the idle value of the asset. The circular and sharing economy concepts complement

each other and carry the potential of spurring massive innovation, creating new marketplaces and redefining assets' use and disposal.

– **Articulating clear policies for public-private cooperation**

Clear polices need to be established that form synergetic connections between urbanization trends, the overall growth vision for the nation and the relevant stakeholders involved in making it happen. The biggest motivation for the private sector is the transparency and trust the public sector demonstrates in terms of strategic ambition, engagement rationale, transformation approach, key stakeholder responsibilities, implementation, management, monitoring, evaluation, and effective and fair dispute-resolution mechanisms.

– **Demonstrating a strong, stable and visible political commitment**

Urban infrastructure and service delivery projects can span several political administrations. Given the significant and long-term commitments involved, attracting private-sector interest requires a high degree of certainty that projects will go ahead and receive political support. Infrastructure contracts often have a long tenure and, given political cycles, investors want general stability in the legal and regulatory frameworks and in the way decisions are reached under the governance mechanism. While sector-specific regulations may change during the contract's tenure, investors need reassurance that these changes will be predictable and that flexibility will be built into the contract to address them. Infrastructure laws and regulations should be transparent and based on broad societal support to ensure predictable outcomes of regulatory decisions, even in unstable, long-term economic and political conditions.

– **Developing the appropriate legal and regulatory framework**

Legal impediments and uncertainties regarding the public-private partnerships (PPP) model affect both the public and the private sectors. The focus must be on establishing a legal framework and regulations that are characterized by simplicity, integrity, accountability and certainty, while providing guidance, predictability, security and enforcement during the implementation of transformation strategies. Moreover, developing a mechanism to involve relevant stakeholders across urban domains in the formulation of regulation will help to design practical legal and regulatory frameworks.

– **Empowering city leadership**

Given population growth trends and the expansion of city boundaries, it is best to decentralize urban development responsibilities and devolve resources to cities consistently applying the subsidiarity organizing principle. In doing so, the emphasis should be on disseminating responsibilities among various levels of government – national, regional and municipal – with clear roles and responsibilities. Giving city leadership more revenue-raising powers, financial responsibility, complete ownership of city administrative boundaries and spending flexibility with

clear accountability will further enhance the contributions of cities to the national economy.

– **Strengthening institutional frameworks**

The public sector must assess gaps and strengthen the institutional framework to meet the scale, scope and complexity of urban infrastructure and services delivery, while achieving anticipated outcome and quality levels and best value for money.

– **Building institutional capacity**

Urban infrastructure and services delivered through public-private cooperation, either through informal or formal engagement, are complex undertakings that require a wide range of skills at each phase of the urban services delivery life cycle: assessment, detailed preparation, procurement and implementation. Investments must be made in skilled teams, and innovative ways to develop capacities, such as establishing a centre of excellence to serve as a platform for knowledge-sharing, collaboration and research on topical issues, can help to deliver urban services that demonstrate clear value for the public budget and the public good.

– **Using transparent and flexible procurement frameworks**

Some public-sector organizations have very regimented procurement practices, requiring a one-size-fits-all approach. Although this method helps to keep contract administration simple, if the public sector stipulates that only one procurement methodology can be used, not only are opportunities for innovation missed but costs tend to be higher.

– **Establishing a reliable dispute-resolution mechanism**

Public-private cooperation can result in dispute due to long-term contractual relationships and varied interests. An effective arbitration and judicial system that can hear and resolve disputes on a timely basis is essential, while ensuring impartiality from government and having adequate resources and training. The system must be predictable, clear, well-reasoned and, most importantly, capable of being implemented and enforced. The World Economic Forum report, *Mitigation of Political & Regulatory Risk in Infrastructure Projects,* recommends settling disputes using a set of options that includes mediators, non-binding expert panels, binding expert panels, national regulators and international jurisdiction or arbitration.

B. Private-sector action

– **Adopting a proactive approach**

Cities bring people and markets together in a single dense space, leading to economies of scale and an increase in economic activity that benefit the public and private sectors equally. The private sector must come forth and complement the efforts of the public sector in developing innovative solutions that can enhance

the opportunity cities present, while simultaneously addressing its immediate and long-term priorities. It must establish dialogues with the public sector and support the development of urban infrastructure and the services pipeline with a compelling business case based on prior experience.

– **Approaching urban services delivery projects realistically**

While the public partner is establishing clear-cut goals and projects, the private partner must evaluate project attractiveness, opportunity and feasibility. The key points to be evaluated are the requirement and urgency of the project, project complexity, the revenue source throughout the project life cycle, and similar project implementation for reference and learning.

– **Engaging with local communities for long-term support**

Engaging with the community early in the planning phase increases mutual confidence between communities, business and local government and improves the urban services delivery design towards sustainable human-centric solutions. Transparent and truthful communication about the project's impact, interdependencies and payoffs, whether positive or negative, and its outcomes build community trust and buy-in and provide necessary endurance to the project.

– **Building public-private cooperation that withstands tough times**

Partnerships between governments and business that enjoy the support of civil society and the community endure when there is trust in each partner's commitment to the project and its objectives. Given the complex public-private cooperation process and structure, timely constructive dialogues must be facilitated to share points of view and build trust. Moreover, trustworthy cooperation can limit certain aspects of unforeseen volatile market dynamics on a project's finances.

– **Extending partnerships beyond the obvious**

A project can benefit from extending partnerships beyond conventional expertise and the obvious list of partners, for example conducting research and education in collaboration with academic institutions, funding non-governmental organizations (NGOs)/foundations, and leveraging social media to survey and test policies with local communities.

C. Integrated action

– **Building mutual trust and integrity**

Trust is the main determinant of how citizens and the private sector react to the mission and initiatives of the public sector. Building trust between the public and private sectors and demonstrating ethical behaviour are paramount for success. Unethical behaviour is not only unacceptable in a partnership, but it also presents a substantial risk to both the public and private sectors alike. Government entities must adhere to the highest

standards of ethics and transparency and avoid conflicts of interest. The private sector must establish internal procedures to guard against unethical practices and have policies and procedures in place to take legal action against any violations. When engaging with a third party, rules must be established to perform due diligence. The World Economic Forum report, *Building Foundations for Transparency*, suggests that the public and private sectors should take steps, together with the community, to ensure a transparent and trusted environment exists.

– **Embracing civil society**

Civil society adds significant value to public-private cooperation, whether as an official partner, through informal collaborations or through spillover effects. Civil society actors demonstrate their value as facilitators, educators, conveners and innovators as well as service providers and advocates. By involving civil society as an implementation partner, interventions are more likely to be effective while ensuring that outcomes are socially and environmentally responsible.

– **Leveraging technology**

Disruptive technologies present a significant opportunity to better shape urban development by building actionable intelligence on data originating within the city. The World Economic Forum report, *Shaping the Future of Construction: A Breakthrough in Mindset and Technology*, suggests that technology enables inclusion, collaboration and digital integration of the various city sectors to deliver seamless services to citizens, while giving the private sector opportunities to design and deliver services that enhance economies of scale, achieve sustainable outcomes and are based on innovative business models. Digital technologies may realize their full potential only if they are widely adopted across all aspects of the urban value chain as depicted in Figure 1 and are provided with a fertile environment that encourages prototyping and experimentation.

– **Promoting urban innovations**

The changes in urban dynamics, combined with rising citizen expectations, have intense implications on urban services delivery and structure. The World Economic Forum report, *Top Ten Urban Innovations*, recommends investing in developing innovative solutions that are scalable, replicable and people-centred, whether they involve simple solutions or high technology, with a broad range of transformational power to change the way cities and their inhabitants interact.

Urbanization and the Scaling Up Challenge

Urbanization: A global mega trend

Within the next minute, the global urban population will increase by 145 people. Urbanization is inevitable and is one of this century's most important megatrends. In 1800, about 2% of the world's population lived in cities. Now it's 50%. Every week, some 1.5 million people join the urban population, through an amalgamation of migration and childbirth.[5] China and India, two leading Asian countries, add 60,000 people every day to urbanization figures.[6] Globally, a vast majority live in urban regions, and this number is set to increase by 2050 with more than two-thirds of the world's population dwelling in cities.[7]

The global rise in cities has been unprecedented. But sharp regional variations exist: Africa's population is projected to

Figure 2: Urbanization and Population Trends
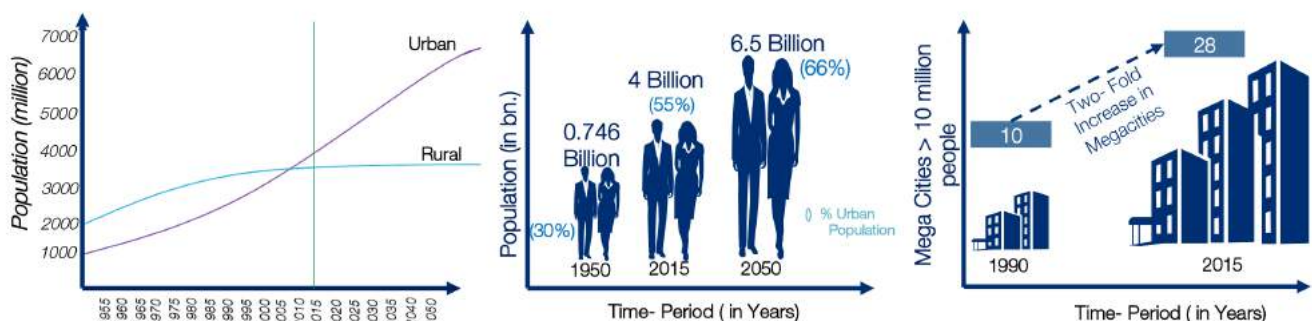
Source: Based on World Bank, UN DESA and UN-Habitat data

double by 2050, while Europe's is expected to shrink.[8] Population growth has been the prime contributor of this expansion, but the exponential surge is also due to rural–urban migration motivated by the prospect of a higher standard of living, greater employment opportunities, the opening up of industries, better healthcare and educational facilities, as well as increased overall well-being. According to the United Nations, 60% of urban growth is attributed to a natural population increase, while 40% is due to migration from rural to urban areas and international migration.

Urbanization is an essential part of growth and a key factor in socio-economic transformation and development. The countries that have urbanized most rapidly are those that have achieved higher economic growth. Cities are at the core of urbanization with a role to drive economic growth trajectories. At present cities account for 80% of total global GDP[9] and their contribution to national income is greater than to the national population, as depicted in Figures 3 and 4.

Figure 3: Share of National Population and GDP in Key Cities in Emerging Economies
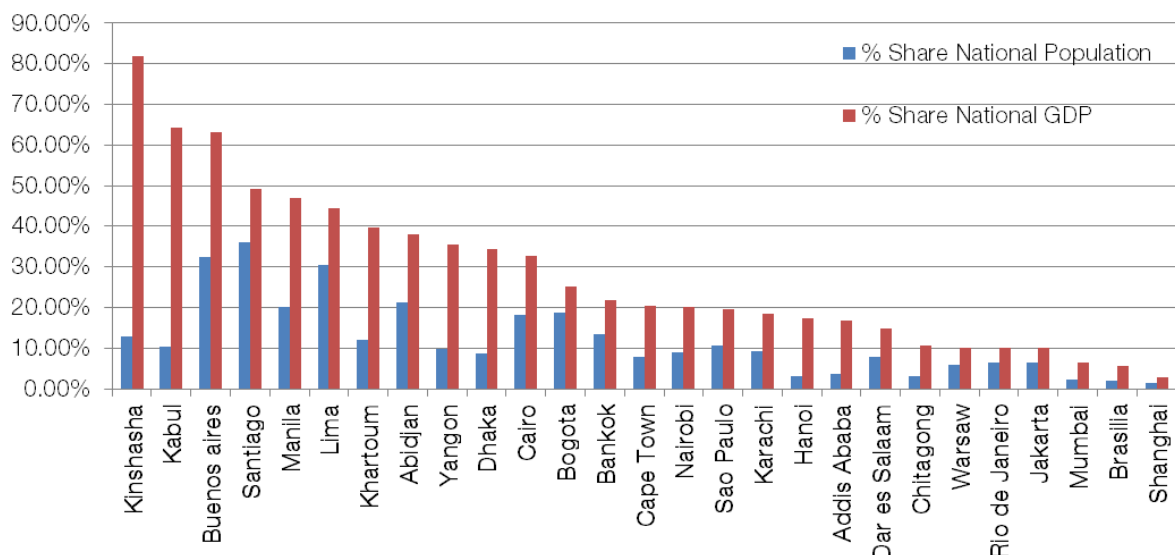
Source: Based on PwC and International Monetary Fund data and national statistics

Figure 4: Share of National Population and GDP in Key Cities in Advanced Economies
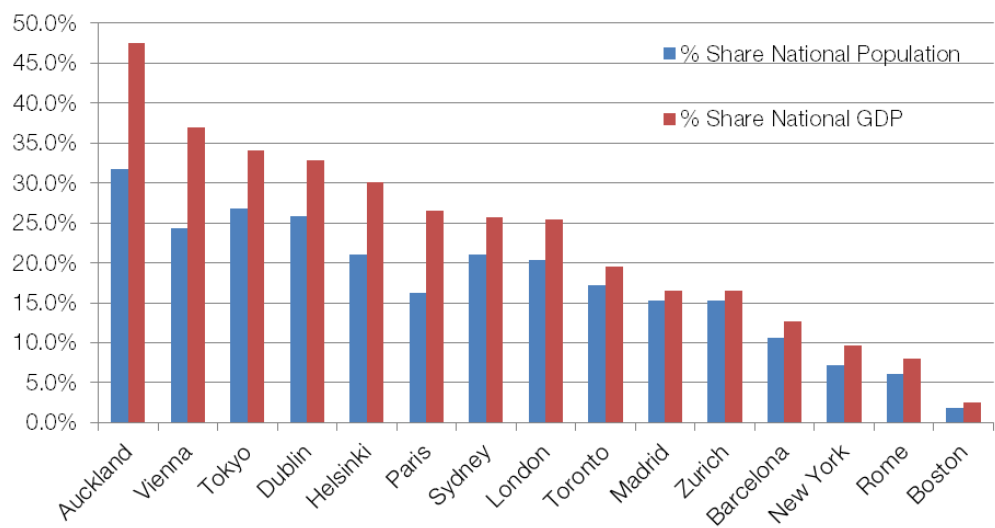
Source: Based on PwC and International Monetary Fund data and national statistics

Accelerated urbanization not only leads to economic growth opportunities, it also brings challenges that need critical examination and treatment. Key persistent and emerging urban challenges include insufficient infrastructure, inadequate urban services, rising informal settlements, poverty, urban insecurity, increasing inequality and climate change. In addition, cities face administrative challenges, such as the lack of governance and finance, which when converged with other challenges intensify the overall impact. Figure 5 depicts key urbanization impacts that stakeholders must take into account.
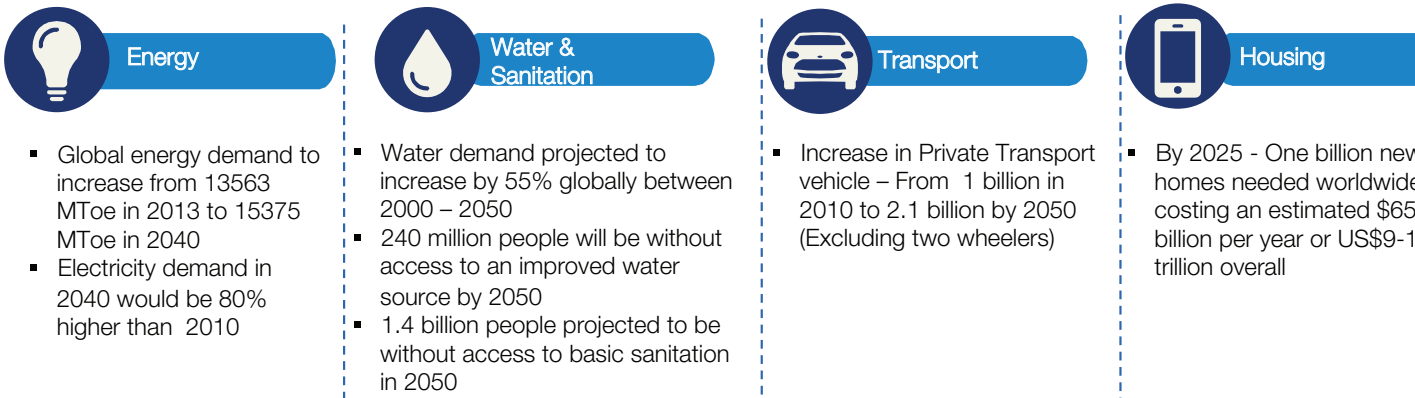
Figure 5: Urbanization Impacts

Growing Unemployment	Slum Persistence	Climate Change	Increasing Crime	Widening Inequalities
• 280 million jobs needed to close the global employment gap by 2019 caused by the financial crisis • In UK, Japan, Korea, Netherlands and US - 60 % of unemployment is concentrated in urban areas	• In emerging economies - 880 million residents lived in slums in 2014, compared to 791 million in 2000, and 689 million in 1990	• Cities generate 70 % of the human-induced GHG emissions • Between 1950 and 2005, the level of urbanization increased from 29 % to 49 %, while global carbon emissions from fossil-fuel burning increased by almost 500 % • 2015 was the hottest year in history • Average temperature for the year 2015 was 0.75°C warmer than the global average	• Number of deaths from terrorism has increased over 9 times from 3,329 in 2000 to 32,658 in 2014 • On average 65 % urban residents have been victims of crime in emerging economies with high urbanisation rate • Total number of deaths from terrorism increased by 80 % in 2014 as compared to 2013	• 75% world's cities have higher levels of income inequalities than two decades ago

Source: Based on World Bank, UN DESA and UN-Habitat data

As cities grow at a rapid and unprecedented rate, their infrastructure will likely not grow in tandem with development, making it difficult for city authorities to deliver an adequate standard of living and meet modern-day expectations. Figure 6 and 7 provides a glimpse of the urban infrastructure required in key sectors and the investment estimates happening across some of the regions.

Figure 6: Infrastructure Requirement to Meet the Projected Demand

Energy	Water & Sanitation	Transport	Housing
• Global energy demand to increase from 13563 MToe in 2013 to 15375 MToe in 2040 • Electricity demand in 2040 would be 80% higher than 2010	• Water demand projected to increase by 55% globally between 2000 – 2050 • 240 million people will be without access to an improved water source by 2050 • 1.4 billion people projected to be without access to basic sanitation in 2050	• Increase in Private Transport vehicle – From 1 billion in 2010 to 2.1 billion by 2050 (Excluding two wheelers)	• By 2025 - One billion new homes needed worldwide costing an estimated $65 billion per year or US$9-1 trillion overall

MToe = Million tonnes of oil equivalent
Source: Based on World Bank, UN DESA and UN-Habitat data

**Figure 7:** Investment Estimates for Urban Development

Europe	Latin and North America	Asia	Africa
▪ The total European Regional Development Fund for the 2014-2020 funding period has an overall budget of almost €200 billion to support economic growth, create additional jobs and reduce regional disparities ▪ Around 10 billion euros from the ERDF will be directly allocated to integrated strategies for sustainable urban development	▪ Latin America needs investment between US$200 and 250 billion annually into its water and wastewater, transport, electricity, and ICT infrastructure from 2010 to 2030. ▪ North American (US and Canadian) share of the infrastructure needs estimate is US$ 6.5 trillion through 2030	▪ Asia collectively needs to invest US$8.22 trillion from 2010 to 2020 into electricity, transport, telecommunication, and water and sanitation infrastructure; equivalent to 6.5% of annual GDP ▪ India to invest 15 billion USD on smart cities	▪ Sub-Saharan region needs to invest annually US$93 billion for electricity, water, irrigation, transport and ICT infrastructure

Source: Based on European Commission, World Bank, Latin American Development Bank, Asian Development Bank and United Nations Sustainable Development Solutions Network

Key accomplishments: How urbanization has been addressed

Urbanization dynamics have evolved over time and present cities with changing development needs. Nations have adopted global urban programmes and agendas as depicted in Figure 8 that provide targets and strategic plans to help cities achieve urban growth.

Figure 8: Global Frameworks Launched for Sustainable Urban Development
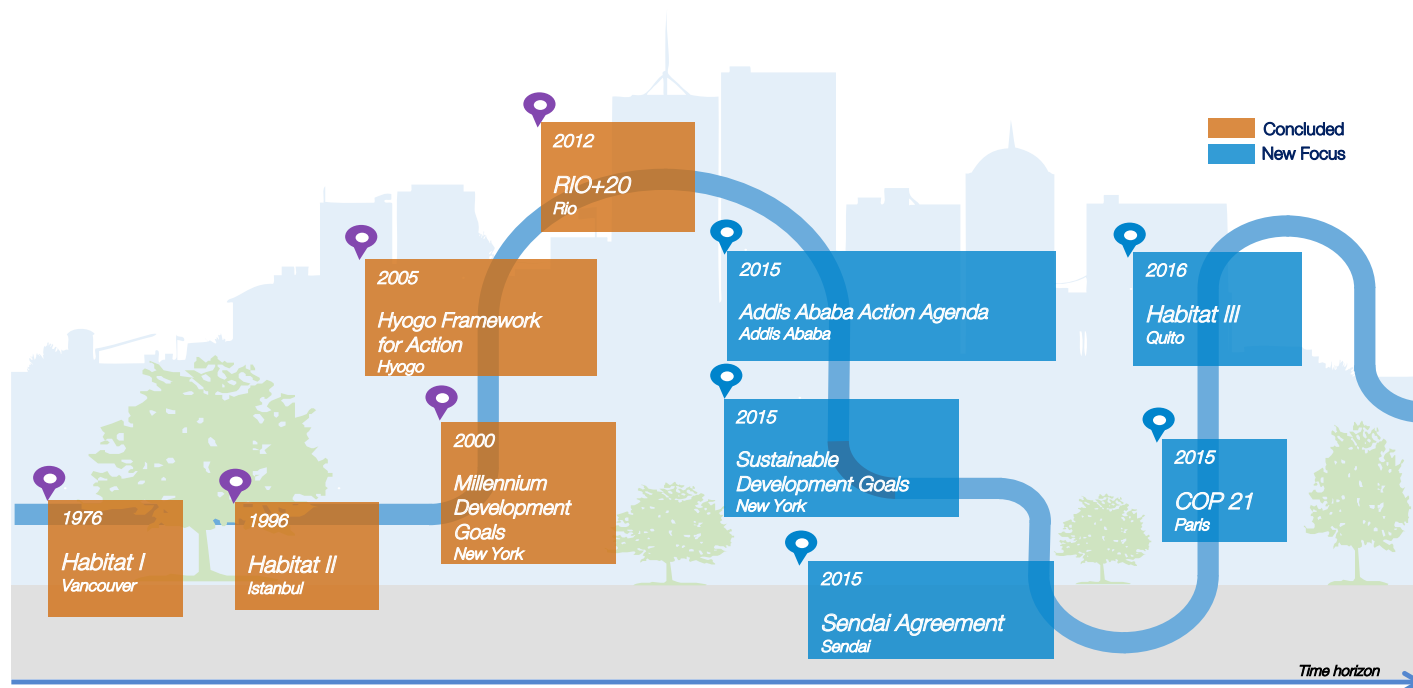
Source: World Economic Forum and PwC

These frameworks helped overcome the issues that at the time were the key priorities and mega trends requiring transformation. They helped cities move up the development ladder and keep pace with urbanization. Figure 9 depicts the key objectives and accomplishments of some of the concluded frameworks.

Figure 9: Global Framework Objectives and Accomplishments

Global Frameworks	Key Objectives	Key Accomplishments
Habitat Agendas	• Ensure adequate shelter for all & equitable access to basic urban services • Provide sustainable human settlements in an urbanizing world • Promote security of tenure throughout the developing world • Support for vulnerable groups, especially women and the poor • Promote decentralization and good urban governance	• Progress in the right to adequate housing - more than 100 countries have incorporated the concept • Reinforcement of local governments - Decentralization policies and government reforms have strengthened municipal autonomy • Poverty reduction and access to urban services - Poverty dropped from 43.1% in 1990 to 20.6% in 2010, Proportion of urban poor fell from 20.5% in 1990 to 11.6% in 2008
Millennium Development Goals	• Eradicate extreme poverty and hunger • Achieve universal primary education • Promote gender equality and empower women • Reduce child mortality • Improve maternal health • Combat HIV/AIDS, malaria and other diseases • Ensure environmental sustainability • Develop a global partnership for development	• Globally, number of people living in extreme poverty declined • Undernourished people in the emerging regions fallen by almost half • Primary school net enrolment rate, youth literacy rate increased • Employment for woman increased; gender disparity declined • Decline in global under-five mortality rate, Measles deaths, Maternal mortality ratio , HIV infections, malaria incidence rate fallen tuberculosis mortality rate • Globally, significant number of countries achieved drinking water target & sanitation target ; Increase in ODA
Hyogo Framework for Action	• Ensure disaster risk reduction as a national and a local priority • Improve identification, assessment and monitoring of risk information & early warning • Build culture of safety & resilience at all levels • Reduce the risk factors in key sectors • Strengthen disaster preparedness	• Significant shift in global disaster risk reduction thinking and planning • Increased disaster preparedness and response • Reduction in the number of deaths from weather-related hazards • Important catalyst for disaster risk reduction around the world
RIO+20	• Renewe political commitment to sustainable development • Shift to a green economy • Establish institutional conditions for sustainable development	• Established Sustainable Development Goals • Governments, private companies, and multilateral agencies committed themselves to voluntary pledges worth $513 billion ; Development banks agreed to invest $175 billion to sustainable public transportation • Private sector companies pledged $50 billion to provide energy

Source: World Economic Forum and PwC analysis based on United Nations global initiatives

While these frameworks helped cities make decent progress, it remained uneven across regions and countries, with advanced economies progressing the most. Moreover, holistic transformation was not fully achieved,[10] leading to inequality, unemployment and climate issues, and leaving marginalized and vulnerable sections of society behind. This may be attributed to the ever growing global population in emerging economies, changes in city administration and governance, along with reductions in municipal resources, expenditures and finance, which acted as barriers to the successful implementation of these agendas.

A key lesson from these global frameworks is the need to strengthen implementation on the ground, to monitor and to safeguard uniform adoptability across regions, while ensuring that the contributing stakeholders are unremittingly engaged from the planning stages to implementation.

New focus while leveraging previous accomplishments

The majority of the global programmes and agendas were broadly successful in moving towards more sustainable development; they have addressed urban challenges and brought necessary transformation, while galvanizing international support and focused resources.

Over time, new social, economic and environmental priorities have evolved, requiring a fresh perspective in order to sustain growth and achieve the desired transformation. Strategies, policies and approaches towards sustainable urban development need to be agreed upon and implemented, while using the successes and lessons of previous accomplishments to maximum advantage. Nations have initiated this transformation by adopting the Habitat III New Urban Agenda, the Sustainable Development Goals, the 21st annual Conference of the Parties (COP21), the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Addis Ababa Action Agenda 2015.

Habitat III: New Urban Agenda

In view of its sustainable development vision and past conference accomplishments, the United Nations General Assembly convened the third United Nations Conference on Housing and Sustainable Urban Development "Habitat III" in Quito, Ecuador, on 17-20 October 2016, and formally adopted the New Urban Agenda. The agenda provides a roadmap for sustainable urban development in cities and will guide the efforts of a wide range of actors, including nations, city and regional leaders, funders of international development, the private sector, the United Nations programmes and civil society for the next 20 years.

Overview of the New Urban Agenda

The New Urban Agenda is an action-oriented and forward-looking document that provides the global principles, policies and standards required to achieve sustainable urban development while recognizing distinct global trends, regional specificity, transformative potential, realities and contexts, cultures, and historical urban and human settlement landscapes.

The New Urban Agenda is universal and is being developed under a long-term and people-centred vision[11] to:

– Build an inclusive and non-discriminatory society in which all inhabitants, whether permanent or transitional, are granted equal rights and opportunities

– Ensure the impartial access of land, public goods and services, livelihoods and work, prioritizing the collectively defined public interest

– Encourage, protect and ensure the realization of the right to adequate housing

– Prioritize quality and accessibility to public spaces and cultural diversity, enhancing social interactions and political participation, promoting socio-cultural expressions, embracing diversity, and fostering safety and social cohesion, while meeting the needs of all people

– Develop resilience to natural and man-made hazards, protect and value their ecosystems, natural habitats and biodiversity, and reduce the global environmental and carbon footprint

– Promote inclusiveness and a sense of belonging and ownership among people, practise civic engagement and enhance participation in the formulation, implementation, monitoring and budgeting of urban policies and plans, strengthen effectiveness, transparency and accountability

– Empower women, especially through participation in decision-making, equal employment opportunities and equal pay

– Transform urban economies and create high productivity, identify opportunities for future growth and address the challenges, connect with and leverage the formal and informal sectors

– Promote the planning of and investment in sustainable urban mobility systems that link people and places and provide economic opportunities

– Achieve sustainable development through the cross-sectoral management of resources and cooperation among cities and towns within and across territories, and choose options to enhance the needed capacities continuously; realize territorial functions beyond the administrative boundaries, building urban–rural linkages

Figure 10: Core Elements and Key Issues of the New Urban Agenda

Core Elements	Key issues
Social Cohesion & Equity	1.Inclusive cities 2.Migration and refugees in urban areas 3.Safer Cities 4.Urban Culture & Heritage
Urban Frameworks	5.Urban Rules and Legislation 6.Urban Governance 7.Municipal Finance
Spatial Development	8.Urban and Spatial Planning and Design 9.Urban Land 10.Urban-rural linkages 11.Public Space
Urban Economy	12.Local Economic Development 13.Jobs and Livelihoods 14.Informal Sector
Urban Ecology & Environment	15.Urban Resilience 16.Urban Ecosystems and Resource Management 17.Cities and Climate Change; Disaster Risk Management
Urban Housing & Basic Services	18. Urban Infrastructure and Basic Services, including energy 19. Transport and Mobility 20. Housing 21. Smart Cities 22. Informal Settlements

Source: UN-Habitat, Issue Papers and Policy Units Matrix

Transformative commitments

The transformative commitments of the New Urban Agenda embody three main guiding principles:[12]

| Guiding Principles	Actions
Leave no one behind, by ending poverty in all its forms and dimensions, including the eradication of extreme poverty	– Ensuring equal rights and opportunities, socioeconomic and cultural diversity, and integration in the urban space – Enhancing liveability, education, food security and nutrition, health and well-being, including by ending the epidemics of HIV/AIDS, tuberculosis and malaria – Promoting safety and eliminating discrimination and all forms of violence – Ensuring public participation providing safe and equal access for all – Providing equal access for all to physical and social infrastructure and basic services, as well as adequate and affordable housing
Ensure sustainable and inclusive urban economies and opportunities for all	– Leveraging the agglomeration benefits of well-planned urbanization, including high productivity, competitiveness and innovation – Promoting full and productive employment and decent work for all – Ensuring the creation of decent jobs and equal access for all to economic and productive resources and opportunities – Preventing land speculation, promoting secure land tenure and managing urban shrinking, where appropriate
Ensure environmental sustainability	– Promoting clean energy and sustainable use of land and resources in urban development – Protecting ecosystems and biodiversity, including adopting healthy lifestyles in harmony with nature – Promoting sustainable consumption and production patterns – Building urban resilience – Reducing disaster risks and mitigating and adapting to climate change

Source: Adopted Draft of the New Urban Agenda

Implementation plan

The New Urban Agenda calls for an effective implementation plan to transform urban policies, legal frameworks, strategies and actions at the regional, national, subnational and local levels. It changes the way that cities and human settlements are planned, built, governed and managed. It takes into account the contribution of sustainable urbanization to job creation and sustainable development. Figure 11 depicts the drivers critical for effective implementation and subsequent follow-up.

Figure 11: Operational Factors to Ensure Urbanization Success
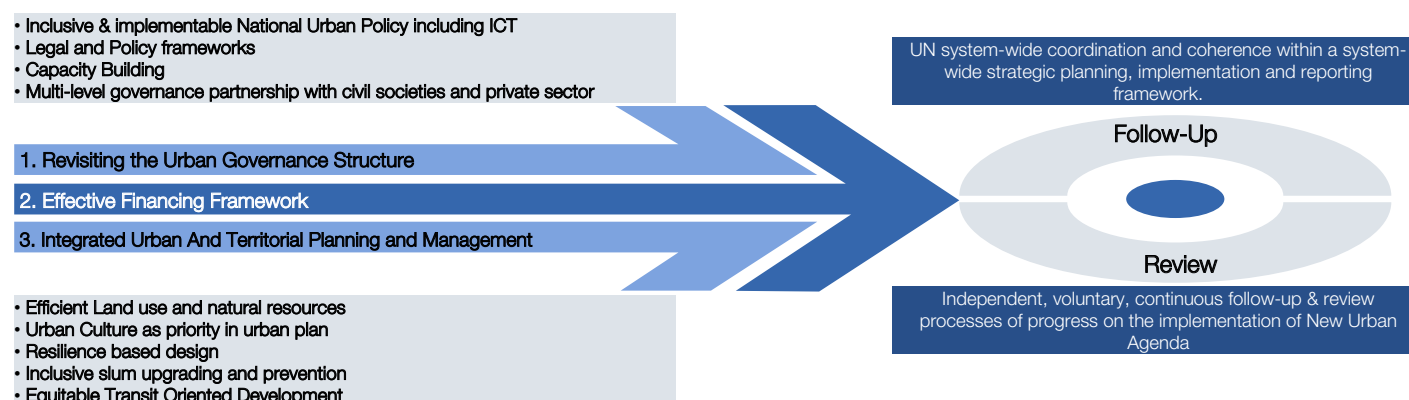
Source: Habitat III, Adopted Draft of the New Urban Agenda

Outcomes[13]

The desired outcomes of Habitat III in implementing the New Urban Agenda as well as the urban and human settlement component of the 2030 Agenda for Sustainable Development would include:

– Ensure adequate, stable and predictable financial resources, both from the regular and non-regular budget of the United Nations

– Improve the ability of the organization to help developing countries expand capacity in design, planning, and the implementation and sustainable management of urban and other human settlements

– Empower UN-Habitat in its efforts to mobilize and engage all actors on the sustainable urbanization agenda and urban governance, and implement mandates on urbanization and human settlements

– Strengthen international dialogue with local and subnational governments in their role as key players in the

implementation of the New Urban Agenda and the urban dimension of the Sustainable Development Goals

– Strengthen mobilization efforts through partnerships, advocacy and awareness activities

– Enhance the coordination of strategies among multilateral international and regional organizations, financial institutions and development partners engaged in urban development

– Incorporate and mainstream the recommendations of the New Urban Agenda in urban development strategies among international and regional financial institutions and development banks, especially when providing developing countries with financial support and loans for integrated urban development

Sustainable Development Goals

The Sustainable Development Goals apply to all nations and make it a priority for governments to tackle the challenges arising from demographic and social changes, shifts in global economic power, urbanization, climate change, resource scarcity, inequality and technological

breakthroughs. The Goals emphasize good growth that delivers social and environmental value, as well as optimal economic benefits.

The Sustainable Development Goals (SDGs), adopted at the UN General Assembly in September 2015, include a set of 17 goals to end poverty, fight inequality and injustice, and tackle climate change by 2030.[14] The agenda is transformative; it addresses both gaps in coverage of the Millennium Development Goals (MDGs) and the underlying problems. Initially seen as the successors to the MDGs, the ambition and scope of the SDGs are much broader. Whereas the MDGs focused on issues particularly affecting developing countries, such as the eradication of extreme poverty and hunger, and the reduction of child mortality, the SDG framework is equally applicable to the developed world. The framework includes goals addressing industry, innovation and infrastructure, responsible consumption and production, and climate action, as well as refreshed goals targeting poverty and hunger, and health and well-being. The SDGs apply to all countries and provide the priorities to deliver sustainable development.

Figure 12: Sustainable Development Goals

1 End Poverty
2 End Hunger
3 Promote Well-being
4 Education for All
5 Achieve Gender Equality
6 Clean Water and Sanitation
7 Affordable and Clean Energy
8 Decent Work for All
9 Infrastructure and Innovation
10 Reduce Inequality
11 Sustainable and Safe Cities
12 Sustainable Consumption
13 Combat Climate Change
14 Protect our Oceans
15 Protect our Ecosystems
16 Peaceful and Inclusive Societies
17 Partnerships to Reach the Goals
SUSTAINABLE DEVELOPMENT GOALS

Source: UN Sustainable Development Goals

The SDGs recognize the importance of urban development in providing a better quality of life to people across the globe. SDG 11 provides guidance to city authorities to renew cities and human settlements that promote community cohesion, employment, sense of security, well-

being for all and better environment management. It has close relevance to the New Urban Agenda and presents an opportunity to complement and integrate efforts to make cities and human settlements inclusive, safe, resilient and sustainable.

COP21

More than 400 mayors from across the globe adopted the Paris Agreement on climate change, readying their cities to play a central role in implementing this momentous accord. The Agreement is more substantial and ambitious than many expected, with the goal to keep global temperature increase well below 2°C and with further efforts to keep it below 1.5°C.[15] Action at the international and national levels will be mutually reinforcing as the deal establishes a process for review and continual improvement

COP21 outcomes and their significance[16]

The final COP21 document comprises a 20-page decision that includes a proposal to work out its details in the coming years as well as pre-2020 action.

1. **Resetting the goalpost**: The key objective is to reach an agreement that will limit increases in the global temperature to 2°C or less above pre-industrial levels, ensuring efforts towards emissions neutrality in the second half of the century.

2. **Solid foundation at the national level**: Nearly 190 governments submitted their climate action plans (intended nationally determined contributions – INDCs), which were converted to nationally determined contributions (NDCs) upon signing the Paris Agreement. While these plans vary in terms of ambition and clarity, they will provide a solid foundation against which countries can ratchet up their commitment.

3. **Ratchet mechanism**: Even though the sum of government pledges will not keep the world within the 2°C limit, governments have agreed to a review mechanism – first in 2018 and then every five years – to assess efforts and ensure they become progressively

more ambitious over time and to align them with scientific assessments. The legally binding requirement for countries to produce and submit emission reduction contributions every five years will create regular opportunities to focus political attention on climate action.

4. **Mitigation commitments**: Through their NDCs, all countries will commit to mitigating climate change. Industrialized countries should take on absolute targets (Article 4.3) while developing countries will "move over time" towards "economy-wide reduction or limitation targets" (Article 4.4).

5. **Adaptation**: The Agreement mandates all countries to engage in adaptation planning processes. It also contains a global goal that aims to enhance "adaptive capacity, strengthening resilience and reducing vulnerability to climate change".

6. **Policy implications**: Reinstating market mechanisms is a key instrument. Carbon pricing will likely remain decentralized (with room for future linking of different carbon pricing regimes).

7. **Environment and development**: The Paris Agreement has helped move beyond the zero-sum depiction of development versus environment, towards a narrative that better appreciates how climate stability underpins poverty eradication.

Implications for businesses

The Paris Agreement shifts the landscape of the real economy, creating greater opportunities and challenges for global businesses. The economic prospects for those that help deliver the transition to net zero greenhouse gas emissions will be greater, but the risks to those that refrain

from doing so will also be greater. The accord's outcomes have put businesses in a much stronger position to navigate this shifting landscape due to:

– **Greater policy certainty** about the way forward
– **More confidence** that governments will deliver regulation and action, and that their policies will further expand the market for low-carbon goods and services, due to the legally binding five yearly "ratchet mechanism"

– **Enhanced transparency and accountability** through the regular submission of national climate action plans and programmes, which will give businesses the needed visibility to anticipate national policies on climate and energy, and to identify potential investment opportunities

Figure 13: Implications for Major Economic Sectors

Energy	Automotive	Finance	Mining and metals	Land-based sectors	Aviation
▪ Renewable energy: *Investment to grow* ▪ Renewed attention to energy efficiency ▪ Fossil fuel and carbon capture and storage	▪ Beyond competitiveness considerations ▪ Fuel efficiency enhancements ▪ Technological choice: Electric & Hydrogen powerded vehicles ▪ Common methodology for reporting GHG and exploring demand	▪ New financial products ▪ Disclosure and stress tests: Carbon risk reporting ▪ Green Finance- Opportunities to incorporate climate considerations into the financial risk assessments and to scale green finance	▪ Shift in production portfolio ▪ New business reality ▪ Emissions reduction ▪ Adaptation	▪ Focus on land use and deforestation ▪ Supply chain commitments merging with zero deforestation policy	▪ Alternative fuels

Source: World Economic Forum and PwC analysis based on United Nations global initiatives

Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework is a 15-year, voluntary, non-binding agreement adopted by UN Member States in March 2015 in Sendai, Japan. The Framework succeeds the Hyogo Framework for Action (HFA) 2005-2015, to ensure continuity with the work accomplished by states and other stakeholders under the HFA. The Sendai Framework introduces a shift in focus from disaster management to disaster risk management. While the HFA was largely effective as a catalyst for public-sector action, the Sandia Framework emphasizes the importance of involving all stakeholders, including the local government and private sector. It aims to achieve a substantial reduction in disaster risk and losses of lives, livelihoods and health, and in the loss of economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

The seven global targets formulated to evaluate the progress of Sendai Framework outcomes are to:[17]

– Achieve a significant reduction in global disaster mortality by 2030, reducing the average global mortality rate per 100,000 between 2020 and 2030, compared to the 2005-2015 period
– Achieve a significant reduction in the number of people affected globally by 2030, reducing the average global figure per 100,000 between 2020 and 2030, compared to the 2005-2015 period
– Achieve a reduction in direct disaster economic loss in relation to global gross domestic product by 2030
– Achieve a considerable reduction in damage to critical infrastructure caused by disasters and in the disruption of basic services, including in health and educational facilities, by developing their resilience by 2030

– Attain a considerable increase in the number of countries with national and local disaster risk reduction strategies by 2020
– Strengthen international cooperation to developing countries through adequate and sustainable support to complement their national actions to implement this Framework by 2030
– Significantly increase the availability of and access to multi-hazard early-warning systems and disaster risk information and assessments to the people by 2030

Figure 14: Four Priorities for Action under Sendai Framework

Priority 1 -
Understanding disaster risk

Disaster risk management should be basis the understanding of disaster risk in all its scopes of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response.

Priority 2 -
Strengthening disaster risk governance to manage disaster risk

Global, national and regional level Disaster risk governance is critical for prevention, mitigation, preparedness, response, recovery, and rehabilitation. It fosters collaboration and partnership.

Priority 3 -
Investing in disaster risk reduction for resilience

To increase the economic, social, health and cultural resilience of persons, communities, countries, their assets and the environment, it is essential to receive Public and private investment in disaster risk prevention and reduction.

Priority 4 -
Enhancing disaster preparedness for effective response and to "Build Back Better"

Strengthen disaster preparedness for response and ensure capabilities are established for effective response and recovery at all levels. The recovery, rehabilitation and reconstruction phase is a critical opportunity to build back better, including through integrating disaster risk reduction into development measures.

Addis Ababa Action Agenda 2015[18]

The Addis Ababa Action Agenda (AAAA) provides a global framework for financing sustainable development and a comprehensive set of policy actions. It provides a strong foundation for countries to finance and adopt the sustainable development agenda and climate agreement. It addresses all sources of finance and covers cooperation on a range of issues, including technology, science, innovation, trade and capacity building. As part of this agenda, governments commit to:

– A new social compact to provide social protection and essential public services for all
– A global infrastructure forum to bridge the infrastructure gap
– A package for least developed countries to support the poorest countries
– A technology facilitation mechanism to advance to sustainable development
– Enhanced international tax cooperation to assist in raising resources domestically
– The mainstreaming of women's empowerment into development financing

Core elements

– Domestic public resources: To achieve sustainable development, additional domestic resources along with international assistance are needed. As part of the AAAA, countries agree to enhance the effectiveness of tax systems to reduce illicit financial flows and increase spending efficiently.
– Domestic and international private business and finance: Emphasis must be placed on private businesses' role in sustainable development and their engagement. Strong regulatory and policy frameworks are necessary to encourage private investment aligned with public goals.
– International development cooperation: The target of spending at least 0.7% of gross national income on

official development assistance has been recommitted. Multilateral development banks have been asked to step up and be responsive to the sustainable development agenda.

– International trade as an engine for development: The World Trade Organization (WTO) was invited to contribute to sustainable development and promote trade and investment agreements. WTO members confirmed their willingness to protect public health and improve access to affordable essential medicines for developing countries.
– Debt sustainability: Assistance was extended to developing countries to achieve long-term debt sustainability by promoting coordinated policies aimed at fostering debt financing, debt relief, debt restructuring, sound debt management and legal services.
– Systemic issues: Strengthening the leadership role of the United Nations in promoting development is needed. The coherence and consistency of the international financial, monetary and trading systems in support of the development agenda is also needed.
– Science, technology, innovation and capacity building: The importance of public policies and increased investment in science, technology, innovation and country-driven capacity building for achieving sustainable development is also stressed.

Synergizing efforts

The future of urban development and services will be shaped by creating transformation agendas underpinned by the effective convergence of the targets and outcomes of the Habitat III New Urban Agenda, the Sustainable Development Goals, COP 21, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Addis Ababa Action Agenda 2015. Cities can benefit from multiple synergies and overlaps that exist between the global frameworks:

– The SDGs have most in common with the New Urban Agenda due to the inclusion of stand-alone urban Goal 11 and the consideration of urban issues in several other goals.

– Though cities only occupy 2% of the global land area, they account for 70% of greenhouse-gas emissions.[19] COP 21 provides guidance on reducing emissions and limiting the increase in the global temperature to 2°C or less above pre-industrial levels.[20]

– The Sendai Framework provides guidance on building resilient urban infrastructure and mainstreaming holistic and data-informed disaster risk reduction and management at all levels to reduce vulnerabilities and increase preparedness.

– The Addis Abba Action Agenda provides a comprehensive framework for financing the sustainable development agenda in a holistic manner that recognizes the connection between economic growth, social development and environmental protection.

Figure 15 provides a matrix for cities and local governments on the correlation that exists between the New Urban Agenda and other global frameworks, the key outcomes to be realized and the indicative targets that are to be achieved to evaluate the progress made.

Figure 15: New Urban Agenda Outcomes and Overlaps with Global Frameworks

New Urban Agenda Key Focus Areas	Outcome	Targets (Indicative)
Inclusive cities	Develop inclusive platforms to allow meaningful participation in decision-making, planning and follow-up processes for all. Leverage civil engagement, multi-stakeholder approach for co-provision and co-production	Proportion of cities with a participation of civil society in urban planning and management ; Participation of local communities in improving water and sanitation management
Migration and refugees in urban areas	Developing policies and framework for integrating and respecting the human rights of refugees, migrants and internally displaced people	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies
Safer Cities	Encouraging a safe, healthy, inclusive and secure environment in cities and human settlements enabling all to live, work and participate in urban life without fear of violence and intimidation	Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the last 12 months
Urban Culture & Heritage	Safeguard and promote natural and cultural heritage sites, infrastructures, museums, traditional knowledge, art and languages	Total expenditure per capita spent on the preservation, protection and conservation of all cultural and natural heritage
Urban Rules and Legislation	Develop urban laws and legislations to meet local needs. Encourage appropriate regulatory frameworks in partnering with communities, civil society and the private sector to develop and manage basic services and infrastructure, ensuring that the public interest is preserved, while effectiveness of urban law is maintained	Number of countries with national and local disaster risk reduction strategies; Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex
Urban Governance	Establishing urban stakeholder with sound institutions and mechanisms, effective financing systems and procedures to enhance domestic public resource mobilization, promote strategic participatory urban planning with clear distribution of powers and responsibilities to manage sustainable urban development.	Proportion of resources allocated by the government directly to poverty reduction programmes; Proportion of the population satisfied with their last experience of public services
Municipal Finance	Develop innovative and sustainable financing instruments and reforms to strengthen municipal finance and local fiscal systems instruments for sustainable urban development	Proportion of domestic budget funded by domestic taxes; ; Foreign direct investments and official development assistance as a proportion of total domestic budget
Urban and Spatial Planning and Design	Improve the spatial dimension of the urban form and deliver the positive outcomes of urbanization	Proportion of population living in cities that implement urban and regional development plans integrating population projections; Ratio of land consumption rate to population growth rate
Urban Land	Promoting sustainable land use and security of land tenure specially for woman	Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure
Urban-rural linkages	Promote equitable regional development across the urban–rural continuum and fill social, economic and territorial gaps	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
Public Space	Promote safe, inclusive, accessible, green and quality public spaces to build inclusive and participatory societies that facilitate social interaction, human health and well-being, economic exchange, promote living together, cultural expression among a wide diversity of people and cultures	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
Local Economic Development	Utilizing local resources, competitive advantages, collaborations, encouraging business friendly environment for creating a resilient and sustainable city with decent jobs and stimulating economic activity	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
Jobs and Livelihoods	Promotion of full and productive employment, and decent work and livelihood opportunities in cities and human settlements	Unemployment rate, by sex, age and persons with disabilities
Urban Resilience	Facilitate a city system to withstand and recover quickly from multiple and varied natural or manmade shocks and stresses and socio-economic- political-cultural crisis.	Direct disaster economic loss in relation to global GDP, including disaster damage to infrastructure and disruption of services
Urban Ecosystems and Resource Mgmt	Focusing on sustainable use and management of resources, including land, water, energy, materials, forests and food integrated with environment sustainability to minimize waste, hazardous chemicals, climate pollutants, greenhouse gases while facilitating ecosystem conservation, regeneration and restoration.	Sustainable consumption and production (SCP) national action plans mainstreamed as a priority into national policies; Renewable energy share in the total final energy consumption
Climate Change & Disaster Risk Mgmt	Integrating urban governance, climate and risk-sensitive urban development planning, economy, systems and resources along with inclusive and participatory approach. Support goals of Paris Agreement of limiting the increase in the global average temperature to well below 2°C above pre-industrial levels	Annual mean levels of fine particulate matter in cities; Number of deaths, missing persons and persons affected by disaster per 100,000 people
Urban Infrastructure and Basic Services	Promoting equitable and affordable access without discrimination, of basic services - Energy, housing, infrastructure, water, food, healthcare, education, family welfare, sanitation, waste disposal and technology.	Proportion of population living in households with access to basic services; Proportion of total government spending on essential services; Coverage of essential health services
Transport and Mobility	Promote integrated transport systems, mass rapid-transit systems, eco-friendly transport modes, technology-based innovations to reduce congestion and pollution while improving efficiency, connectivity, accessibility, health and quality of life	Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
Housing	Promote the right to adequate housing and standard of living without discrimination. Supply safe, affordable, resilient and accessible housing for all section of society based on the principle of social inclusion, economic effectiveness and environmental protection	Proportion of urban population living in slums, informal settlements or inadequate housing
Smart Cities	Adopting a smart-city approach while leveraging digitalization, innovations, clean energy and technologies to boost sustainable economic growth, and enabling cities to improve urban service delivery	Proportion of population covered by a mobile network, by technology
Informal Settlements	Ensure slums and informal settlements are integrated into the social, economic, cultural and political dimensions of cities and increased allocations of financial and human resources are made for the upgrading and prevention of slums and informal settlements	Proportion of urban population living in slums, informal settlements or inadequate housing

- SDG Overlap
- COP 21 Overlap
- Sendai Overlap
- AAAA Overlap

Source: World Economic Forum and PwC analysis based on United Nations global initiatives

Fostering Collaboration: The Promise and Challenge of Public-Private Cooperation

Time to co-create

The accomplishments and lessons learned from the previous global programmes allow policy-makers to revisit the approaches they adopted to combat urbanization challenges. Figure 16 depicts the four stages of a city's development. Cities need to identify their current stage and the future transformational initiatives they plan to adopt to climb the development ladder at a rate that is commensurate with the pace of urbanization.

Traditionally, the provision of urban infrastructure and services to meet people's basic needs, local economic development and environmental protection has been the exclusive province of the public sector. Urbanization dynamics have evolved over time and call for a transition from the business-as-usual approach of being the sole bearer of transformation to a more collaborative approach enabling the private sector, civil society and academia

to participate and be a partner in bringing about the desired transformation. City authorities need to engage multistakeholders and enhance public-private cooperation to build sustainable urban transformation agendas. This involves dialogue, cooperation and a structured process to engage relevant stakeholders, either through informal consultation or formal agreements, to drive cities towards social, environmental and economic sustainability while enhancing urban equity, quality of life, social services, resiliency, trust, integrity, innovation, cohesion and inclusiveness.

To ensure that the New Urban Agenda produces the desired outcomes and brings about the necessary transformation, it is essential for the public sector to co-create by fostering comprehensive engagements with knowledge institutes, NGOs/civil society, citizens and especially the private sector, which together form a penta helix[21] (see Figure 17) that can bring about the necessary change.

Figure 16: City Development
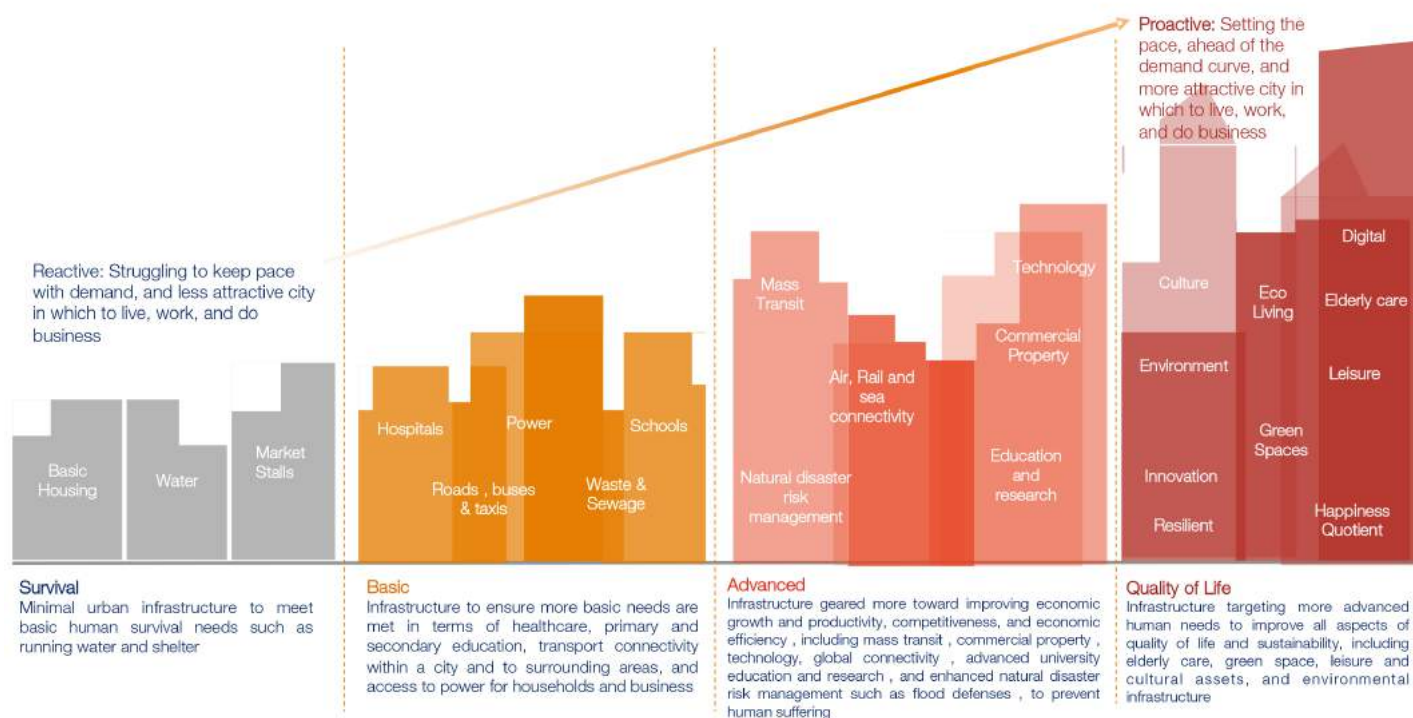
Source: PwC, Cities of Opportunities

Figure 17: Penta Helix of Urban Stakeholders
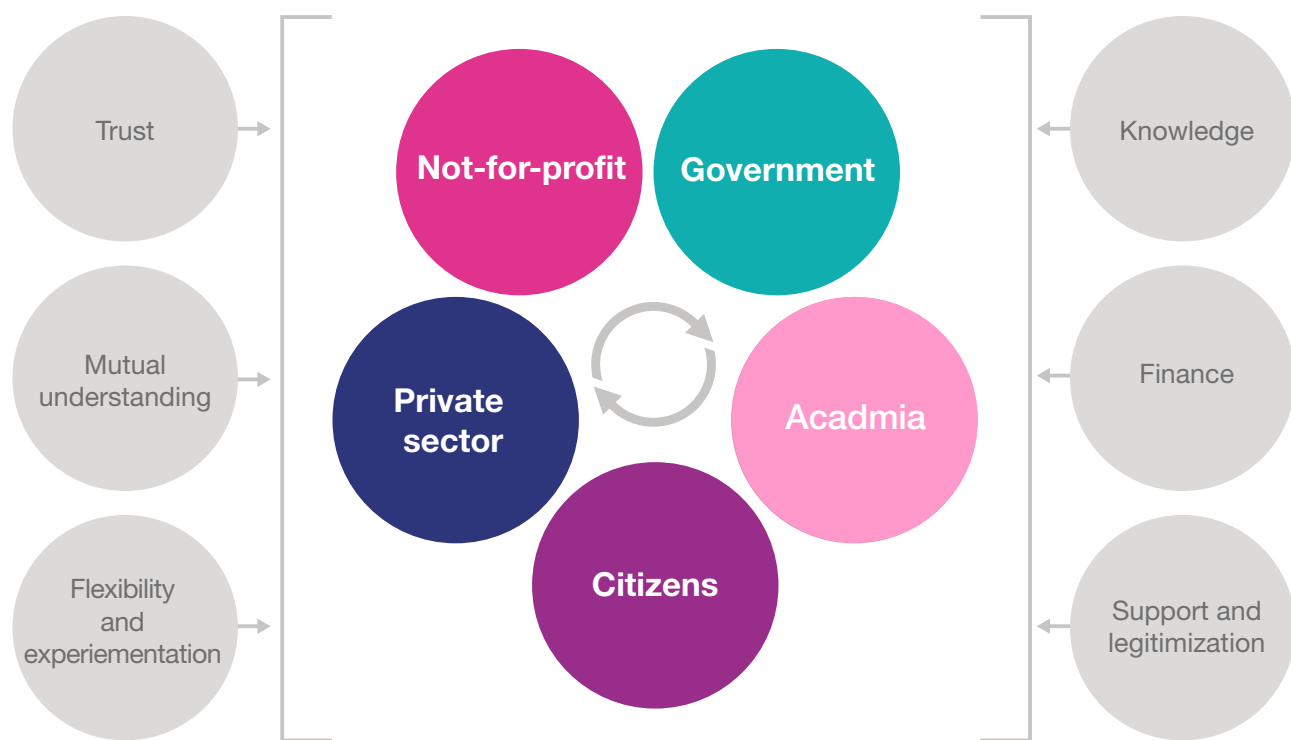
Source: Euricur, PwC, Institute for Housing and Urban Development Studies, iUrban: inspire, innovate, implement report

Figure 18: Value Addition by Stakeholders

NGO/ Civil Society	Civil society actors demonstrate their value as facilitators, educators, conveners and innovators as well as service providers and advocates. By involving civil society as an implementation partner, interventions are more likely to be effective, while ensuring that outcomes are socially and environmentally responsible. Civil society contributes as an official partner, through informal collaborations or through "spillover" effects.
Academic Institutions	Universities provide cities with talent that can develop the economic character of the city. The city of Pittsburgh has leveraged institutions such as Carnegie-Mellon University and University of Pittsburgh to transform the economic character of the city from 'Big Steel' to 'Eds and Meds' by focusing on innovation and the service based economy. The universities' contribution can go far beyond providing talent, their research and specialised expertise in urban domain can be leveraged to contribute to urban design and planning.
Citizen	Citizen engagement is crucial to fully understand the problem and find solutions that meet the needs of all the sections of the community. It is imperative that citizen engagement is not just symbolic, but rather are equal participants in the development process. Cities are increasingly leveraging technology in the planning process by allowing citizens to raise their voice while budgeting and considering new urban development, with some cities even contemplating crowd funding models to support new projects.
Private Sector	Private sector introduce innovation, talent and provide capital to the urban development process, while playing a leading role in design, implementation, operations and maintenance, and sustainability of the urban development and services initiatives

Source: World Economic Forum and PwC

The private-sector role in shaping New Urban Agenda outcomes

The World Economic Forum Shaping the Future of Urban Development and Services Initiative conducted a global survey[22] to identify the level of preparedness of the stakeholders of the penta-helix. The results highlighted that the private sector is better placed to support urban transformation agendas (Figures 19 and 20) and is required for all aspects of the urban value chain, which includes policy-making, planning, design, implementation, operation and maintenance, and monitoring, as well as the financing of urban development projects.

Figure 19: Participation across the Urban Value Chain
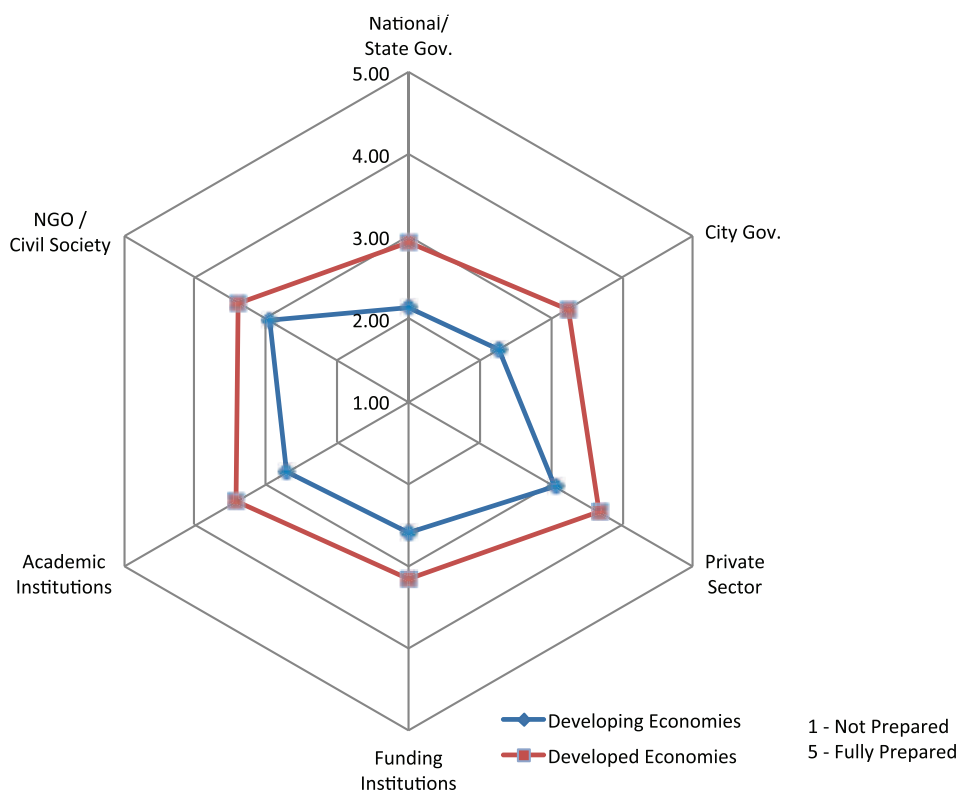
Source: World Economic Forum, Shaping the Future of Urban Development and Services Initiative, Global Survey on Urban Services (October-December 2015)

New global priorities set out by sustainable development and urbanization agendas necessitate collaboration with the private sector to meet urban sustainability goals. Public-private cooperation to develop and manage infrastructure and the provision of public services is indeed the strategic way to meet the growing infrastructure needs of an increasingly urbanized world.

The private sector offers compelling advantages over the public sector in terms of delivering better value for money, leveraging innovations, and bridging skill and financing gaps. The following subsection highlights its key potential and promise in supporting sustainable urban development.

Figure 20: Participation across the Urban Value Chain
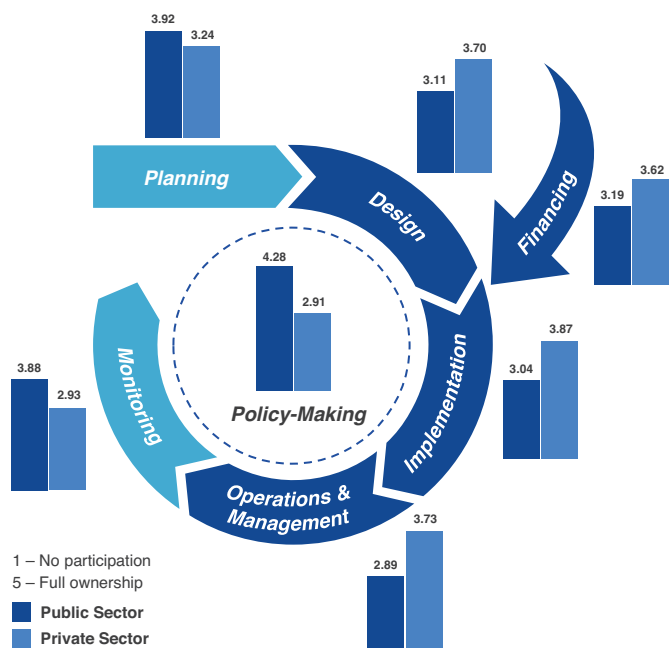
Source: World Economic Forum, Shaping the Future of Urban Development and Services Initiative, Global Survey on Urban Services (October-December 2015)

Access to private capital for expansion

The private sector brings additional investment and innovative projects to support urban development and services projects

In both advanced and emerging economies, central or state government bodies have funded most of the urban infrastructure, which is also centrally planned and maintained, yet city authorities either lack the financial capacity or the ability to deliver urban infrastructure and services throughout the life cycle of these projects. The other main source of urban development and infrastructure funding has been through direct government borrowing. However, the public debt of many governments has reached a point where long-term borrowing is no longer an option, while infrastructure needs continue to grow. In the last decade, the private sector contributed around US$ 120 billion[23] per year to urban infrastructure projects across the globe, making it evident that private participation is vital to meeting the needs of urban infrastructure funding; it enables access to a greater pool of additional funds through both equity and debt finance. It is now more common for private-sector funds to help cover the costs of delivery with long-term management contracts for maintenance and operation, securing the investment and providing confidence in sustained delivery to the public sector. The private sector has the capacity to propose innovative projects and to offer municipal finance solutions that generate revenues.

A recent example is Sidewalk Labs, an Alphabet-backed company that manages the largest pool of capital focused on urban innovation. The company launched free Wi-Fi kiosks in New York City's public areas,[24] to access certain municipal services. This Wi-Fi network project was delivered to taxpayers at no cost, and aims to generate more than $500 million in revenue to the city during the first 12 years. The idea behind the kiosks was to allow the city to deliver municipal services and generate anonymized, aggregate data that can be used to manage the city more effectively. The idea in this innovative urban technology project that uses old telephone booths is for revenues to be generated in large part from advertising.

The public sector has historically been the key funding authority of urban projects, but new private-sector-led models for funding innovative city transformation projects are evolving around the globe. The benefit of private-sector capital is not restricted to the simple availability of cash, but also extends to the benefits that the investment entails in terms of future success:

Investors impose strict due diligence requirements on the contract and its key components, such as cost estimates, revenue forecasts, reserves for maintenance and refurbishment, and contingencies for risks. While building investor confidence, this exercise also increases the public sector's confidence in the project.

With regard to risk forecasting and mitigation, investors receive regular updates to assess potential risks and issues and mitigate their effects.

Leading equity controls are exercised, such that, for instance, underperforming management will quickly be identified and replaced or supplemented.

New funding arrangements

Crowdfunding: Crowdfunding is a new and evolving form of funding facilitated by digital technology and platforms in which individuals can fund projects, service initiatives and urban causes on a peer-to-peer basis. A variety of types of crowdfunding sites are available today; Kickstarter, Indiegogo, Crowdrise and RocketHub are some of the larger platforms, although new players are emerging across the globe.[25] Each platform provides the opportunity to focus on a particular project or initiative and target market. Crowdfunding as a funding mechanism for urban projects is growing substantially. In 2011, a total of $1.1 million was raised on a handful of crowdfunding sites. By the end of 2012, this number had risen to $2.7 billion[26] across nearly 600 platforms through more than 1 million campaigns worldwide. Civic crowdfunding allows citizens to direct their money to local projects. It is currently used primarily to improve public parks, playgrounds and community centres, and to provide access to free public Wi-Fi, shared bike networks and rooftop gardens. Among examples in cities, Rotterdam built a crowdfunded wooden bridge in the Luchtsingel Complex, which connects areas within the city while allowing citizens to avoid the hectic traffic below. It also connects a series of individual public projects, including a rooftop vegetable garden and a new park. The bridge was crowdfunded by citizen donations gathered through the internet.[27] Another example: Bristol raised funds through the civic crowdfunding website, Spacehive, to build a giant temporary public waterslide in its city centre.[28]

Pooled finance: Urban infrastructure development has benefited from what are called pooled finance development fund schemes. These schemes, backed by corporate partners, provide credit enhancement facilities to city authorities based on their creditworthiness. As a result, cities access additional capital through a state-level pooled mechanism; as such, they obtain further resources to improve urban infrastructure, and ultimately attain the goal of self-sustainability. Initially, the concept was used by small or medium-sized municipalities whose authorities joined up to coordinate their borrowing activities to increase access to capital markets, reduce risk and lower transaction costs. With time, this arrangement matured, replaced by special purpose vehicles to increase funding volumes and diversity. Pooled finance funds can be assembled in multiple ways and exist in many countries.[29] In Europe, Local Government Funding Agencies are actively pursuing pooled finance mechanisms and growing their footprint, with French agency, Agence France Locale, and UK Municipal Bond Agency being the latest additions. In Japan, the state-owned Japan Finance Corporation for Municipal Enterprises was converted in 2008 into Japan Finance Organization for Municipalities to promote pooled finance. New Zealand and the Australian state of Victoria have also found value in pooled finance and have formed agencies in the last five years. The emerging economies have also used the concept; India and Mexico formed Tamil Nadu Urban Infrastructure Financial Services Limited and Bond Banks in Mexico, respectively.

Social impact bonds: Social impact bonds are an emerging funding mechanism in which private investors

fund initiatives to improve social outcomes. This model requires the investors to take on a certain amount of risk, while the executors of the initiative receive upfront funding for their capital projects, which enables additional urban services. As soon as these services generate revenues, the beneficiaries pay back the invested principal along with a decent return to investors. The beneficiaries can be indirect, such as city and local governments that have specific social objectives to meet, or direct, such as individuals or private businesses. A good example of this mechanism can be found in Israel,[30] where a social impact bond is being developed to raise capital to deliver interventions for type 2 diabetes. The objective is to reduce the development of this type of diabetes in high-risk prediabetics by offering a one-year, personalized intervention programme, which includes support from nutritionists and dieticians, free gym and fitness services, exercise and lifestyle counselling, and a personalized electronic device to monitor fitness levels. Under this model, private, institutional and philanthropic investors provide upfront capital to the non-profit organization Social Finance Israel, tasked with funding and supervising the respective intervention programmes. Outcomes are measured according to the number of patients with improved health at the end of the year-long intervention. They are evaluated on three criteria: the reduction of direct diabetes-related medical expenses, the reduction of direct diabetes-related disability and income allowances, and the increase in economic productivity from increased workforce participation. When targets are achieved, the government and insurance companies provide a return to investors.

Box 1 – Pooled bond for funding urban infrastructure projects, India

Following a series of amendments to the Constitution of India in 1992, local governments were given increased authority and responsibility for delivering urban services. As a result, state governments transferred certain resources and functions to urban local bodies (ULBs). The state government in Tamil Nadu founded the Tamil Nadu Urban Development Fund (TNUDF) in 1996 with the participation of Indian financial institutions and the World Bank, and with technical assistance from the United States Agency for International Development (USAID).

TNUDF was the first municipal development fund in the country. It was established as a trust under Indian law and has been supporting municipal financing by introducing creative funding instruments appropriate to the emerging Indian capital market. A private asset management company, Tamil Nadu Urban Infrastructure Financial Services, manages the financial operations of the trust. Through it, TNUDF has been able to attract domestic private financing for urban projects covering water supply and sanitation, roads, bridges, electricity and other needs, and in 2002 successfully completed its first pooled funding – the Water and Sanitation Pooled Fund (WSPF).The pooled fund's structure was tailored to the financing needs of several small and medium-sized ULBs.

It provided credit enhancements to extend a municipal bond's maturity, significantly improved bond pricing, and laid the foundation for the development of the municipal bond market in India. It provided access to the domestic capital market to 13 small and medium-sized ULBs in the state of Tamil Nadu to finance their water and sanitation infrastructure projects. It helped to diversify their credit risks and achieve the necessary economies of scale for a mix of financially strong and weak municipalities that could not individually have accessed the municipal bond market. By pooling the funding requirements, the normally high transaction costs of issuing a bond and accessing markets were shared by all the borrowers.

Most importantly, the WSPF transaction was also intended to help develop the municipal capital market by introducing an attractive long-term debt instrument, with longer maturities than were characteristic at the time. Until this transaction, the maximum tenor for municipal bonds in India was seven years, as they were perceived as very risky. The lack of appetite for longer maturities had become a major impediment to the expansion of the municipal bond market in the country. The offering also confirmed the demand for long-term municipal debt instruments to better match bond durations with the useful life of the urban assets.

The transaction demonstrates that funding the development of local infrastructure in financially strapped municipalities can be met by market-based mechanisms, and can be replicated in the urban and semi-urban areas of other developing countries that need investment in social and economic infrastructure.

This case study was developed from information available under the USAID Financial Institutions Reform and Expansion (FIRE) Program—Debt & Infrastructure (D) Program

Increases in the project pipeline and affordability

On occasion the public sector is unable to increase its direct levels of borrowing or lacks the capacity to borrow or have fixed annual authority budgets to undertake infrastructure projects. On these occasions, the private sector offers an alternative option; it covers the initial capital cost of

the project and will be repaid over time through a service charge from the public sector or by revenue generated from the project, or a combination of both. It makes the project affordable and gives the public sector an opportunity to procure a greater number of projects in aggregate, financed over a realistic long-term period. Governments around the world have started to embrace private investment in the infrastructure sector. The other most prioritized focus area is the housing sector, with governments looking for private-sector cooperation and solutions to develop affordable housing to minimize informality. Globally, 1 billion people, equivalent to 32% of the urban population, live in slums.[31] Low-income households needs housing in the city but, due to high real estate prices, has to compromise with slum areas or move to the city outskirts. Recognizing this situation, some governments have begun taking progressive measures to incentivize the private sector to provide affordable city housing. In San Francisco, Hope SF,[32] a partnership between the city and private developers, is redeveloping 2,500 distressed public housing units on five sites into mixed-income communities with more than 50,000 housing units. WinSun[33] in China has been building houses by using 3D-printed building components and achieving affordability by saving 60% of the construction material and reducing the construction time to 30% compared to traditional construction. In Hong Kong SAR, the government is proposing a trade-off to builders to provide affordable public housing as a condition for being allowed to build commercial properties.

Box 2 – Working within affordability constraints, N4/N6 Kinnegad-Kilcock Motorway, Ireland

The Kinnegad-Kilcock N4/N6 motorway project, from Dublin to the northwest of Ireland, included a 39 km stretch of road, involving 35 km of new construction. As a part of the €52 billion "2000-2006" National Development Plan, this was the first public-private road project signed and the third public-private partnership scheme to close in Ireland.

The EuroLink Consortium included Banco Bilbao Vizcaya Argentaria, Banco Santander Central Hispano and the European Investment Bank (EIB) as financiers, along with Cintra and SIAC Construction as infrastructure development partners. This consortium arranged a €235 million project financing package for the 30-year design-build-finance-operate real toll scheme. This included an EIB guarantee facility of €85 million after two years of operation. The contract was awarded in March 2003 and the three-and-a-half-year construction period began in May 2003.

Upfront capital costs on the project were estimated at €320 million, and total investment over the life of the concession is put at €400 million. Before procuring the project, the National Roads Authority (NRA) set a maximum €170 million subsidy limit (with €70 million relating to land purchase), which would supplement the toll payments during the project's construction and operational phases, thereby ensuring that the project was affordable to the NRA.

The final contract apportioned I toll risk to the concessionaires, so a great part of the affordability risk has been transferred to the private sector. Cost overruns, for instance, would have to be funded by lenders and repaid from tolls. There are no guarantees against competing toll-free routes and there is no compensation payable on termination. In spite of the relatively aggressive risk transfer to the private sector, the project has been competitively priced.

This case study was developed based on the report, Delivering the PPP promise, published by PwC

Saving upfront public-sector capital

In most cases, the payment mechanism is initiated when the project enters the service stage and urban services are being delivered. The level of payments either from user charges or service availability ideally have to be directly correlated with the quality and quantity of the services provided and will vary in relation to the performance being delivered. Due to financial implications, it becomes critical for the private sector partner to ensure that the urban project is delivered on time and the required service levels are provided at all times.

Box 3 – Urban transport project, Mexico

Service output based payment mechanism
Mexico City's Avenida Chapultepec project is an example of delivering urban transport infrastructure through innovative financing. The project gives a 40-year concession to a private trust that will be in charge of developing and operating the Chapultepec Cultural Corridor. In this model, a private investor will provide the necessary resources to build and maintain the project, and will receive income directly from the services offered in the Corridor, including an expected return on investment. Mexico City's government will also receive a small percentage of the yearly income. Chapultepec Avenue, in the heart of Mexico City, will evolve to become a three-level linear park, incorporating public and private transportation, pedestrian and retail areas.

Harnessing innovation

Recently, the public sector has started placing emphasis on outcome-based results and is more concerned with services and quality than with the means by which the results are delivered. This gives the private sector the opportunity to decide how best to deliver the outcomes and creates space for using innovative approaches and new technologies to maximize operational efficiencies while reducing project life-cycle costs. This has enabled the inclusion of a wider range of skills, technologies and approaches from the private sector worldwide. A few examples of the private sector supporting cities with innovative solution to improve urban services follow:

– To improve its health services, **Chicago** is providing the "Medical Express (MedEx) Ambulance Service", an ambulance and telemedicine service whose partner is among the first to use Google Glass to assist connected paramedics in the field. The service partner is equipping ambulances with Google Glass devices that allow connected paramedics to transmit live audio and video transmissions to hospitals. The paramedics stream the videos to the hospitals where they are headed, which helps doctors prepare appropriately for incoming patients.[34] Using software developed by Pristine, MedEx is working in certain hospitals with

plans to expand to additional facilities. The company spent two years developing the programme, complying with all regulations related to the security of healthcare information and patient privacy.

– **Yinchuan,** a city in China with a population of around 2 million inhabitants, has adopted an aggressive approach to transform the city into a "smart city". It has entered into strategic partnerships with leading technology providers to leverage innovative digital technologies to achieve more interactive and responsive city administration, advanced public security, intelligent traffic management, support for citizens' communal quests, housing affordability, and crowdsourcing and gamification opportunities. Among the many innovations, Yinchuan has recently deployed a facial recognition system for accepting payments on local city buses. The facial recognition software has replaced the fare box in buses; passengers' faces are linked to their bank accounts, making the ticket transaction faster, simple and cardless.[35]

– **Tacoma,** in the American state of Washington, improved its education results by using data analytics and cloud database built in cooperation with a private-sector player. Tacoma had a pass rate of 55% among its public high school students in 2010, which was below the country's average of 81%. The city's public schools invested in a PPP to create a large cloud database, gathering information on each student, including their grades, class attendance, health, performance averages across subjects and other data related to the student's life. Analytics were run and 72 data viewing combinations were made to identify behaviour and learning patterns to help students overcome difficulties. Teachers received training in predictive analytical tools based on electronic spreadsheets, enabling them to track data and intervene when students showed learning difficulties before the problems intensified and spun out of control. By the end of 2014, the pass rate in Tacoma public schools had risen dramatically, reaching 78%.[36]

– **San Diego's** smart LED street light project is a good example of how PPPs can drive innovation, do more with less and provide a return on investment to its stakeholders. In 2014, San Diego launched a project to use smart LED lamps in street lighting. The lamp posts formed a network that provided real-time information on energy consumption in each region of the city and street light control using photoelectric sensors, wireless transmitters and microprocessors. Another service this network could provide is receiving alerts in the event of hurricanes from sensors capable of reporting the wind intensity and controlling other environmental factors, such as the flow of people and vehicles. In addition to improving public lighting, the city aims to save on costs by negotiating a flexible rather than a fixed charge with the electric company, since it can more easily measure public lighting consumption on every street.[37]

Improved management and greater efficiency

Better cost and time commitments

The private sector generally has a better track record of on-time, on-budget asset delivery compared to the public sector's conventional project delivery. Public-private cooperation initiatives are set up to achieve this efficiency by ensuring that private investment is paid in line with the performance and delivery of urban services in accordance with the contractually agreed timescale and performance specifications. In 2009, the United Kingdom's National Audit Office studied 114 projects involving the private sector as the key partner and found that 69% were delivered on time and 65% remained within budget. Similar results were found in Australia in a study conducted by the University of Melbourne; 42 projects anchored by the public sector were compared with 25 projects executed in partnership. The study concluded that the projects implemented under public-private cooperation provided far greater cost and time certainty.

Box 4 – Comprehensive analysis leading to project time and cost savings, Sydney, Australia

Rapid population growth in the north-west of Sydney made a modern public transportation system essential for quick and reliable access to the city centre and services. A 10-year concession agreement was awarded to Leighton Contractors for the construction of rapid bus-only routes that ran 21 km and comprised 30 stations. The contract specified performance and maintenance standards and ensured that the roads has to be in good condition when transferred at the end of the contract period. To fulfil project requirements and manage the project efficiently, the contractor analysed the project based on historical data by monitoring the roadway's condition at one-metre intervals, identified and excluded all irrelevant external factors from the analysis, established a performance model and deterioration rates for the paving, and applied the Highway Development and Management (HDM4) system, a proactive decision-making tool for optimal whole life-cycle management. The HDM4 was a beneficial tool that helped estimate requirements for the road network, forecast pavement performance, identify road-user effects and produce a schedule of optimum roadway maintenance as well as plan overall funding needs.

As a result of the analysis, Leighton Contractors were in a position to predict pavement performance and conditions, and draw up a life-cycle plan that struck a balance between capital expenditure and operational costs, and optimized maintenance strategies. As a result, overall cost savings of 15% were achieved. The company also undertook scenario analysis to evaluate different levels of service and the associated cost implications. A whole-of-life solution emerged that provides a higher level of service (the road is now 99% available) while still complying with the contracted maintenance requirements.

This case study was taken from the World Economic Forum report, Steps to Operate and Maintain Infrastructure Efficiently and Effectively

Higher budgetary certainty

The public sector is able to estimate the cost it will incur over the long term with a high level of certainty in a public-private cooperation project. Such charges as the costs of construction, operation and maintenance are determined and contracted for up front. Upward variations due to unforeseen circumstances leading to cost overruns in most circumstances will be the obligation of the private partner. The public sector receives expected outputs for known costs.

Focus on outputs and benefits from the start

The public sector's greatest emphasis is on the services it wants delivered, not the means by which those services are delivered. The specifications of urban infrastructure and services project outputs are developed for lengthy periods, so it is critical that service levels are set correctly at the outset. Defining service levels in detail at inception minimizes or removes the need for "change orders", which contribute greatly to costs.

Quality of service throughout the project life cycle

Because of the outcome-based nature of the engagement, the quality of service is maintained at the desired level. The performance-based yardstick ensures consistency in the level and quality of services delivered over the long term. It is beneficial to both engagement parties in terms of social and financial obligations. The private sector's obligation is to maintain those standards throughout. That is not the case for a project executed solely by the public sector using traditional procurement mechanism, where asset condition and hence service delivery levels fall as the asset life increases. An example is the Alzira model used in the Spanish region of Valencia.[38] This is an innovative healthcare public-private cooperation model whose objective is controlling escalating healthcare costs to build and operate an integrated health zone. The public sector funds, regulates and monitors the health services inside the zone, while the private sector builds, owns and operates the facilities. The government pays an annual fee to the private provider. The private partner provides services in line with the government's cost objectives and its clinical quality performance criteria. The success of the Alzira model is based on the clear objective specified in advance, well-defined roles and responsibilities, the commensurate sharing of risk and reward, quality assurances and continuous performance management. It was initiated with the view that the private sector is better equipped to manage costs than the public sector, while enhancing the quality of services. The project has clearly defined key performance indicators ensuring financial and clinical success as well as risk and reward sharing mechanisms. The government transfers the cost risk while guaranteeing a certain volume of demand for the private partner throughout the concession.

Better risk preparedness

The private sector owns the life-cycle cost risk

With an effective public-private engagement in place, the public sector can look to achieve the best value over the life of the asset. The private sector is obliged to deliver well-defined and affordable services over the project term such that the focus is on designing and implementing projects with a view to their long-term cost, rather than investing in discounted upfront capital expenditure without taking into consideration subsequent maintenance costs. Initially the price may seem higher than a traditional procurement model since it does not reflect life-cycle cost risks.

Box 5 – Life-cycle cost risk and allocation for Spencer Street Station Redevelopment, Melbourne

Melbourne implemented the Spencer Street Station Redevelopment Project, valued at AU$ 700 million, under the state government's Partnerships Victoria policy. The project included a new transport interchange facility worth AU$ 350 million for interstate, regional and metropolitan rail and bus services, with the capacity to handle 30,000 travellers per hour during peak hours. The project also included a shopping plaza, a supermarket, offices, parking spaces and a hotel, making up the remaining AU$ 350 million.

In 2002, the Civic Nexus consortium was selected to design, finance, build, operate and maintain the interchange facility for 30 years. The consortium included ABN AMRO Australia, with a 100% equity stake, Daryl Jackson and Nicholas Grimshaw as design architects, Leighton Contractors for construction and Honeywell for maintenance. The funding included a 30-year inflation linked bond of AU$ 135 million, a 12-year nominal bullet bond of AU$ 158 million and equity of AU$ 81 million. A third bond tranche of AU$ 123 million was issued in 2003.

The project's attractions included its architectural design, a commercial redevelopment with a retail zone and a wavy, iconic roof design that dispels diesel fumes, hot air and exhaust gases. The project won several accolades, including the Royal Institute of British Architects award and the Lubetkin Prize in 2007. During the project's execution, great effort went into ensuring minimal impact on station operations; the work was planned around maintaining full train services throughout the redevelopment.

Certain construction risks were appropriately shared between the public and private sectors. Construction and operational risks, such as the effects of worksite agreements and escalating raw material costs (especially steel prices), were assumed by the private sector. Risks associated with pre-existing site contamination and the financial implications linked to changes in the interpretation of Land Tax Act 1958 were retained by the state. The key success factor was the cooperative approach that the government and private sector adopted throughout the life of the project. As a result, the problems that arose related to costs and schedule delays were resolved in a reasonable manner with minimal impact on the project and to the mutual satisfaction of both parties.

This case study was developed based on the report, Delivering the PPP promise, published by PwC

Risks allocated to the party best able to manage or absorb them

The basic premise of developing PPPs is to allocate risks to the party best able to manage them. Much of the risk inherent in urban infrastructure projects can be assigned to private-sector partners, including the risks associated with design, construction, the integration of various subcontractors, the sourcing of funds, and overall operations and maintenance. In one case involving Canada Line, the private consortium assumed the bulk of construction and operating risks, while the regional transportation authority bore property acquisition risk. During the operating period, the regional transportation authority assumed ridership revenue risk since it was controlling the transportation system, handling marketing activities, was responsible for setting fare levels and integrating train and bus schedules. By transferring risks to the parties best suited to manage them, costly complications are much less likely to occur. As the private sector has the necessary skills while the public sector often lacks in-house capabilities, the former is better suited to absorb the risks associated with project delivery. This gives the public sector the chance to focus on what it does best, such as defining and monitoring the service to be delivered. However, both the public sector authorities and the private sector operators should take care not to promote or accept inappropriate risk transfer to ensure value for money for taxpayers and end users.

Value for money

The private sector can offer higher value for money in delivering urban development projects and services over the life of the assets. Private-sector project management skills

have established track records in contrast to public-sector project management capabilities. When risks are allocated to the party best able to manage or absorb them, private-sector skills and expertise across a number of disciplines are best used to achieve wider economic and social benefits.

Understanding the strategic concerns of building and sustaining public-private cooperation

Counterweighing the potential of public-private cooperation are the various challenges faced by both the public and private sectors. While in some cases the challenges and costs will overshadow the perceived benefits, in other instances the benefits will outweigh the challenges.

Concerns of the public sector

Any public-sector authority considering involving the private sector in a project must be conscious of situations in which comprehensive due diligence is needed. Before commencing a public-private cooperation project, the public-sector authority must consider the following aspects:

Availability of private-sector partners with sufficient expertise to deliver the urban development and services project

The public sector needs to clearly understand the value contribution that the private sector brings to its urban development agenda and ascertain the following points to lay a strong foundation for public-private cooperation initiatives:

– Knowledge of the local challenges, global best practices and drivers, innovative urban solutions and experience of critical urban, and sustainable and people-centred transformations

– Ability to provide advanced efficiency and effectiveness in cross-industry project outcome delivery

– Proficiency in pricing life-cycle costs, project feasibilities and investment risk profiling

– Sufficiently numerous potential private-sector players for informal or formal engagement to share collective thought leadership while ensuring effective competition

– Knowledge of the private-sector tendency to choose its involvement in only profitable urban projects

– Assurance that the right motivation is provided to the private sector to participate and manage the demand, revenue risks and the lengthy decision-making processes

Capacity and skills to design and adopt the public-private cooperation approach

Any large urban development and services project relies on a large number of stakeholders from the public and private sectors, and also from civil society. To manage these groups and balance their interests, the public sector must possess the capacity, capability and skill levels for anchoring and monitoring successful public-private cooperation initiatives. The public sector needs to put strategic thinking in place to build collaboration approaches and teams dedicated to engaging the private sector and civil society throughout the process from planning, implementation, monitoring and evaluation, whether formally or informally, to shape better outcomes for the urban development initiative. The precedents on which new projects must be based and the legal framework within which public-private initiatives must be completed should be examined. The responsibility of the public sector remains since citizens will hold the public sector accountable for the quality of the services. The public sector needs to have sufficient expertise to diagnose the public-private cooperation arrangements, monitor the private sector's performance and apply mechanisms to effectively enforce its obligations.

The London Underground Jubilee line extension project is an example of a venture with delays and cost overruns caused by limited public-sector capability to manage large, multidisciplinary projects. During the formal engagement process, the public sector procuring authority must have, or be able to develop, the requisite capability to assess and deliver value for money, both at the initial stage (when considering how particular services should be procured and formulating project specifications) and during the bidding process, to ensure that bids will offer better value than the public procurement alternatives.

Transferability of the life-cycle cost risks

A key benefit of public-private cooperation initiatives is the transfer of the life-cycle cost risk to the party most competent to manage it. This means the private-sector pricing, for which they are at risk, is not just for the delivery of an asset, but for the cost of running and maintaining that asset and providing related services during the life of the PPP contract. The PPP competition is not about achieving the lowest cost of an asset at the outset but the lowest price of services over the long term. And to ensure that the public sector gets best value, it transfers that life-cycle cost risk to the private sector, which then is empowered to manage and maintain those assets to ensure services are delivered for the price for which they are at risk. But there are examples where the life-cycle cost risk is not transferred, for instance, where the assets being procured cannot be separated or are part of a far wider network, such as the upgrade of a portion of a rail line, and transferring life-cycle risks to the private-sector may not be feasible. As the assets in question are integrated into a wider network typically maintained by a public or private utility, the private-sector bidder cannot take life-cycle risks and the incumbent utility will carry out maintenance more cost effectively. Therefore, life-cycle risk transfer is difficult where assets cannot be separated from a wider asset base that is maintained by a third party. In these circumstances, the public-sector authority could consider whether the scope of the project could be widened to encompass not only the upgrade in question, but also to take over the operation of the existing assets, so that the network can be operated as an integrated whole. This approach is appropriate when the current operations and services are not being run as efficiently as possible and could benefit from private-sector management, alongside the upgrade itself.

Willingness to give up full control over the project execution

Under public-private cooperation, the management control of outputs is passed to the private sector. As long as the private sector is delivering the specified services, the public sector's ability to intervene in the project's management and the means by which the services are delivered is limited. Although change mechanisms are an integral part of PPP project agreements and the public sector may still intervene, all relevant parties must agree on any changes to the contract; these may involve a considerable increase in costs to the public sector. This transfer of responsibility is wholly deliberate. It is beneficial in that the operation of PPP projects is shielded from regular political or administrative interference that is a common cause of cost overruns and delays. Limiting the public sector's powers of intervention also has the benefit of improving cost efficiency overall. It is clear that changes to the project can be costly so the public sector is forced to consider the cost implications when deciding whether these changes are absolutely necessary. This does mean, however, that:

– The public sector has no day-to-day control over the management of public sector services

– The public sector's ability to manage or change a project to coordinate with wider public-sector services is limited

– Where the public sector has a degree of expertise, this expertise will not be used unless it is transferred to the contractor at the outset, which commonly occurs.

Concerns of the private sector

Lack of private-sector engagement at the initial stage

The business of running cities is changing. Conventional approaches that showed results in the past are no longer able to guarantee the required transformation. It is no longer merely the remit of national, regional and city governments to deliver urban infrastructure and urban services in cities. The private sector is prepared for the urbanization challenge with more progressive approaches and smart solutions, and it is able to shoulder public-sector responsibilities. However, the private sector's engagement during the urban policy formulation process is limited. This trend is prevalent at the city level, as it is rarely called to contribute during the early stages of project identification and preparation. This leads to ineffective capital project definition and scoping, with the absence of the private-sector view on such matters as the project's life-cycle cost, risks, expectations, demand forecasting, feasibility and fall back arrangements. The standpoint of the private sector specialist, contractors and investors are seldom taken into consideration, although they could have contributed to a better perspective on project scoping, packaging and structuring to ensure wider participation and competition, and to a better alignment between the outcomes required by the public sector and those that can be delivered by the private sector.

Lack of political stability, ownership and legal frameworks

Given the substantial and long-term commitments involved, it is challenging for the private sector to ensure steadiness without stable and consistent political support and mutual trust. This situation is further amplified in many countries if a robust legal framework or effective regulation is lacking that could mitigate the risk of unexpected changes in project objectives.

Unfair risk allocation without rewards and recognition

Optimal risk allocation and appropriate rewards are key motivations for the private sector to support public-sector development agendas. The implications of the risk allocation are distinct for the public and private sectors; building a social advantage and maximizing value for taxpayer money are an essential parameter for the former while ensuring the project is financially viable and has an attractive risk-return ratio is critical for the later. Risk related to incorrect demand forecasting that has severe consequences on the project is generally ascribed to the private sector, whereas it is extended little support or recognition. In Spain, motorway PPPs have gone bankrupt or have been renegotiated after traffic levels reached only half of the original forecast.

Flexibility in procurement

Many countries follow standard PPP guidelines rather than draft procurement documents based on the needs of particular projects. The overall goal of the procurement process is to find the best solution to the project's objectives and to select a competent private-sector player to implement that solution. Because of rapid urbanization, however, city operations are constantly changing and new challenges require innovative solutions and flexible approaches. Standard PPP guidelines lack the flexibility to attract the private sector to support the public sector with innovation while providing value for money for the taxpayers during the useful life of the asset.

Acceptance by citizens

Mistrust and misunderstanding often occur among citizens due to rises in the costs of urban services and the perception that the private sector is generating unwarranted profits from the provision of public services, leading to opposition and reduced societal acceptance. A strong sense of ownership needs to be created through effective consultation processes that collect the concerns of all the external project stakeholders. Citizens can have an impact on the acceptance of projects if they involve land acquisition and rehabilitation. In extreme circumstances, public opinion can result in the project's withdrawal or the outright rejection to pay the user charges, negatively impacting the infrastructure provider. In Bolivia, for example, the PPP for a water project was terminated after protests against a 35% increase in the water price.[39]

Enabling Environment: Setting the Right Ecosystem

To deliver the desired outcomes of a public-private cooperation initiative, a favourable environment is a prerequisite for the private sector to support the public-sector project. The private-sector's contribution has been pivotal to the success of many public-private joint initiatives in numerous sectors in both advanced and emerging economies. Although the stakes are high for the private sector, equal traction is required from the public sector. Both sides of the partnership must be ready to mitigate challenges and drive motivation.

Public-sector action

Engaging the private sector early in the planning and design process

Urban infrastructure and services delivery will be more effective and outcomes will be improved if the public sector includes the private-sector perspective early in the planning and design stages, and continues that engagement throughout. Private-sector actors offer significant technical expertise and critical knowledge of the potential economic scenarios and risks. The public sector should take steps to engage constructively with the private sector to avoid misunderstandings, discuss the impact of regulations and ensure good relations.

During the planning process, for example, the public sector should arrange formal and informal consultations with the private sector to discuss the social, environmental and economic impacts of their transformational agendas. These consultations will help fine-tune the design of the project, reduce inconvenience during the implementation phase, improve operational deliveries and shape better outcomes. In general, the public sector should ensure strong engagement and communications during the planning and design stages to be better placed during implementation to maintain the sustainability of the initiative.

Box 6 – Smart Dubai Office collaboration with the private sector to lay the foundations, UAE

With the aim of becoming the world's happiest city, Dubai set up Dubai Data Establishment (DDE) as part of the Smart Dubai Office (SDO) to drive the institutional and legislative framework to manage smart city data. The Dubai Data Initiative, led by DDE and decreed by the Dubai Data Law of 2015, is the single most comprehensive city-wide data initiative guiding the opening and sharing of city data across the public and private sectors. An iterative and inclusive process was adopted from its inception, whereby the private sector was engaged throughout the strategy and its implementation in order to define best practices for the opening and sharing of data. More specifically:

– The initiative itself was launched through Dubai's Open Data Committee (ODC), whose membership included executives from over a dozen Dubai government agencies working together to draft the city's Data Law, Strategy and Implementation Roadmap.

– During the Data Law policy and regulation drafting process, a Data Advisory Board of stakeholders and working groups from both the private and public sectors were established to provide input on various streams of the initiative (regulations, policies, technical standards, privacy and confidentiality).

– Focus groups from the public and private sectors provided input on data sharing, publication, data use, privacy, intellectual property and data confidentiality.

– Data users (organizations, small and medium-sized enterprises, individuals) participated in quantitative surveys to provide input on the governance of data, the level of confidentiality and privacy required, alignment with specific sectors' regulations, and rules of dissemination and exchange of data.

In addition, the SDO launched the Smart Dubai Platform, which will be the host and will be fuelled by the city's open and shared data. The Platform is a comprehensive city-wide initiative to share city data across the public and private sectors. It unites various layers of the city's information and communications technology architecture, including connected infrastructure, data orchestration, enabling services such as digital IDs and payments, personal dashboards and related city applications. A public-private cooperation approach was selected to provide quality services and cost-effective delivery, to promote collaboration, and to advance the interests of the city and its customers. The strategic partner for the platform was selected through a rigorous process:

– The SDO invited seven potential partners that worked collaboratively and innovatively to devise a proof of concept/vision for the platform, to define the specifications and the architecture of the platform, and to suggest the most suitable monetization model.

– The SDO formed a committee of stakeholders from across the city and conducted a rigorous, collaborative and iterative evaluation process to identify a strategic partner to develop and implement the platform.

– Eventually, du (a telecommunications operator in the UAE) was selected through an open and iterative evaluation process as the private-sector partner to contribute its expertise in smart cities, its continued investment in smart infrastructure and its long-standing support of entrepreneurship and innovation.

In the early stages of the partnership, the SDO and du recognized the distinctive benefits: reduced investment and risk to the government; commercial expertise from the private sector; accelerated delivery time; efficient governance; balanced public and private interests; increased reliability through brand association with the government; and enhanced quality of services and infrastructure, capitalizing on partners' deep and proven experience over the years. Leveraging its commercial expertise, du also provided a robust funding model for the Smart Dubai Platform, sharing the benefits, costs and risks. The Platform demonstrates that a smart city transformation would not be possible without the commitment of both the private and public sectors, working together early in the process to achieve the Smart Dubai vision.

This case study was developed based on discussions with the Smart Dubai Office

Adopting a life-cycle approach

With government's increasing reliance on the private sector to deliver urban infrastructure and services, it is critical for the government to consider the longer-term economic, social and environmental impacts of projects and their entire life-cycle costs. To maximize profits, the private sector sometimes focuses only on those projects that achieve a payback in the shortest possible time and neglects the higher cost that may occur later in the project. To remedy this situation, the government should invest in designs and systems with improved long-term life-cycle performance that consider the long-term costs, such as utilities, operations and maintenance, and project externalities. Adopting a life-cycle approach will take into consideration the reinvestments, total costs and expected returns throughout the life of the project's assets, from acquisition to disposal, and will provide clearer visibility regarding the required capital investments and operational expenses over time.

In addition to developing better urban public-private cooperation initiatives, governments must also try to maximize the combined net long-term economic, social and environmental impacts and benefits of their actions and investment decisions on society at large, even if some of the impacts and benefits are not priced by the market. Governments must take a long-term view and encourage

investments that promote growth, job creation, community cohesion, resiliency, equality and environmental protection for future generations. The city of Medellin provides a good example of the life-cycle approach. The local government reduced capital expenditure while creating substantial social benefits. Medellin transformed its image from a dangerous city to a laboratory of progressive architectural and urban interventions that provide its citizens with a sense of security and belonging.[40] Projects such as Espana Library Park and the city's elevated cable car, a mode of public transportation, are key symbols of a process that has led to the city's spatial, social, economic and cultural transformation – connecting the city's low-income residents and communities with its wealthier commercial centre. As a result, Medellin has changed in the past 10 years not just in its spatial dynamics but also in the mentality and perception of its inhabitants who now see culture as an important tool for development. This particular approach to urbanism has caught the attention of experts who have now come to see Medellin as an exemplary model in urban planning and governance.

Box 7 – Substantial savings in a social infrastructure project using the life-cycle approach, Mexico

Private-sector expertise in designing, building, operating and maintaining an asset to maximize quality and minimize total life-cycle costs is exemplified in the development of two hospitals in Toluca and Tlalnepantla, Mexico. Work began in 2010 under a public-private partnership to replace the outdated hospitals and improve medical services to patients and users. The emphasis was on delivering enhanced medical services and a modern healthcare system by leveraging the private sector's best practices, knowledge and funding. The contracts for the hospitals in Toluca and Tlalnepantla were awarded to Promedex consortium and Grupo Marhnos, respectively. Each private entity group invested $60 million in the respective hospital's design, construction, equipment, maintenance and management. The contract focused on buying services rather than assets and introduced a pay-for-performance funding structure in which the government stipulated outcome-based metrics and targets, and the contractor's payment was adjusted according to delivered outputs. This enabled the private entities to retain the entrepreneurial freedom to
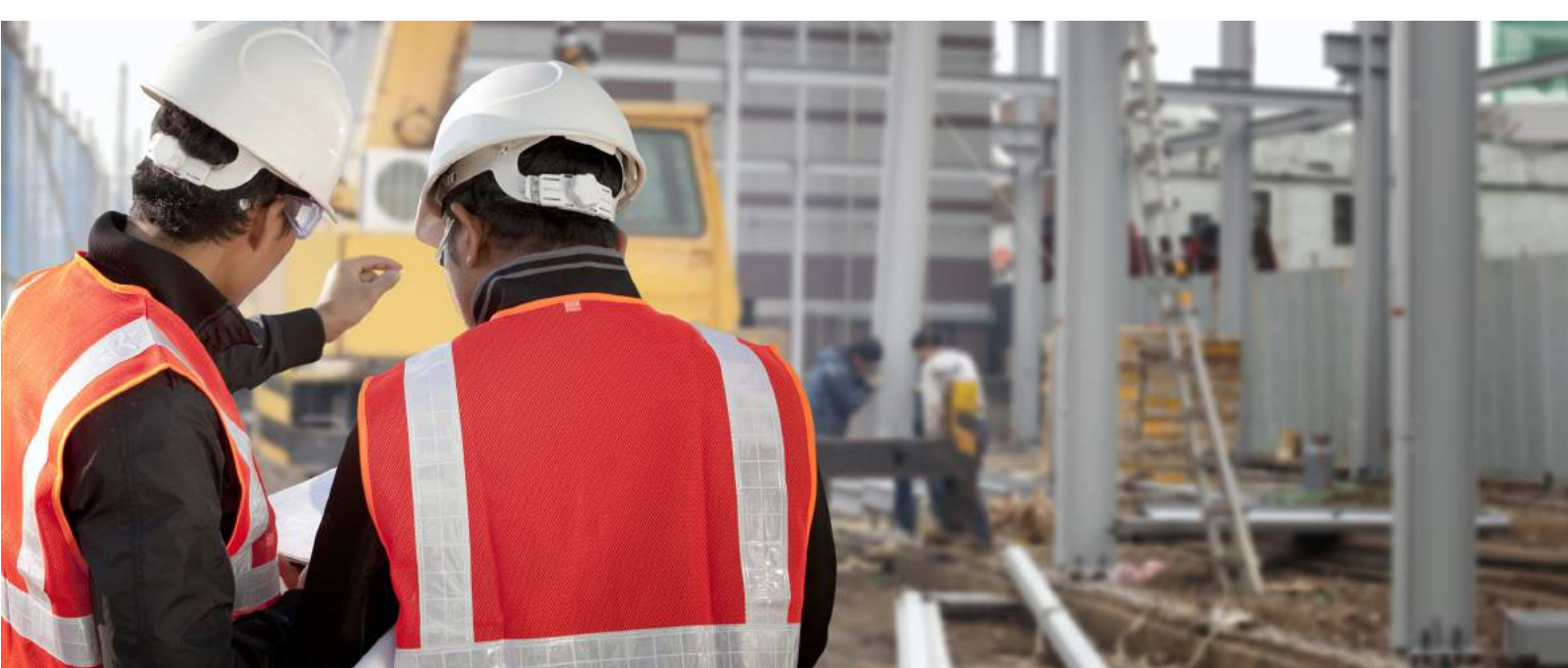
make innovative decisions incorporating whole life-cycle assessments. For example, in the design and engineering phase, the contractors opted for a mainly metallic rather than concrete structure, entailing lower maintenance costs over the hospital's lifespan. Overall, the partnership and project delivered multiple benefits. The new hospitals are serving a population of around 1 million with enhanced medical services. The following benefits were realized:

– Whole life-cycle savings of 30% were achieved relative to the projected costs of traditional public delivery.

– Environmentally sensitive infrastructure was built that used 20% less energy for its construction and operations, and that achieved leadership in energy and environmental design (LEED) certificate requirements.

– The adopted framework ensured that the hospitals remain in excellent physical condition during and after the contract period.

This case study was developed based on the 2014 Asia-Pacific Economic Cooperation report, Infrastructure Public-Private Partnership Case Studies of APEC Member Economies

Building on circular and sharing economy concepts

The concept of the circular economy has attracted much attention in recent years. It is conceived as a continuous positive development cycle that preserves and enhances natural capital, optimizes resource yields, reduces waste and minimizes system risks by managing finite stocks and renewable flows. The Ellen MacArthur Foundation characterized circular economy as a concept that is restorative and regenerative by design, and that aims to keep assets, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles. The foundation is promoting and working to accelerate the transition to a regenerative, circular economy and putting the concept on the agenda of decision-makers across government, business and academia. The foundation has established a precompetitive innovation programme called the "Circular Economy 100" to enable organizations to develop new opportunities and realize their circular economy ambitions faster. The programme that is conducted twice a year focuses on promoting cross-company and cross-sectoral

collaboration. It brings together governments and cities, corporates, academic institutions, emerging innovators and affiliates in a unique multistakeholder platform to enable learning, building capacity, networking and collaboration with key organizations around the circular economy.[41] The European Union has emphasized incorporating circular economy measures in its various environmental and economic policies. Resource-related policy goals have been adopted by the EU as part of the Europe 2020 strategy. EU Member States aim to meet a total of 63 legally binding and 68 non-binding targets across nine environmental policy areas, as identified in the report, Towards a green economy in Europe: EU environmental policy targets and objectives 2010-2050. The targets address energy, air pollution, transport emissions, waste management, sustainable consumption and production, resource efficiency, biodiversity and land use.[42] A city-led example of the circular economy is that of the Danish city, Aarhus. The city authority has transformed its waste water plant to also function as a heat and energy generation plant. The waste water plant, which is one of Aarhus' largest energy consumers, now produces 140% electricity and 2.5 GWh excess heat. The heat and electricity production combined equals energy production of 190-200%, which is 90% more than the facility consumes. The excess energy supplies the city's district heating system, leading to a reduction in its carbon footprint and the use of natural resources for energy generation.[43]

On the other hand, the sharing economy can help to unlock the idle capacity and leverage the untapped social, economic and environmental value of underutilized assets. The sharing economy can be manifest in almost every sector of society and corner of the globe. Sectors that have experienced robust traction and interest include transportation, accommodation, tourism, office space, financial services and retail products. The sharing economy provides a myriad of avenues for public innovation and benefits for the public sector as a whole. Examples include Landshare, Good Gym, Southwark Circle, city-sponsored bike sharing programmes and a variety of open government data initiatives. Cities are arguably the largest single beneficiary, as collaborative consumption and technology can help redefine public services, infrastructure and civic engagement.

Imagine a "shareable city". It could be a city in which car sharing is the norm, thereby reducing traffic and pollution while freeing up space and disposable income for every member of the community. Or a city in which office space is more widely accessible, matching mobile workers with appropriate space and enabling people with space to boost their revenues simply by sharing this underused asset. Or a city in which residents can teach each other valuable skills, help with projects to save money, use resources responsibly and connect with one another in the process. Cities that can take advantage of platforms available for collaborative consumption will tap into vast new opportunities to create jobs, attract talent, promote local investment and community-building, and offer a healthier place to live.

The sharing economy is complementary to the circular economy and both focus on efficient and sustainable resource use by individuals, companies and governments. The adoption of the circular and sharing economy concept is gradually becoming more relevant, especially in times of distressed municipal and private budgets and increasing resource scarcity. These concepts offer efficient asset use, stronger social and communal ties, new marketplace creation for products and services that previously did not have a market, and an expanded definition of work and entrepreneurship.

Local and national governments have unique roles to play to understand the opportunities available and promote models that use resources more efficiently, while ensuring an appropriate "enabling environment" is in place for new businesses to thrive.

Box 8 – Promoting the circular economy concept, Hamburg; Focusing on the "sharing city", Seoul

In 2013, the city of Hamburg, Germany collaborated with Arup, Strategic Science Consultants, Colt International and Splitterwerk Architects to execute the world's first bioreactive facade SolarLeaf house pilot project funded by "Zukunft Bau". The integrated bio-reactive facades generate renewable energy from algal biomass and solar thermal heat. This biomass and heat generated are transported to the building's energy management centre, where the biomass is harvested through flotation and the heat by a heat exchanger. The system is fully integrated with the building services and the surplus heat from the photo bioreactors is used to help supply hot water, to heat the building, or stored for later use. Carbon to feed the algae is taken from local combustion processes (such as a boiler in a nearby building), creating a short carbon cycle and preventing carbon emissions entering the atmosphere. As the microalgae grow within the bioreactors, they help provide shading for the building and contribute to lowering cooling needs and limiting the urban heat island effect. The heat that SolarLeaf provides equals the total heat demand of the 15 residential units.

This case study was provided by Arup

The Seoul Metropolitan Government announced a new city paradigm called "Sharing City Seoul". On 20 September 2012, the government disclosed its plan to promote the project, which includes 20 sharing programmes and policies for diffusing infrastructure to promote and enable sharing-based platforms. A city with more than 10 million inhabitants, Seoul is sharing efforts with the private sector and NGOs to embrace the sharing economy concept and make it an integral part of its economy. The government believes that focusing on models to promote sharing

provides a new alternative for reform that can resolve many economic, social and environmental issues of the city simultaneously by creating new business opportunities, recovering trust-based relationships and minimizing wastage of resources.

The city is not only enabling the sharing of businesses, but it is also putting its own underused assets into shared use. For example, it has established more than 900 city-owned spaces to residents for creative and productive purposes, from music ensembles to yoga practice; in less than one year, more than 23,000 groups used these spaces – unlocking tremendous social value in the process. Another example is the launch of a 492-vehicle car-sharing service, together with the opening of selected government parking lots and municipal buildings to the public during off-hours and idle times.

The government has identified several roles it will play in the development of infrastructure for sharing companies, supporting companies and non-profit organizations, spreading participation by citizens, and prioritizing certain programmes focused on transportation, welfare, culture and the environment. Following through on its declarations, the Seoul Metropolitan Government passed Act No. 5396 (Act for Promoting Sharing) on 31 December 2012.

This case study was taken from the World Economic Forum report, Towards the Circular Economy: Accelerating the scale-up across global supply chains

Articulating clear policies for public-private cooperation

The willingness of the private sector to support and finance major investment projects in any country will be heavily influenced by perceptions of the country's national, regional and local urban development policies coupled with public-private cooperation policies. Establishing a clear policy framework helps both the public and private sectors to understand the core rationale for aligning synergies towards sustainable urban development. Public-private initiatives are difficult to deliver in an unstable policy environment. Effective and concise policies explain and broadcast the objectives and roles each partner needs to adopt, and provide the details of the public-private programmes and the advantages and limits of the cooperation approach. When evaluating a country's market for extending cooperation, the private sector looks for the following:

– The public policy motivation for using the public-private cooperation model as the approach to meet urban development agendas

– Clarity on the scope of prospective projects, including the sectors, minimum project size, contract types and guidelines on how the public sector selects, prepares and engages the private sector in the consultation and execution of projects in a transparent manner

– Details on the guiding principles and procedures that will be followed during implementation, such as rigorous procedures for value-for-money assessment, procurement and public-interest, safeguards in regulation, risk allocations, operational aspects including labour rights,

health and safety, project monitoring and support

– Certainty about how the public authority will manage the partnership in the long term

– Information on stakeholder roles and an understanding of the approval mechanism throughout the process of project selection, preparation and procurement

– Dispute resolution frameworks and arbitration mechanisms

By way of example, South Africa's Public Finance Management Act regulates and sets out the responsibilities of the parties to ensure efficient and effective government financial management. Under this act, Treasury Regulation 16 specifies the required approvals and responsibilities. Detailed guidance, in the form of a PPP manual, has been developed to cover the range of processes involved.

Box 9 – Long-term urban development strategy, Metro Cebu, Philippines

Metro Cebu is the main urban centre of Cebu Province in the Philippines. It is facing rapid urbanization across its seven cities and six municipalities, with the population expected to grow to 5 million by 2050. To address this urbanization challenge, the city of Cebu and the Metro Cebu Development and Coordinating Board, along with the Japan International Cooperation Agency (JICA) and the city of Yokohama, worked together to develop a long-term sustainable urban development vision for the city, by engaging the private sector and civil society.

MEGA CEBU Vision 2050 sets out a strategy for city development, striking a balance between comprehensiveness and sectorial priorities. Part of the plan's success can be attributed to widespread stakeholder participation and consultation, supplemented by policy and technical inputs from the private sector and civil society. Prioritizing diversified views, a SWOT (strengths, weaknesses, opportunities, threats) analysis and comparative studies, analysing international good practice benchmarks, provided a robust framework for the MEGA CEBU Vision. The result of this approach was a city development plan that incorporates urban sustainability, including cultural, economic, social and environmental aspects. The MEGA CEBU Vision also sets out clear strategies and development targets. Currently, action plans and roadmaps are being drafted to support their implementation, assisted by JICA (through technical assistance).

The MEGA CEBU Vision set up a mechanism to share best practices among 13 local governments, helping those governments increase their expertise and leading them to take positive action on the ground for the realization of more sustainable and comprehensive urban development.

This case study was developed based on the International Development Finance Special Interest Group report on Sustainable Urban Development

Demonstrating a strong, stable and visible political commitment

Given the significant and long-term commitments involved, attracting private-sector interest requires a high degree of certainty that projects will go ahead and will receive political reinforcement. The lack of political will is often a key reason for project failure. Urban infrastructure projects are long term and can span several political administrations. Issues intensify when new governments oversee unpopular projects initiated by previous administrations. Many political leaders have short terms, ranging from three to five years, or a limited number of repeat terms, and their successors may have different priorities. To safeguard the project from fluctuating circumstances, it is important to establish a collective vision and create community buy-in for the project. Thus, the vision created must not only be attractive to the current administration, but must represent key community and stakeholder acceptance that will sustain it and carry it through to implementation.

Box 10 – Queen Victoria Market (QVM) Precinct Renewal, reasserting liveability in Melbourne

The Melbourne City Council holds office in Melbourne Town Hall. The Economist Intelligence Unit has ranked Melbourne as the "world's most liveable city" for the past six years. A key strategy to improve the liveability of the city has been to work collaboratively and effectively with the state and national governments, the community, the private sector and other stakeholders to deliver on the sustainable urban development agenda. The city demonstrated success in urban development and services projects by integrating political leadership and the private sector at an early stage of the process. Key projects implemented with private-sector cooperation include:

– The provision of affordable housing at Drill Hall in 2012, by leveraging land ownership and partnering with a housing association. This enabled Melbourne to take advantage of National Government funding for affordable housing.

– The reconfiguration of City Square to improve its performance and accessibility and use the value of residual land to finance, together with the state government, the reopening of the neglected historic Regent Theatre. At the same time as providing a more functional City Square, underground car parking was provided and resulted in an ongoing revenue stream and new six-star hotel in an area that needed revitalization.

– For the Queen Victoria project, the city purchased an entire block to protect it from a poorly conceived plan and placed a design framework over the site before returning it to the market and working with Grocon, a private developer, to deliver a mixed use complex that reflects the city's traditional built form qualities.

The current strategic priority of Melbourne is the transformation and renewal of the Queen Victoria Market (QVM), located within a few kilometres from the central business district. It has operated at its current site since 1878. It is located in a significant urban renewal area where it is predicted that the resident and worker population will double by 2030. The QVM Precinct Renewal Programme is being delivered by the city of Melbourne in partnership with the state government and the private sector; it consists of more than 40 individual projects that will contribute to the final outcome. The project carries a vision: to support and encourage sustainable market trading, to build a place to experience Melbourne's local character, liveability and identity, and to bring the people and communities together. The project has a benefit-to-cost ratio of 6:1 and is expected to accommodate increased usage, activities and customer visits by 70% and triple retail spending. Melbourne is working with the national government to secure the National Heritage Listing for QVM. Its ultimate goal is to secure UNESCO World Heritage status.

The starting point was an agreement between the city and state to realign Franklin Street in order to convert the existing road and parking areas into a 1.1 hectare development site to the south of the market. The income generated from the sale of this site will be reinvested

into the market renewal. The next step was for the city to purchase Munro properties, a 6,300 square-metre site on the eastern edge of the market. This site would accommodate a mixed use development that both protected the market from any adjacent supermarket or franchise retail while providing space for 720 cars as a replacement for the current two-hectare car park that will be converted into 1.5 hectares of new public open space in the form of a market square and the newly realigned Franklin Street.

The city of Melbourne will also work with partners, including the C40 Cities Climate Leadership Group, the Green Building Council of Australia and the Office of the Victorian Government Architect, to review development proposals and deliver a thriving and diverse marketplace and surrounding precinct that demonstrate world leadership in design and sustainability. The city has developed a master plan and implementation framework for the precinct, and over the next five years will work with 750 small traders to provide state-of-the-art storage and back-of-house facilities while preserving traditional trading patterns. This is a highly complex and political process where the traders fear for the loss of their businesses and a decline in trade over the renewal process.

The financing of this AUS$ 250 million project is dependent on a retail strategy that will increase the current five-day-a-week trading pattern, which delivers a 40% utilization rate, to an 80% utilization rate capable of servicing the residual debt, while keeping rentals for the traditional traders in line with current levels. Unlike many public-private cooperation projects, the city will fund the project using loans it can secure at competitive rates. When completed in 2021, the project will have generated, through construction and uplift to adjacent properties, an estimated AUS$ 600 million for the state's economy and provided 21,000 new jobs.

This case study was provided by the office of the Lord Mayor, Melbourne

Developing the appropriate legal and regulatory framework

The private sector needs predictability and security in legal structures, which means developing a legal framework that is characterized by simplicity, integrity and certainty. Legal impediments and uncertainties affect both the public and private sectors. In some cases, specific laws and regulations may also be required to transfer the delivery of certain public services to the private sector.

The private sector evaluates the existing capabilities, regulatory framework and legal institutions to safeguard its interests in case of conflicts and to drive reforms. Inadequacy in legal protection is a key factor that can affect market appetite to bid for or fund projects in a country. To garner private-sector confidence, the public sector needs to take significant steps to strengthen or clarify national laws to ensure an appropriate framework for public-private cooperation. Indeed, private-sector investors always examine the legal and regulatory environment and its ability to ensure the effectiveness of long-term public-private partnerships. Key guiding principles that may be applied include:

– The framework must provide safeguards against any changes in sector-specific regulations during the contract's tenure and must reassure the private-sector partner that any changes will be moderate.

– Infrastructure laws and regulations must be transparent to ensure predictable outcomes of regulatory decisions, even during unstable economic and political conditions.

– Investors' rights to dispose of their property and assets must be protected.

– The design of the legal and regulatory environment must be robust and stable, and promote specific public-private cooperation legislation or regulations that align with the country's general laws.

– The relevant laws should ideally not be numerous and should be consistent with existing laws and norms; they should allow project-specific contractual modifications pertaining to risk allocation, bid evaluation criteria, and so on.

– The legal framework must be developed on the basis of thorough consultation with the private sector in critical areas including concession, tax, competition, procurement and company laws.

– Appropriate legal and regulatory mechanisms must be developed and implemented to enable access-based and collaborative forms of business, consumption, production and exchange.

The government must stress-test new regulations by simulating various scenarios and allowing the private sector to participate in these simulations.

Some countries have taken significant steps to strengthen national law to provide a conducive framework for public-private cooperation.[44]

– **France:** New PPP law and laws facilitating security structures for PPPs:

– Law 2004-559 on Partnership Contracts sets out the legal and institutional framework for PPPs.

– Law 2008-735 amends Law 2004-559, and the codes for subnational governments, urbanism, general tax, monetary policy and finance, to improve the PPP framework. In addition, Parliament has passed sector-specific laws that allow PPPs in the justice and penitentiary systems (Law 2002-1094 and Law 2002-1138) and the public hospital system (Law 2003-850).

– **Germany:** The F-Model and A-Model structures for PPP projects in the German road sector were passed in July 2005, as was the PPP Acceleration Law.

– **Chile:** The current Concessions Law (Law 20410 of 2010) updated the previous legal instrument for concessions – Decree 900 (1996) – that had modified the original legal instrument for PPPs. The law sets out the institutional framework for PPPs, tender rules, concessionaires' rights and obligations, inspection and oversight requirements, and procedures for resolving conflicts.

- **Mauritius:** The PPP Act of 2004 (Gazette of Mauritius No. 113, Act No. 37) establishes the PPP Unit, defines the responsibilities of implementing agencies and defines the key elements of PPP-related agreements and analyses.

- **Mexico:** The PPP Law of 2012 (Ley de Asociaciones Publico Privadas) sets out the principles, scope, institutional framework, contracting mechanisms, required studies, approval procedures, PPP registry, fiscal management and other matters that make up the federal PPP policy in the country.

- **Peru:** Legislative Decree No. 1012 of 2008 establishes the principles, processes and role of the public sector in the evaluation, implementation and operation of public infrastructure and public service involving private-sector participation.

- **South Africa:** The Public Finance Management Act (No. 1) of 1999 is the enabling legislation for PPPs. In accordance with this Act, the National Treasury issued Treasury Regulation 16 (Gazette #25915, 2004) covering public-private partnerships, which establishes the rules for the nation's PPP programme.

Box 11 – A legal and regulatory framework to facilitate three-phase development, Zhuhai, China

Zhuhai, the second largest port in China, is located near Macau and Hong Kong SAR. The city has the longest coastline of the cities in the Pearl River Delta and, with over 200 large and small islands, is popularly known as "the city of a hundred islands". In 1980, it became one of China's four special economic zones (SEZs). The opening up of China's first four SEZs led Zhuhai to explore the socialist market mechanism. The city showcases a high degree of free market forces, international ties and rule of law. It is empowered by the National People's Congress to have legislative power over the SEZ and it was given local autonomy and wide-ranging authority to promote and approve foreign investment. It can also interpret and alter specific terms of existing laws and administrative regulations. Zhuhai has thus established its own laws and regulations, which are compatible with international practice.

In the first of its three phases of development, the city built its infrastructure to meet present and future requirements, and improved the domestic and international investment environment. The city then focused on light industry, mainly producing advanced technologies and electronics. The current development phase aims to improve environmental sustainability and help the city become a model of scientific development.During its development journey, Zhuhai prioritized the following aims:

- To develop into a modern regional urban centre and become a leading transportation hub to the west of the Pearl River

- To support high-end technological innovations that can drive its development and present profitable business models, and make the city a model of scientific development

- To promote transparent and efficient government services by establishing online service centres that connect communities, citizens, enterprises and NGOs and that get things done in the virtual space

- To internationalize the business environment, reforming its commercial registration system and enterprise investment management system

- To address low unemployment

Following this development plan, in 2013 an estimated 45,000 new jobs were created. The unemployment rate is low at under 2.28%. Zhuhai's plans for the future include the completion of the Hong Kong-Zhuhai-Macau Bridge in 2017. The bridge will open up expanded economic opportunities for the city. After its completion, the driving time from Zhuhai to Hong Kong SAR will be 30 minutes.

This case study was taken from The Competitiveness of Cities: A Report of the Global Agenda Council on Competitiveness, World Economic Forum

Empowering city leadership

Urban development has changed substantially over recent years. Ageing infrastructure and declining investment budgets have impacted the economies of many cities worldwide, pushing them to "do more with less". Yet new and complex societal challenges have emerged in many cities, including issues related to climate change, accelerated digitalization, ageing societies, migration, diversity and exclusion, and rising citizen expectations. To address these questions, city officials' method of leading their cities needs to change from linear policy implementation to a more systematic, proactive and collaborative approach that promotes investment and facilitates successful economic progress. Urban governments and administrations need to support the provision of services rather than providing them directly. They must also manage, steer and organize stakeholders and networks. This new urban leadership approach requires constant engagement and consultation with the private sector, academia, civil societies and citizens, in order to build trust among the partners, social capital and urban economic well-being. The city leadership must also be equipped with sufficient authority, decision-making power, and human and financial resources to lead a sustainable urban development agenda and planning process.

In the Philippines, frequent natural hazards cause casualties, deaths, damage to city infrastructure and economic losses. The leadership of the Philippines[45] has taken important steps to mitigate this challenge, contracting the Department of Science and Technology to develop the Nationwide Operational Assessment of Hazards (NOAH) project. NOAH provides six-hour warning to communities vulnerable to such disasters as floods, tsunamis, typhoons and earthquakes. The project uses water sensors, 3D mapping technology, a flood information network, landslide sensor systems, geohazard mapping and new warning systems for disaster prevention and mitigation.

Box 12 – Transformation in Singapore

Singapore has 5.5 million inhabitants who live on an area that measures approximately 700 km2. It differs from other global cities in that it is a city, state and island all in one. Its government combines national functions, such as defence and foreign, monetary, fiscal and trade policies, with municipal obligations. Its GDP is about $340 billion at purchasing power parity, and its GDP per capita of $62,400 at purchasing power parity is the seventh-highest (as an economy) in the world. Yet Singapore was poor just two generations ago. Its GDP per capita was only about $500 at independence in 1965.

Singapore's transformation is a textbook example of leadership and vision. Lee Kuan Yew, the first prime minister of Singapore, came to power when the city-state became independent in 1965 and developed a clear, long-term vision for its future. Lee built strong and stable institutions to achieve and sustain the transformation. His solid leadership also ensured political stability, very low levels of crime, and a harmonious, multi-ethnic society based on meritocracy, with emphasis on a common sense of national identity.

Singapore's leadership developed policies that were simple and predictable, with the right fundamentals. Stress was laid on core physical infrastructure and public transport. Improving the quality of life of inhabitants is now a top priority as Singapore becomes richer, and especially as it transforms into a global city. The government has invested heavily to promote the arts and culture, environmental sustainability, public spaces, and modern commercial and housing infrastructure.

Singapore outscores other global cities in three areas: technological readiness, transportation and infrastructure, and ease of doing business. Its projects in housing, traffic congestion, water treatment, intellectual property protection, mobile broadband speed, airport quality, health system performance, crime, Internet of Things and digital security, ease of starting a business, and operational and workforce management, all provide a reference model for other cities to emulate.

In 2014, Singapore launched its Smart Nation programme under the leadership of the current prime minister, Lee Hsien Loong. It is deploying a large numbers of sensors and cameras across the city-state that will allow the government to visualize, monitor and control aspects from the cleanliness of public spaces, to the density of crowds, and the precise movement of every locally registered vehicle.

Singapore ranks first in the World Bank's Doing Business Index, second in the World Economic Forum's Global Competitiveness Index, second in the Globalization Index (in terms of attractiveness for foreign trade and investment), fifth in the World Bank's Logistics Performance Index (in which it is first in Asia) and second in Fraser Institute's Economic Freedom of the World Index.

This case study was taken from The Competitiveness of Cities: A report of the Global Agenda Council on competitiveness, World Economic Forum

Strengthening institutional frameworks

To achieve desired project outcomes, optimum quality levels and best value for money, the public sector must conduct a clear assessment of the institutional requirements to deliver them that match the scale, scope and complexity of the mega urban development and services projects. It is critical to strengthen the institutional framework, articulating clear roles and distinct responsibilities. Actions include:

– Ensuring fast-track decision-making and planning processes by auditing the existing approach and homogenizing it with best-practices, while taking the local context into consideration

– Framing a clear governance structure specifying responsibilities and competencies to monitor the overall performance of public-private projects. A good example of how to review and shorten the approval process is Canada's "one project, one review" process, which ensures a single point of contact and a strict time frame for reviews.[46] The average approval time for large energy projects was reduced from four years to 22 months between 2007 and 2011

- Allocating separate authorities and forming interdepartmental coordination bodies for policy-making, reviews, approvals, contracting/monitoring and dispute resolution to prevent conflicts of interest; establishing dedicated units with experts skilled in implementing public-private cooperation projects and knowledgeable about their dynamics, along with subject matter experts, economists and financial experts, and procurement and contract management experts, etc.

- Synchronizing public-private cooperation governance and authorities across regions, while specifying the role and responsibilities of the various government provinces at the federal, provincial and local municipal levels. An example: in 2005, San Francisco formed a new committee to monitor the capital planning process tasked with prioritizing capital projects and forecasting maintenance costs at the department level and engaging citizens in the decision-making process

- Aligning with relevant sector regulators. One example is a Washington DC team formed to work with energy regulators to expedite the green building code certification of commercial properties along LEED requirements[47]

In addition to establishing the appropriate institutional arrangement to support public-private cooperation initiatives, the capacity gap that still exists in public-sector delivery of desired outcomes must be filled. Public-private cooperation initiatives are complex legal, technical and financial undertakings by their very nature. They require a wide range of skills, some of which may be new to both the public and private sectors. The smooth preparation, implementation and operation of urban development and services projects and programmes demand a broad set of legal, financial, technical and project management skills, among others. At each phase of the life cycle, considerable skilled manpower is needed – for planning, engineering, and legal, financial, economic or administrative work. The four steps in the project cycle – project assessment, detailed preparation, procurement and project implementation – require government agencies to have a spectrum of capabilities. Project assessment ensures value for money. Detailed preparation translates into a healthy range of competitive bids. Procurement ensures the best private-sector partner is anchored to the project by an enforceable contract, ancillary agreements and the required financing. Project implementation involves managing project delivery and effective contract administration.

The public sector needs to invest appropriately in resourced and skilled teams that can deliver projects with clear value for the public budget. It can also engage or partner with technical bodies that have expertise in anchoring and executing public-private cooperation initiatives. A good example of an entity with these capabilities is Victoria State's supervisory "Partnerships Victoria" body. The organization supports and manages public-private cooperation procedures and practices. Partnerships Victoria lies within the Commercial Division of the state's Department of Treasury and Finance.

Using transparent and flexible procurement frameworks

Cities need to identify and procure the best solution for their communities while reducing complexities, increasing transparency and demonstrating the economic, social and environmental benefits of that procurement. The procurement process must facilitate equal access and open competition and ensure that all stakeholders, including the citizens and end users, are well-informed of the approach to be taken and the decisions made at each step of the process. It is also important to engage the private sector, which will be the major provider of urban infrastructure and services, to share insights on challenges that limit its participation and commitment to supporting public-sector initiatives with their investments, expertise and innovations. Key guiding principles that must be followed include:

- Procurement strategy alignment with the national will

  Developing a procurement strategy and process that do not receive political support or fit with existing relevant policies, laws and regulations can be very costly and time-consuming. Emphasis must be placed on integrating the city's urban infrastructure and services demand with political support and urban development policies and regulations, while ensuring that the appropriate stakeholders are involved, including the private sector, academia, civil societies and the community.

- Transparency and anti-corruption standard implementation

  Bribery and corruption exist in all industries but in urban infrastructure and services-related procurement, collusions between government staff and bidders are particularly high. A study prepared for the European Commission that examined 192 public procurement projects in eight EU countries found a probability of corruption of 37-53% in urban or utility construction projects, 28-43% in water and waste, and 9-21% in the road and rail sector.48 To ensure integrity in public contracting and thereby promote efficiency and fairness towards bidders, governments need to rigorously implement comprehensive anti-corruption and transparency frameworks. The World Economic Forum report, Shaping the Future of Construction, suggests the following measures:

  - Identify and broadcast clear procedures on project scope, criteria for evaluation, project timeline and stages of the procurement process to all concerned parties

  - Ensure the evaluation team is independent and unbiased, showing impartiality in the bidding process

  - Enhance transparency by making all details of the procurement process and the results available to the public

  - Refer to international standards and best practices to implement laws and practices that prevent corruption

- Maintain integrity of procurement by conducting job rotation, screenings of pre-employment histories, anti-corruption training courses and knowledge exchange among personnel

- Establish clear practices regarding prosecution in the event of corruption

– Flexible procurement options

Some public-sector organizations have very regimented procurement practices, requiring a one-size fits-all approach. Standardized contracts and methodologies have many benefits but if the public sector stipulates that only one procurement methodology can be used, not only are opportunities for innovation removed, but costs tend to be higher. For example, procuring maintenance services for a city's electric utility requires a very different contractual structure than building a new bridge in the city. To achieve best results through the procurement process, it is important to introduce flexibility by balancing the competing requirements of one standard contract while allowing changes for project-specific rationales.

– Innovation-friendly and whole-life-cycle-oriented procurement

Across the globe, public procurement has followed milestone-based approaches, coupled with the selection of the lowest bid that mainly focuses on milestone deliveries rather than on outcome achievements. Although this approach helps to keep contract administration simple, the opportunity for innovation and productivity enhancements is neglected, and the total life-cycle costs are higher. The public sector needs to reform procurement processes to stimulate innovation, optimize whole-life-cycle cost and achieve sustainability.

Box 13 – Enhancements in public procurement to support innovation, Barcelona and Philadelphia

Barcelona is recognized globally as a progressive city that supports innovations for improving urban administration and services delivery. Since 2011, Barcelona has transformed its public procurement and shifted from a traditional approach of procuring products and technologies to a problem-based procurement approach. The approach, co-designed with Citymart, supports innovations, faster resolution to local issues and the improvement of public spend outcomes. This approach helped Barcelona to introduce flexibility, while respecting public procurement rules. A problem statement is developed with simplified contractual obligations and published as an open challenge with the aim of increasing the participation of start-ups, and small and medium-sized enterprises. The submissions received open a wide array of new ideas to solve city problems, which was not possible under the traditional procurement approach. Barcelona has completed 12 challenges with Citymart's support and was able to save 30% of its procurement budgets. The areas of challenge included real-time traffic monitoring, smart waste management, contactless transactions in tourism, bicycle theft solutions and youth unemployment prevention. Other cities have also initiated procurement processes that follow this approach and have received novel, innovative ideas. Copenhagen provides one example: when the city launched a challenge to improve the integration of bicycles into the transit system, the authorities received more than 30 new ideas, finally signing a contract with the provider of one of them.

The city of Philadelphia launched the FastFWD project to increase collaboration with the private sector and introduce innovations in solving city problems by reforming its procurement system. The project is a partnership between the city, GoodCompany Group and the Wharton Social Impact Initiative, with a grant of $1 million from Bloomberg Philanthropies for project implementation. Philadelphia identified public safety as its top priority under this project

and has been successful in garnering increased interest from the private sector by making the procurement system simple and flexible.

This case study was developed from publicly available information on the websites of Barcelona Open Challenge, Citymart and FastFWD

Establishing a reliable dispute-resolution mechanism

Disputes during PPPs arise due to the long-term nature of the contractual relationship and the varied interests. Even in highly reputable administrations, disputes occur between the public and private partners because of contractual complexities and changing market dynamics over time. The probability of disputes diminishes if the right process is followed during the project preparation, contracting and implementation phases. An effective arbitration and judicial system that can hear and resolve disputes on a timely basis is obligatory, requiring impartiality from government and adequate resources and training. The system must be predictable, clear, well-reasoned and, most importantly, capable of being implemented and enforced. The World Economic Forum report, *Strategic Infrastructure: Mitigation of Political & Regulatory Risk in Infrastructure Projects*, recommends settling disputes using a set of options that includes mediators, non-binding expert panels, binding expert panels, national regulators and international jurisdiction or arbitration. The courtroom should be the last resort and used when all other mechanisms fail.

Box 14 – Judicial reforms pave the way for private-sector support, Lagos

The city of Lagos is one of the largest megacities in the world. With over 17 million inhabitants, it has surpassed Cairo as the largest city in Africa. Lagos contributes around 60% of Nigeria's commercial activity and 25% of Nigeria's GDP. It has enormous assets, including a large, available labour force. The city is Nigeria's principal financial centre, with Africa's second largest stock exchange and a wide range of financial services, including venture capital. With economic vibrancy, rural to urban migration has increased, taxing the urban infrastructure and management system. Sanitation, power outages, traffic congestion, and adequate health, education, water and transportation services are major challenges Lagos faces. Issues related to corruption, personal security and terrorism have further aggravated the situation.

To mitigate some of the challenges, Lagos has cooperated with private investors and taken progressive steps to build investors' confidence in partnering in urban development projects. Judicial reforms are under way and progress has been made to support an arbitration centre for the region. A crackdown on corruption and local-level bribery has taken place at the Lagos state government level. The Alternative Dispute Resolution Centre and Citizens Mediation Centre (CMC) have provided some relief for citizens. The Lagos Innovation Advisory Council, including both public- and private-sector members, drives this effort. It has also established the Research & Development Fund to support innovations. Saturday service is offered by

some key government agencies, helping to respond to the needs of residents. Violent crime has declined by over 80% since 2007 due to the Security Trust Fund, which receives contributions from public and private organizations and individuals for police funding. Alternative dispute resolution has also increased in Lagos. In 2013, the CMC handled 7,186 cases. The city enacted an arbitration law in 2009, which prompted the establishment of a private sector-led Lagos Court of Arbitration.

As a result of judicial support, projects with private-sector investment have been implemented. These include the Bus Rapid Transit system, Blue Line rail tracks, a 10-lane road with rail facility, innovation hubs, waste disposal system, city public space enhancement and specialized mother and child hospitals.

This case study was taken from The Competitiveness of Cities: A Report of the Global Agenda Council on Competitiveness, World Economic Forum

Private-sector action

Adopting a proactive approach

Cities bring people and markets together in a single dense space, which leads to economies of scale and increases in economic activity that benefit both the public and the private sectors. The private sector must complement the efforts of the public sector in developing innovative solutions that can enhance the opportunity that cities present, while simultaneously addressing the immediate and long-term priorities. The private sector must proactively establish a dialogue with the public sector and support the development of the urban infrastructure and services pipeline with a compelling business case based on prior experience.

Box 15 – Multistakeholder innovation in energy production: Hydrogen Leader City, Fukuoka, Japan

Fukuoka has recently experienced the highest population growth and tax revenue increases of Japan's major cities. It has therefore revised its transformation master plan while ensuring a balance between its people, the environment and urban vitality.

In 2014, Fukuoka launched the "Hydrogen Leader City Project", a low-carbon programme to promote hydrogen energy. The project is a collaboration between industry, academia and the government, consisting of four parties: Mitsubishi Kakoki Kaisha, Toyota Tsusho Corporation, Kyushu University and the Fukuoka city government. The city government provides the biogas generated from sewage, and the university and private sector provide the thought leadership, strategic direction, design advice, construction and operation facilities, and supply chain.

Fukuoka city's low-carbon project is the first of its kind; human sewage is used to produce hydrogen for fuel in fuel cell vehicles (FCVs). Their goal of zero emissions is the same as that of electric cars, but FCVs are more user-friendly than electric vehicles with shorter charging times and longer cruising distances.

Although CO2 is not emitted when FCVs are running, it is emitted when hydrogen fuel is being produced. Currently the most economical method to produce hydrogen is from fossil fuel, which generates carbon emissions. A carbon emission-free method is available, which uses renewable energy such as solar and wind power and produces oxygen and hydrogen through water electrolysis. However, the economic viability of this method will not be established until around 2040. Nevertheless, by using urban biomass energy generated from Fukuoka city sewage, it is possible to produce hydrogen at a low cost.

This is the first project worldwide in which the FCVs are run on hydrogen generated by the human sewage produced by Fukuoka's 1.55 million citizens. At the sewage treatment plant, biogas generated in the treatment process is used to produce hydrogen, which is then supplied to FCVs through city hydrogen stations. A comparative study found that FCVs that run on hydrogen from biogas cause 60% less carbon emissions than FCVs running on hydrogen produced by other sources. The current efforts are expected to greatly reduce CO2 emissions in urban areas and can be proposed as an eco-friendly distribution model.

This case study was provided by the Fukuoka city government

Approaching urban services delivery projects realistically

While the public partner is establishing clear-cut goals and projects, the private partner must evaluate whether the project is actually required and attractive. Though key enabling factors are provided by the public sector, the private sector must conduct a "self-check" and take informed decisions before entering into a proposed public-private collaboration. The considerations and questions to be asked include the following:

– Scale of demand: How large is the incremental demand for this project? For example, what is the extent of the gap between total demand and currently available supply?

– Urgency: How urgent is the demand for the project and what is the price elasticity of the provided service? For example, does the project need to be completed before others in project pipelines?

– Ease of implementation: How complex is the project? For example, does the project require advanced technology? Does it require coordination with a public entity, and does that entity have the technical, legal and financial capabilities to monitor it?

– Revenue source: Will the project rely on public-sector subsidies to break even or will it be fully funded through user charges or government purchase agreements?

– Reference availability: Are there sufficient market players, including subcontractors and post joint-venture partners, whether international or regional, with the relevant experience and expertise to conduct the project? Are there any case studies and lessons? For

example, have they implemented a similar project in the region before?

This will enable the private sector to evaluate project requirements, assess the opportunity for the project and confirm its feasibility.

Box 16 – Comprehensive inception study lays foundation for developing smart and integrated townships in India

Mahindra World City (MWC), India's first Indian Green Building Council township was developed to create a milieu for economic, social and cultural advancement. It pioneered the concept of integrated cities designed to create a balance between livelihood, living and life. A common thread running through its projects is the commitment to lower greenhouse gas emissions, optimize resource input, reduce waste and foster a healthy environment.

During MWC's inception, extensive due diligence was carried out by the Mahindra team to comprehend the initiative's key aspects, the impact it will create, the short-, medium- and long-term sustainability challenges and risks, land selection and procurement approaches, the cost benefit ratio, and the supply and demand ratios. Due consideration was given to the operational aspects, such as integrating village communities as part of the development; upgrading public infrastructure in collaboration with the state and central governments; incorporating water and energy conservation into the development, as well as mobility and mass transportation, resource conservation, community engagement, mixed-use development and environment conservation. The MWC was planned with the flexibility needed to accommodate the changing dynamics of the economy and market trends.

Planned as a single point destination for domestic and global companies, MWC includes special economic zones and domestic tariff areas. At the full stage of development, it aims to generate direct employment for more than 200,000 people. The MWC master plan was conceived to promote the creation of diverse, walkable, compact, vibrant, mixed-use communities with industrial development at the core, and co-located housing, shopping, entertainment, schools, parks and civic facilities essential to the daily lives of the residents, all within easy walking distance of each other.

Mahindra World Cities are operational in Chennai, Tamil Nadu and Jaipur, Rajasthan:

– Mahindra World City Chennai, located on NH45, spreads over 1,550 acres and houses more than 60 blue-chip companies across the IT, automotive, and fashion and apparel industries, among others. MWC Chennai is promoted in a public-private initiative between the Mahindra Group and Tamil Nadu Industrial Development Corporation.

– Mahindra World City Jaipur, located off NH8, spans across 3,000 acres and is a joint development with the Rajasthan State Industrial Development and Investment

Corporation. It was selected by the Clinton Climate Initiative as one of its 16 projects worldwide because of the example it provides of urban development that helps mitigate climate change by reducing carbon emissions in an economically sustainable manner. Its goal is to keep emissions to the lowest level in its townships.

The two cities cover 4,550 acres, house over 130 global companies that employ 50,000 people, generate exports in excess of $1.5 billion and boost the economic and social development of neighbouring towns and villages.

This case study was provided by Mahindra Lifespace Developers

Engaging with local communities for long-term support

Winning the support of local communities for a public-private project and engaging them at the initial level is beneficial in the long term. Consultation with the community from the beginning during the planning phase eases local anxieties and improves the project design by taking the community's needs and concerns into consideration. Local communities will offer their support if they believe their voices have been heard and issues have been resolved. The private sector must also communicate the social and environmental impact of the urban infrastructure and services project in a transparent way. Engaging with the community early increases mutual confidence between communities, business and local government, improves the urban infrastructure and services and enables the delivery of sustainable human-centric solutions.

Although most infrastructure and services projects benefit citizens at the city level, they may adversely impact a given local community or a specific neighbourhood. Mistrust can develop from increases in service charges, but if the local communities are made aware of the project's larger benefits, implementation disruptions will be reduced. A communication strategy must be developed for the urban infrastructure or services project, given the interests of the multiple stakeholders and potential public concern.

Transparent and truthful communication about the project's impact, interdependencies and payoffs, whether positive or negative, and its outcomes must be communicated to build community trust and buy-in and provide the necessary project endurance. Such communication should continue during the entire project phase to reduce any concerns and address the justified fears of the local communities. The key consideration when engaging with communities is to keep communication succinct, and identify champions within the community who facilitate deeper engagement.

Box 17 – Smart City promoting community engagement and open data, Dublin, Ireland

Smart Dublin is an initiative by Dublin authorities to collaborate with advanced technology providers, researchers and citizens and to leverage progressive technologies to gather, analyse and solve city challenges and improve city life. Dublin City Council identifies city regions to experiment new technology implementation. For example, a region of the city is selected to test camera-based surveillance or new Internet of Things solutions.

Dublin has focused efforts to form creative alliances involving municipalities, universities, private companies and the local community in the region to pool resources and jointly run urban economic initiatives. These alliances are used as an umbrella to discuss and launch a number of new local and joint economic development projects, focusing on innovation, financial investments and new network creation. Smart Dublin has identified mobility, environment, energy, waste and emergency management as priority challenges and uses public data available through Dublinked, Dublin's open data platform, to understand city dynamics in real time to better prepare responses and services. Dublinked aims to open the local government's data with an eye to fostering innovation and entrepreneurship. Its objectives include to ensure citizen empowerment, community engagement and transparency, and to spur economic and technological development in the city, promoting R&D and data-driven innovation. From an urban policy perspective, it is a flagship programme for the new generation of local economic development

initiatives with the vision of forming new communities of innovators and entrepreneurs to pave the road to economic recovery.

Dublinked is a data-sharing initiative that makes city data sets available to the wider public in the greater Dublin region in one online platform. This technological initiative enables data-driven innovation and encourages collaboration between industry, the public sector and academia with the aim of designing and delivering better services to citizens, provide solutions to urban challenges and create new local businesses.

Smart Dublin focuses on listening to the voice of its citizens. It has launched the platform, "Citizen Space", to consult and seek the input of the people in planning processes. One of the many examples is its effort to seek community input in preparing the Local Area Plan for Ashtown/Pelletstown. The public and developers are being consulted as part of the process, and their inputs will feed into the adoption of the Plan.

Other examples include Consultation on the Draft Public Realm Masterplan for the North Lotts and Grand Canal Dock Planning Scheme, a Draft Strategy Towards Climate Change Action Plans, a survey on the proposed Special Speed Limit Bye-Laws 2016, Local Property Tax – Public Consultation Phase 2016, and Draft Tree Strategy Consultation.

This case study was developed from information publicly available on the Dublin city authorities' websites

Building public-private cooperation that withstands tough times

Partnerships endure when the partners trust each other's commitment to a project and its objectives. Given the complex process and structure of public-private cooperation, both parties should facilitate constructive dialogue to build trust and present their views on the critical factors that may affect the project and its outcomes. This will ensure a smooth transition through the project's critical milestones and difficult times. As market dynamics are volatile and contribute to unforeseen circumstances that could impact project financing, relationships built on trust will help get through these situations.

One of the stages in which the foundations of trust are created is the procurement stage. At this stage both parties must understand each other's capabilities and interests in the project. The private sector should provide accurate information and should be open about any concerns it has regarding the conditions of contract, obligations and project risks. On the other hand, the public sector should conduct a transparent evaluation that leads to the selection of the most suited partner. After the procurement stage, each partner should be obliged to perform according to expectations to reinforce mutual trust.

Box 18 – King's Cross project, London

King's Cross is a large urban regeneration project in the heart of London. The 67-acre site of once underused industrial wasteland is being redeveloped into a vibrant mixed land-use urban area. The new and transformed area will include office and residential spaces, educational facilities, retail and commercial real estate, and hotels on 53% of its surface. Streets and external utilities will cover 15%, and public space and landscaping will cover the remaining 32%. The project was initiated to unlock the potential of the land in the centre of the city, transform it for reuse and build on it, making it a place for the people. Strong focus was put on preserving and restoring the art, culture and heritage of the old site. Around one-fourth of the site is earmarked for cultural and leisure pursuits.

The project followed a multiphased-development approach and enjoyed collaboration from the private sector and local community during its study and planning stages. Argent was selected as the development partner in 2001 to help with land acquisition, planning, and consultation with the local community and other stakeholders. Input gathered during the consultation phase was used in the master plan developed in 2006 by Allies and Morrison and Porphyrios Associates. The capital project was in full swing in 2008, under King's Cross Central Limited Partnership, consisting of Argent as the development partner, London & Continental Railways and DHL. In 2015, DHL and the UK government sold their stakes to AustralianSuper.

The newly transformed land will benefit more than 40,000 people who will work, study and reside in the area, changing its character completely. Well connected to the national and international rail station, King's Cross is strategically placed for its residents and global business.

Despite the project's beneficial outcomes, aspects of the transformation were difficult: the site plan approval took longer than anticipated due to multiple negotiations; preservation of the heritage and culture of the original area while building a high-density urban area with limited traffic, parking facilities and noise proved challenging; a high volume of land ownership information had to be managed while adhering to legal compliance measures to avoid future conflicts; the global recession in 2008 intervened; contaminated land required a cleanup; and debate revolved around the need for housing or office space.

The developers worked closely with the King's Cross government authorities to overcome the challenges without compromising the project economics. The government also proactively guided the developers and provided strategic direction throughout the project life cycle. For example, to improve the outcomes for the local community and receive the required approvals, the King's Cross government suggested increasing the percentage of affordable housing in the project. This helped to garner the support of the local communities and authorities, and to align with the mayor of London's priority to build affordable housing in London.

This case study was developed from publicly available information on the King's Cross website and from the Urban Land Institute King's Cross project study

Extending partnerships beyond the obvious

Private-sector players must take suitable subject matter experts and consultants on board during implementation to ensure project success. A project can benefit from extending partnerships beyond conventional expertise and the obvious list of partners. It is good practice to engage a party specializing in public relations that will help inform, educate and promote the project to such stakeholders as local communities, lending groups and civil society. This will enable the project to garner support and increase project branding. It can be beneficial to engage a local partner or an academic institution to disseminate project benefits and gather the support of the local community for the project. Private players must therefore constantly evaluate the capabilities and expertise they need and make an effort to seek out new partners, beyond the obvious list.

One example is the Cities Changing Diabetes Program in Houston,[49] which is a cross-sector partnership catalysed by Novo Nordisk and led by the Houston Health Department. It engages a variety of community stakeholders from leading organizations across the public and private sectors. Its mission is to create a healthier Houston through the collaborative integration and measurement of diabetes prevention, detection and care for all communities. The partnership has formed Action Work Groups with over 86 members, representing faith-based organizations, government, health insurance companies, medical providers, employers and non-profit entities. Some of the interconnected efforts include:

– Faith and Diabetes Initiative - An effort to assist houses of faith across Greater Houston to develop diabetes prevention and awareness for their congregations

– Employer National Diabetes Prevention Program (NDPP) - An effort to improve the availability of the initiative among community providers and engage employers, providers and payers in its adoption

– DAWN Cooking for Healthy Living - An effort to bring workshops to the city's DAWN diabetes centre to provide health education and behavioural interventions for adults with or at risk for diabetes

– Houston Diabetes Resource Center - A one-stop-shop website portal that connects patients with evidence-based educational resources, programmes in the community and navigation resources

– Bridges to Excellence - A programme to reduce potentially avoidable complications, reduce costs and improve care quality through a provider recognition programme

Box 19 – City resurgence, Pittsburgh

Starting in the 19th century, Pittsburgh's economy was dominated by the steel industry and was a centre for corporate headquarters. In the deindustrialization period that followed the oil price hikes of the 1970s, the steel industry collapsed and most companies left the city. Because the city struggled through a recession after its steel industry began to falter, Pittsburgh abandoned its industrial roots

and reinvented itself, focusing on two relatively new sectors – computer science at Carnegie Mellon University and medical technology and care at the University of Pittsburgh. The public and private sectors worked together to reinvent the local economy, with a number of research projects emanating from both, leading to entrepreneurial opportunity in science and technology. This refocusing of the economy has proved far-sighted and successful.

As a result, Pittsburgh is a good example of a city that has driven its resurgence by breaking with the past to create a new economy. Despite difficulties to attract and retain knowledge workers, the city has managed to diversify its economy. Many university projects have successfully contributed to establishing new waves of investment, including start-ups and spin-offs in the fields of robotics, computer science, information security and artificial intelligence. Similar advancements have been made in medical care and associated technologies. A clear demonstration of the wide-reaching impact of the city's new economic focus, Pittsburgh has shifted from "Big Steel" to "Eds and Meds", which are estimated to account for a very large percentage of the region's high-paying jobs. The city's cultural appeal has also been steadily improving, reflected in the establishment of a cultural district and a number of theatres, galleries and restaurants.

The support of the private and public sectors has been a major enabler, although the role of the two universities in reversing Pittsburgh's declining economy cannot be underestimated. The high-technology specialization of the universities has been key to Pittsburgh's economic strategy: Carnegie Mellon is a world-class centre of computer science, while the University of Pittsburgh is a leader in healthcare and medical technology.

Also enabling the city's successful resurgence has been a coherent and cohesive civic partnership that has lasted at least over the last century. Pittsburgh is well endowed with art and history museums, galleries and architecture that followed from the wealth accumulated during the industrial era and donors' pride in the city. Currently these institutions are migrating from providing narrow cultural support to creating initiatives that promote economic, community, educational and workforce development. Finally, the city has undertaken the long process of moving from the environmental degradation of the steel years to creating a cleaner city, including a recent greening initiative that aims to lessen the city's impact on the environment.

This case study was developed based on the report, iUrban, inspire, innovate, implement, published by Euricur, PwC, IHS

Integrated action

Building mutual trust and integrity

Trust is essential to build lasting and fruitful relationships. Transparency in governments, financial institutes and business is key to growing a stable global economy. Policies, agreements and institutions support cooperation, but they are no substitutes for trust. Trust is the main determinant of how the private sector and citizens

react and support the public sector's mission and initiatives. Governments must develop mutual trust and understanding by fostering dialogue and interactions among politicians, the private sector, civil society, experts and citizens. Governmental entities must adhere to the highest standards of ethics and transparency, and avoid corruption and conflicts of interest. On the other hand, the private sector must demonstrate leadership by implementing effective anti-corruption and compliance programmes within its companies to safeguard against unethical practices, and it must have policies and procedures for taking legal action in the event of any violations and non-compliances. Common features of these programmes can include detailed policies on company-specific bribery issues, such as facilitation payments, conflicts of interest, gifts and hospitality, protection money, fraud and money laundering, and political and charitable contributions.

The World Economic Forum report, *Building Foundations for Transparency*, suggests that mistrust and corruption can distort markets, undermine development and make business unsustainable. The report recommends that the public and private sectors should take equal steps, together with the community, to ensure a transparent, corruption-free and trusted environment is in place.

Estimates show that the cost of corruption equals more than 5% of global GDP ($2.6 trillion), with over $1 trillion paid in bribes each year. Corruption adds up to 10% to the total cost of doing business globally, and up to 25% to the cost of procurement contracts in developing countries.[50]

Countries across the globe are taking steps to limit corruption and increase transparency in public-private partnerships. The Republic of Slovenia has developed an online application called "Supervizor" that provides information to the public on the business transactions of the country's public-sector bodies. It provides details on the contracting parties, the largest recipients of funds, related legal entities, the date and amount of transactions and the purpose of money transfers. The project is conceptualized and developed under the aegis of the Commission for the Prevention of Corruption of the Republic of Slovenia, whose primary purpose is to strengthen the rule of law, integrity and transparency and mitigate corruption risks and conflicts of interest. The application is used by the general public, journalists and supervisory and law enforcement agencies, and receives approximately 50,000 hits daily.[51]

The United Kingdom Bribery Act, enacted in 2010, specifies that a company's failure to prevent bribery by employees and associates is a corporate offence, and provides for prosecution of an individual or company with links to the United Kingdom. Penalties include up to 10 years of prison and unlimited fines. Another initiative in the United Kingdom is the National Health Service Whistle-blowing Helpline,[52] which provides free, confidential and independent advice to people who witness wrongdoing at work in terms of unfair work ethics, cases of bribery, privileges and corruption but are not sure whether or how to raise their concern. The helpline offers advice and

guidance on the whistle-blowing process and suggests the way forward in line with the Public Interest Disclosure Act 1998.

Box 20 – The best emulation model for limiting corruption, Denmark

Denmark tops Transparency International's Corruption Perceptions Index; it has the lowest perceived level of public-sector corruption and has achieved this rank for two years in a row. The Index is the most recognized and renowned evaluation of corruption ratios across 170 countries. Denmark's leading position is attributed to the high levels of integrity and moral conduct demonstrated by the people in power, transparency in public spending, public access to budget information making citizens aware of public money transactions, effective judiciaries and criminal codes, and high levels of press freedom.

Living conditions in Denmark also contribute to minimizing corruption. The people of Denmark receive decent public provisions; they enjoy an equitable working environment, good social security benefits, health arrangements, salaries and pension schemes, and benefit from safeguards against major setbacks, like unemployment and medical problems.

The Danish Criminal Code is strong and forbids active and passive bribery, abuse of public office, embezzlement, fraud, breach of trust, money laundering and the proceeds of bribery. It also criminalizes bribing foreign public officials, bribery between businesses, and corruption committed by individuals on a company's behalf. Penalties for bribery under the Criminal Code can include fines and up to six years' imprisonment. No distinction is made between bribes and facilitation payments, and the propriety of gifts and hospitality depends on the intent and the benefit obtained.

The legal framework regulating public procurement ensures transparency in public procurement processes, and companies charged with influencing the procurement process are disqualified from future participation in public procurement in the country. The World Bank has ranked Denmark as the easiest country in Europe to do business in. Entrepreneurs can start companies in a few hours through a seamless registration system. Obtaining business permits, licences, public utilities and other services is also easy and transparent.

This case study was developed from publicly available information on various transparency initiatives taken by Denmark government

Embracing civil society

Civil society adds value in such roles as facilitator, educator, convener and innovator, as well as service provider and advocate. It adds significant value to public-private cooperation, whether as an official partner, through informal collaboration, or through spillover effects. By involving civil society as an implementation partner, projects are more likely to be effective and produce outcomes that are socially and environmentally responsible. Civil society groups should increasingly be involved in partnerships with governments and businesses, and should be engaged in the consultation process when developing transformation agendas aiming to achieve sustainable urban development.

The World Economic Forum report, *The Future Role of Civil Society,* suggests that important gains have been made in policy advocacy at the global level, exemplified by Jubilee 2000's success in influencing the G8 agenda, and the development of global voluntary standards for industry. International and regional institutions have developed formal processes for civil society engagement and consultation, such as the African Development Bank's July 2012 publication, *Framework for Enhanced Engagement with Civil Society Organizations*, and the Civil Society Policy Forum convened at the 2012 Annual Meetings of the International Monetary Fund and World Bank Group.

Recognizing that no one stakeholder can solve the world's major urbanization challenges alone, civil society, like business and government, plays an extremely important role in shaping people's daily lives, from how they interact

and live, to the policies that guide laws and regulations, social and economic activities. The unique concept of civil society as "the space where we act for the common good" must be used to its full potential to drive transformation in collaboration with other stakeholders.

An Australian based civil society entity is advising the Melbourne government and providing data and the evidence needed to introduce tax reforms pertaining to unused properties. The study conducted by the NGO[53] used water consumption data to determine dwelling occupancy. Any residential property consuming less than 50 litres per day (LpD) over a 12-month period was classified as a vacant dwelling (average per capita water consumption in Melbourne is 160 LpD). The 2014 study found that around 4.8% of Melbourne's housing stock as well as 6.1% of its commercial stock were vacant. These unoccupied homes and commercial spaces contributed to a mismatch between supply and occupancy, the housing crisis in Melbourne and housing price inflation there.

Box 21 – Civil society in support of urban development and the empowerment of marginalized communities

Urban development transformation strategies that have been drafted with the intention to engage and consider the inputs of civil society have shown better results and greater community support than other approaches. Examples of collaboration between civil society, including not-for-profit organizations and citizen communities, and the public and private sectors are now widespread and varied. For instance in Helsinki, the city's vision for World Design Capital Helsinki 2012 was developed with contributions from civil society. Civil society representatives and citizens were given the opportunity to propose and organize the city's initiatives under this design project. The proposals were curated by an organizing committee, but most were accepted. Proposals to improve housing conditions and daily life through design and city information were among the main ones provided by citizen groups.

An example of civil society supporting city activities to help marginalized communities and to empower them is the joint venture between CARE and danone.communities in Bangladesh. The joint venture launched the social business, JITA, a rural distribution network with an all-woman sales force. The business employs approximately 3,000 women as sales agents, who sell products door-to-door sourced from hubs that connect to producers, such as private companies Unilever, Bata and Grameen-Danone Foods. The programme aims to engage approximately 12,000 marginalized women and increase coverage to 10 million rural consumers in a two-year time frame.

In Haiti, NGO Mercy Corps co-founded the Micro insurance Catastrophe Risk Organisation (MiCRO) with the country's largest microfinance institution, Fonkoze, to safeguard small business owners, and particularly women entrepreneurs, against the economic impacts of natural catastrophes, such as hurricanes, floods or earthquakes. MiCRO also receives support from the UK Department for International Development (DFID) and Swiss Re, a leading global reinsurer. The hybrid insurance product provides coverage to more than 60,000 Haitians and their families. As of October 2012, claims worth a total of $4.5 million were paid to 18,000 policyholders.

This case study was taken from the World Economic Forum report, The Future Role of Civil Society, and from the Euricur, PwC, Institute for Housing and Urban Development Studies report, iUrban: inspire, innovate, implement

Leveraging technology

Cities need to demonstrate technological leadership and the agility to adopt disruptive solutions to enhance urban development outcomes and increase effectiveness in delivering urban services. Technology is changing the rationale for value creation, and enables various city

authorities to deliver integrated and seamless services to citizens while giving the private sector opportunities to design and create valuable projects that enhance economies of scale, achieve sustainable outcomes and are based on innovative business models. Disruptive technologies offer significant opportunities to improve cities by developing and using practical intelligence from data originating locally.

Technological disruption is accelerating and having broad societal impacts. Technologies today leverage networked sensors, data analytics, collaborative platforms, open databases and social networks to generate real-time responses, and have impact on how people communicate, collaborate and work. Technology is optimizing resources and cutting costs, while freeing up resources that can be reallocated to more productive areas. It is helping cities to be more inclusive and contributing to a higher sense of citizen participation by engaging government representatives and the public in joint decision-making. The following are examples of how technology is being leveraged to solve city challenges:

– The New York City Department of Transportation developed a drive-smart programme in 2015. The programme uses in-vehicle data captured by an on-board device mounted in the vehicle. The data are used for traffic management analysis, usage-based insurance and driver-feedback applications. The programme records GPS, vehicle telemetric data, route selection, driver behaviour and general vehicle movement. The data have allowed the Department of Transportation to reduce road deaths, traffic congestion and pollution, while helping drivers save time and money, and drive safely.[54]

– The state of Queensland, Australia developed a solution to reduce its water losses by 1 billion litres in one year, helping the city save $1.9 million.[55]

– Japan has deployed a city resilience effort that aggregates data from sources such as surveillance cameras, water-level gauges, rain gauges and seismometers to process and build actionable intelligence for relevant city agencies, including disaster management units, the transportation, police and fire departments, hospitals, etc., to enhance disaster responses and preparedness.[56]

– The city of Boston has developed a mobile app called "Street Bump" to encourage residents and locals to improve their neighbourhood streets. Street Bump gives users the ability to collect and upload road condition data instantly while driving. The city aggregates and analyses the data across users to provide real-time information for fixing short-term problems and planning long-term investments.[57]

– The city of Auckland is using big data and analytics to manage its transport system and traffic by collecting and analysing data received from video streams, sensors, social media, use patterns, location information and other sources.[58]

– The Canadian city of Vancouver developed a digital

strategy to support its local digital economy and improve delivery of urban services for citizens. The strategy focuses on using digital channels to increase the engagement of citizens, provide easy access to city services, build a robust digital infrastructure, support economic development in emerging technology and digital sectors, and convert the city's administration into a digitally-driven organization.[59]

Technologies can transform the management of urban areas to deliver better services but to realize the full potential, both the public and private sectors must widely adopt technological interventions across all aspects of the urban value chain and build an adequate enabling environment.

Box 22 – Leveraged digital technology to improve educational services, UAE

The Mohammed Bin Rashid Smart Learning Programme (MBRSLP) was established by a Cabinet Decree in 2012 as a joint effort between the Ministry of Education and the UAE Telecommunications Regulatory Authority, in cooperation with the UAE Prime Minister's Office. The MBRSLP was developed with the objective of leveraging technological solutions to improve educational outcomes in the UAE. It was developed in partnership with several stakeholders, including the community, government entities, several private-sector companies from the technology sector (Microsoft, HP, Samsung and ITWORX, among others) and the education sector. Their participation in the early stages of the programme was pivotal in contributing critical knowledge, understanding the potential risks and eliciting suggestions for improvement.

By the end of 2016, the MBRSLP had successfully deployed education technology solutions for primary and secondary

education in all six Emirates and connected 100% of public schools, 95% of teachers and 80% of students to the internet. The programme will cover all public schools in the UAE by 2018.

The MBRSLP improved the UAE's ranking on the "Internet access in schools" variable in the World Economic Forum's Global Competitiveness Report from 21st position in 2012 to 4th place, contributing to overall UAE competitiveness. The programme was recognized by the World Summit on Information Society and awarded the coveted accolade for Capacity Building in 2014 for its role in promoting the use of information and communications technology in federal schools and in building communication and information infrastructure in the UAE.

This case study was developed based on discussions with the Mohammed Bin Rashid Smart Learning Programme

Promoting urban innovations

Cities are facing accelerated migration, unprecedented demographic and economic changes, and shifting lifestyle and consumer preferences. These trends challenge the way municipalities provide physical, social and recreational infrastructure, yet a convergence of the digital and physical dimensions can present innovative urban solutions. The World Economic Forum report, *Top Ten Urban Innovations*, recommends investment in the development of innovative solutions that are scalable, replicable and people-centred. These innovations can involve simple or high tech solutions with a broad range of transformational power to change the way cities and their inhabitants interact. Urban centres can use new virtual and networked solutions to enhance their liveability, sustainability, efficiency and productivity. To maintain a competitive edge, they need to design and develop cutting-edge solutions and processes in collaboration with the private sector, scientific research institutions, academia, citizens and start-ups to achieve even greater value-added enhancements and urban services delivery. Some cities have already begun embracing urban innovation and have created specific innovation zones. Examples include:

– **Living Innovation Zones (USA)** –The Living Innovation Zones programme in San Francisco seeks to create a flexible framework that harnesses the city's creativity by using city-owned assets, such as public spaces, and partnerships with leading organizations to promote the public good, encourage learning and sharing, and exhibit innovation.[60]

– **22@Barcelona district (Spain)** – The project is transforming 200 hectares of industrial land in El Poblenou, a neighbourhood of Barcelona, into an innovative district offering modern spaces for the strategic concentration of intensive R&D and knowledge-based activities. This initiative is also an urban refurbishment project and a new city model.[61]

– **Santander Living Experimental Lab (Spain)** – Building on a grant provided by the European Union in 2010 and leading a consortium of 25 partners across Europe and Australia, Telefonica has been able to turn the city of Santander into a living experimental laboratory. Under the project, over 15,000 sensors have been installed in the city to provide information on several service offerings, such as real-time traffic jam detection, localized parking assistance, air quality monitoring, public lighting management, public park watering and waste management, among others. City officials receive real-time data, enabling them to make better decisions and more accurately estimate costs. For the citizens, the city has been transformed from a relatively static town into a dynamic, responsive urban area. By implementing a platform that allows experimentation and the ability to research different technologies, applications and IoT services, Santander has become a reference point for European Smart Cities by.[62]

– **Brooklyn Tech Triangle (USA)** – This area, the Down Under the Manhattan Bridge Overpass (DUMBO) neighbourhood, downtown Brooklyn and the Brooklyn Navy Yard, has attracted world-class pioneering, energetic and creative entrepreneurs, and has emerged as New York City's largest cluster of tech activity outside of Manhattan, with nearly 10% of the sector calling this area home.[63]

Box 23 – Future Cities Catapult, United Kingdom

The Future Cities Catapult (FCC) is a new technological and innovative initiative developed by the United Kingdom's innovation agency, Innovate UK, to help encourage economic growth and differentiation among British businesses. The network has seven technology and innovation centres ("Catapult Centres") in the United Kingdom, each of which focuses on specific industries: high value manufacturing (located at multiple sites), cell therapy (London), offshore renewable energy (Glasgow and Blyth), satellite applications (Harwell), connected digital economy (London), transport systems (Milton Keynes) and future cities (London). Each centre offers British businesses an opportunity to work with academia, scientists and engineers on late-stage research and development, to access state-of-the-art large-scale equipment and facilities, and to transform high-potential ideas into new products and services. Each Catapult Centre has been operational since 2014, and together the centres represent over £1.4 billion ($2.1 billion) in private- and public-sector investment, transforming the UK's long-term innovation capability. Over £6.5 trillion ($9.9 trillion) will be invested globally in city infrastructure over the next 10-15 years, and the accessible market for integrated city systems is estimated to be £200 billion ($303 billion) a year by 2030. However, the market is still nascent. Innovative approaches to "city making" are still struggling, hampered by poor procurement processes, inadequate financing mechanisms and institutional silos. In the United Kingdom, the FCC is playing a lead role to overcome these barriers, build a vibrant market for innovative urban solutions, stimulate capacity building, attract and develop talent, and support business and economic growth. The FCC aims to help British businesses exploit the emerging market by bringing business, city governments and academia together to collaborate and develop new innovative city services that focus on overcoming the challenges of urbanization. By offering an independent space where experts from across disciplines can collaborate, the FCC enables cities, companies and universities to work with the private sector to remove barriers to innovation and develop solutions that meet the future needs of the world's cities. The aim of the FCC is to develop globally replicable and exportable solutions that will help the British economy grow further. At the heart of the innovation centres at FCC is the cities lab, a world-leading facility where live city data are analysed and solutions to city challenges are tested and validated using innovative data-visualization techniques. These data are taken from across multiple city silos and presented in new ways, clearly demonstrating the value of cross-sector methods of working, showing how the FCC focuses on the integration of systems, and highlighting the way this collaboration helps create opportunities for better performance and greater value.

This case study was provided by Future Cities Catapult

The Way Forward

Cities need the right values and strategies to thrive in the new normal of uncertainty and constant change in urban dynamics. Faced with recurrent budget cuts and a relentless focus on value for money, city authorities must seek and adopt a new set of core competencies required to address society's needs. For the cities of tomorrow, collaboration as well as co-creation and co-design capabilities are the new "must-have" competences, while city leaders need such characteristics and skills as agility, innovation, connectedness and transparency.

Urbanization dynamics have evolved over time and call for a transition from a business-as-usual approach to one that is highly collaborative, enabling the private sector and civil society to participate and build sustainable urban transformation agendas. As highlighted in this report, city authorities must take into consideration value created by all the stakeholders along the urban value chain. They must develop progressive agendas and establish the recommended enabling environment for effective public-private cooperation in order to meet the global priorities and targets set out in the Habitat III New Urban Agenda, the Sustainable Development Goals, COP 21, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Addis Ababa Action Agenda 2015.

The recommended actions in this report appear simple to adopt but are challenging to implement. Cities, the private sector and civil society must work together and proactively play their part to make it happen. The agenda for action for these stakeholders is provided in subsequent table. Every nation is different, with varying needs and requirements, scenarios, political structures, government capabilities and readiness. Not all the identified actions can be addressed simultaneously or applied equally, so priorities will depend on a city's unique context and values. Complementing the prioritization, cities must initiate pilots for proof of feasibility to validate the proposed urban frameworks and to gain more experience to better shape outcomes and enable proper scaling. Prioritizing the recommendations that are most relevant and feasible, governments can do much to attract private-sector investment and build confidence and trust, setting the foundations for long-term, successful public-private cooperation for sustainable urban development.

The Steering and Advisory Boards of the World Economic Forum Shaping the Future of Urban Development and Services Initiative trusts that the guidance offered in this report helps both governments and the private sector to implement the New Urban Agenda and enables the delivery of sustainable urban development and housing in cities over the next 20 years.

Stakeholder Group	Agenda for Action
Public sector	– Conduct performance assessment around the city key areas basis the priorities and targets as set out in New Urban Agenda, Sustainable Development Goals, COP 21, Sendai agreement and Addis Ababa Action Agenda. – Identify the areas to focus and prioritise based on the value, impact and time to execute – Develop city transformation agenda on robust evidence and analysis of the city's performance and infrastructure, supported by modelling of the total impacts (economic, social, environmental and fiscal) of targeted investments and interventions to improve outcomes – Engage with the private sector early in the process to strengthen the agenda to identify synergies. Build integrated consultation processes to engage civil society leading businesses in developing policy and designing social services. – Establish the enabling environment for leveraging the potential of Public private cooperation across the urban value chain and Initiate execution of recommended actions as suggested in the report – Build trust and confidence of private sector, civil societies, academia and communities in the city agendas and initiatives – Develop and implement integrated programmes of urban development and service
Private Sector	– Perform assessment in term of the preparedness required to support public sector in implementing new global frameworks. Assess the level of capabilities, competencies, business and operating models, and solution and innovation that are in place or required to be augmented to best support public sector – Work collaboratively and proactively with city authorities to identify city focus areas and building initiative pipeline to better shape the outcomes of transformation agendas – Bring new ideas and business models to local decision-makers leveraging digital and data which serves both to deliver growth and to improve local public service outcomes. Put societal issues at the heart of business models – Share the expectations and motivation required from the city authorities and public sector at large to commit long term investment, time, skills and solutions – Share best practices and experiences to improve city policies, regulations, initiatives and outcomes
Civil Society	– Embrace the roles of enabler, facilitator and constructive challenger. Think about how you can bring others to the table in bi-sector and multisector coalitions, and help co design and co-produce, while also reframing your view of what your role could and should be basis the new global priorities – Create platforms that enable public and private sector leaders to participate effectively in decision-making and building transformation agendas – Build value and illuminate aspects that need to be seen, understood and acted upon by standing apart from commercial or political interests and keeping societal interest at the core – Act as watchdogs and ethical guardians for the marginalized or under-represented section of the society and ensure the interests are safeguarded and valued – Hold all stakeholders to the highest levels of accountability – Identify innovative trends and build research efforts to societal problems and sustainable urban development. – Support shaping future technology by being the testbeds for innovation and educating future generations

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