



# Partnering With the Public Sector: A toolkit for start-ups in the utilities sectors





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## GSMA Digital Utilities

Utility services such as energy, water, sanitation, waste management and transport are essential to life. The Digital Utilities programme enables access to affordable, reliable, safe and sustainable urban utility services for low-income populations through digital solutions and innovative partnerships. In doing so, we also seek to support cities in low- and middle-income countries in their transition to a low carbon, climate-resilient future.

For more information, please visit [www.gsma.com/mobilefordevelopment/digitalutilities/](https://www.gsma.com/mobilefordevelopment/digitalutilities/)

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# Foreword

Cities in low-and middle-income countries are home to one billion people lacking access to affordable, reliable, safe, and sustainable utility services. This urban service gap is being exacerbated by rapid urbanisation, climate change and widening inequalities posing complex challenges to city authorities, municipalities, and utility service providers.

Partnerships between start-ups and the public sector have emerged as an innovative and impactful way to address critical gaps in essential urban services – particularly when it comes to reaching low-income urban populations in informal settlements. They have the potential to combine the technology, innovative financing, and agility of start-up ventures with the public sector’s scale, service mandate, and resources.

Over the last decade, through the GSMA Innovation Fund, we have supported more than 100 start-ups and SMEs working across LMICs. In that time, we have observed how central partnerships are to start-ups’ scaling journeys and wider social impact. We have also seen how partnership formation between stakeholders with different organisational cultures, time horizons, and strategic priorities can pose challenges. By supporting the move towards more collaboration between start-ups and the public sector, we hope to catalyse the formation, scaling, and replication of innovative partnerships that can improve urban utility services.

Indeed, despite promising examples, start-ups are often sceptical about engaging the public sector because of the many barriers to start-up-public sector partnerships: they have different organisational cultures, think in different time scales, pursue different funding priorities, and are driven by different strategic objectives. Other challenges include understanding evolving public sector incentive

structures, regulation, and political economy dynamics, finding sustainable financing solutions for collaboration in the context of higher risk perceptions, moving from pilots to scale, and evaluating the impact of these partnerships over time.

The objectives of this toolkit are therefore (1) to highlight the role of start-up-public sector collaboration in the context of the many challenges facing cities in LMICs, (2) to provide a conceptual framework of how to think through, frame, and define start-up-public sector partnerships, (3) to offer practical tips and tools to start-ups navigating these complex partnerships, and (4) to highlight additional resources that might be relevant to those aiming to catalyse start-up-public sector collaboration.

The GSMA Mobile for Development’s position at the intersection of the mobile industry, tech innovation, government, and development policy enables us to drive multi-stakeholder collaboration and ensure that partnerships can deliver both sustainable business and large-scale socio-economic impact for the underserved. Through our GSMA Digital Utilities programme, and thanks to the support of the UK’s Foreign, Commonwealth and Development Office (FCDO), we remain committed to supporting start-ups and their public sector partners in the utilities sector to form, sustain, and scale partnerships for improved urban utility service delivery.



**Max Cuvelier,**  
Head of Mobile for Development

# Introduction

## Who is this toolkit for?



While this toolkit contains information that can be applied by various stakeholders, the target audience is start-ups and SMEs working in LMICs.

## What does the toolkit contain?



The toolkit is designed in a modular fashion. Each module can be read independently and includes: Key relevant concepts, example exercises, tips, and useful links for additional learning.

Section 1 sets out the role of digital solutions and innovative partnerships in closing the urban service divide in LMICs.

Section 2 outlines key concepts and definitions relevant to start-up-public sector partnerships.

Section 3 provides practical guidance on designing, planning, and implementing partnerships.

Section 4 contains a set of useful tips and resources.

## How to use this toolkit



Each start-up’s context and scaling journey is unique, depending on firm capacities and those of the relevant public sector partner. It is important to contextualise and apply the information shared in this toolkit to your own specific constraints and circumstances.

## Learning themes and objectives



The learning objectives focus on acquiring greater clarity and insights into key partnership themes, including, but not limited to:

- Key considerations when selecting public sector partners;
- How to identify synergies and articulate partnership value to a prospective partner;
- Understanding common processes, risks and activities in forming a partnership; and
- Tips for identifying additional opportunities for funding and support.

By 2050, the world’s urban population is expected to increase by two billion, with 90 per cent of this growth concentrated in Africa and Asia. Demand for urban utility services will continue to expand in line with this rapid urbanisation, and poses unique challenges to cities and utility service providers.

There is growing evidence that innovative digital solutions unlock business models with the capacity to extend service provision to low-income urban populations. These solutions often require strong partnerships between the public and private sector, as well as mobile network operators (MNOs) and other technology providers. By working together, these partners can leverage the power of digital technology to create innovative service models to enable access to more reliable, affordable and sustainable urban services.

The GSMA Digital Utilities programme supports urban resilience in low- and middle-income countries (LMICs) by enabling access to essential utility services through digital solutions and innovative partnerships. Over the last decade, through the [GSMA Innovation Fund](#) we have supported over 100 start-ups and SMEs working across Africa, South and South-East Asia. In that time, we have observed how central partnerships with corporates and the public sector are for start-ups’ scaling journey and social impact, but we have also seen how partnerships between stakeholders with different organisational cultures, time horizons, and priorities can clash. Utility services in particular often require a degree of public sector participation to succeed, due both to the nature of the services themselves, as well as the regulatory and institutional context in many countries. Though this toolkit contains information relevant across sectors and verticals, we focus on start-ups leveraging digital innovations to drive access to essential urban utility services.



# Section 1

## The role of digital solutions and innovative partnerships in closing urban service gaps

### 1.1 The urban service divide

Bridging the urban service divide not only benefits under-served individual city residents but entire cities by enabling structural transformation and making cities catalysts for social mobility and economic opportunity.

Currently, more than 1.2 billion urban dwellers are under-served, representing one-third of urban residents globally (Figure 1). Up to 70 per cent<sup>1</sup> of the urban population in LMICs are reportedly under-served by municipal infrastructure and rely on informal or alternative arrangements to procure core services.<sup>2</sup> These services are often inferior or unsafe, and more expensive than municipal services:

- **Water:** A World Resources Institute study of 15 LMIC cities found that private water providers can charge as much as 52 times more than municipally supplied water.<sup>3</sup> Estimates suggest that the private water tanker fleet in Karachi, Pakistan might have doubled over the past decade, while it has more than quadrupled in Lagos, Nigeria, during that time.<sup>4</sup> Beyond being more expensive, water supplied by private water vendors also results in significant opportunity costs – particularly for women who are often asked to collect water for their families. A 2016 UNICEF study found that for 29 per cent of the population in sub-Saharan Africa, improved drinking water sources are 30 minutes or more away. An average roundtrip to collect water is 33 minutes in rural areas and 25 minutes in urban areas.<sup>5</sup>
- **Energy:** New research by Wood Mackenzie highlights that Nigeria's diesel genset power generation capacity exceeds that of the grid by 10.5 GW.<sup>6</sup> Household pollution generated from diesel generators, as well as polluting cooking materials like charcoal, are major causes of death, have profound adverse implications for long-term health outcomes and economic growth, and tend to be more expensive than cleaner alternatives.
- **Sanitation:** In Bangladesh, only 36 per cent of the poorest quintile in the urban income distribution have access to at least basic sanitation services, compared to 83 per cent of the richest quintile.

In Madagascar, only 2 per cent of the poorest have access to at least basic sanitation services while 43 per cent of the richest have access.<sup>7</sup>

- **Waste management:** The total amount of waste generated is expected to triple in Africa and double in Asia by 2050. Without a dramatic change in waste management practices, this waste will mainly pile up in the environment, as 70 per cent of the waste in Africa and Asia is estimated to be mismanaged.<sup>8</sup> Poor municipal solid waste management has a serious impact on public and environmental health. In Kinshasa, Democratic Republic of Congo, less than 10 per cent of the 8,000 tons of solid waste generated daily is landfilled, with the rest left in uncontrolled dumpsites and eventually in local rivers, the estuary, and the ocean. Uncollected household waste (especially plastics) also blocks storm water drains, exacerbating the city's flooding and erosion problems.<sup>9</sup>

The urban service divide is often a direct product of unplanned or poorly planned patterns of urban expansion associated with little public investment and rapidly expanding informal settlements in city peripheries. As recent research by the NYU Marron Institute has shown, most rural-urban migrants settle in informal settlements located in the city periphery, resulting in outward expansion and urban sprawl.<sup>10</sup> As highlighted in previous research, this trend poses unique challenges to municipalities and public utility service providers.<sup>11</sup>

1. Mahendra, A., R. King, J. Du, A. Dasgupta, V. A. Beard, A. Kallergis, and K. Schalch. (2021) "Seven Transformations for More Equitable and Sustainable Cities." World Resources Report, Towards a More Equal City. Washington, DC: World Resources Institute
2. Mahendra, A., R. King, J. Du, A. Dasgupta, V. A. Beard, A. Kallergis, and K. Schalch. (2021) "Seven Transformations for More Equitable and Sustainable Cities." World Resources Report, Towards a More Equal City. Washington, DC: World Resources Institute
3. Mitlin, D., V.A. Beard, D. Satterthwaite, and J. Du. (2019) "Unaffordable and Undrinkable: Rethinking Urban Water Access in the Global South." Working Paper. Washington, DC: World Resources Institute
4. New York Times (2020), *The Merchants of Thirst*
5. UNICEF (2016), *UNICEF: Collecting water is often a colossal waste of time for women and girls*
6. Wood Mackenzie (2022), *Quantifying the distributed diesel landscape in Africa*
7. Bauer, G., Guilian, D., With, L., (2020), *Digital Solutions for the Urban Poor* GSMA
8. Kaza, S., Yao, L.C., Bhada-Tata, P., Van Woerden, F., (2018), *What A Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050* World Bank
9. World Bank (2021), *Kinshasa Multisector Development and Urban Resilience Project*
10. Angel, S., Lamson-Hall, P., Blei, A., Shingade, S., Kumar, S., (2021), *Densify and Expand: A Global Analysis of Recent Urban Growth Sustainability* 13 3835
11. Bauer, G., Guilian, D., With, L., (2020), *Digital Solutions for the Urban Poor* GSMA

The already substantial gaps in urban service provision are exacerbated by three key macro challenges facing several cities in LMICs:

## Challenge

## Context



### Rapid urbanisation and population growth

By 2050, more than two-thirds of the world's population is projected to live in urban areas. This rapid increase will take place mainly in LMICs. Africa and Asia—both still less urbanised than other regions—will have the fastest urban growth rates, accounting for 90 per cent of total global urban growth from now until 2050. The Intergovernmental Panel on Climate Change (IPCC) estimates that approximately 40

per cent of the world's urban expansion may occur in informal settlements, further worsening the existing poor conditions of sanitation and socioeconomic disparities.<sup>12</sup> This growth is also driving growing urban infrastructure investment needs. The Coalition for Urban Transitions estimates that urban infrastructure investment needs will range from \$4.1–4.3 trillion per annum from 2019 until 2030.<sup>13</sup>



### Urbanisation without structural transformation

Instead of benefiting from pathways to greater prosperity, many urban poor risk being locked into poverty traps, given that they often settle in areas deprived of public and private investment. Urbanisation without growth has important implications for a city's built environment and its long-term ability to provide basic services to its population. Since the urban poor cannot afford to live in dense, well-connected neighbourhoods, many African cities are characterised by low-rise informal housing and urban sprawl.

For city authorities and state-owned utilities providing basic public services, urban sprawl poses unique challenges. The capital expenditure required to provide basic infrastructure, such as water pipes or sewer networks, is deeply sensitive to the density at which urbanisation occurs. The result is often highly disproportionate distribution of basic services between richer neighbourhoods and poorer informal settlements, with preference given to the socio-economic core.



### Climate change and the need for mitigation and adaptation in cities in LMICs

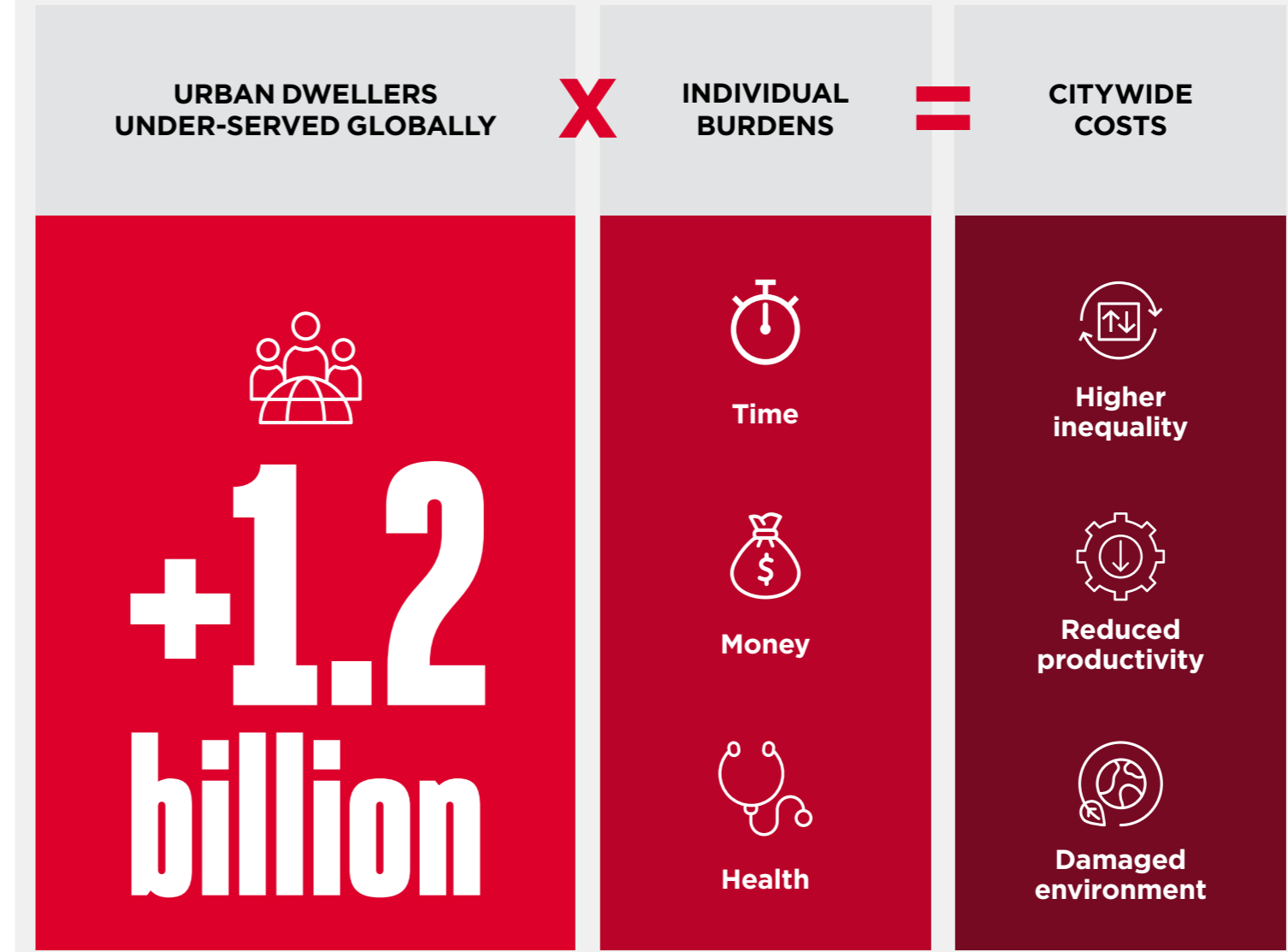
Cities in LMICs are increasingly vulnerable to the impacts of climate change, including rising sea levels and storm surges, heat stress, extreme precipitation, inland and coastal flooding, and landslides. According to the 2022 IPCC report, cities in the global south will be particularly exposed to risks such as coastal flooding “because their urban development is frequently informal, creating sprawling, unplanned urban areas that suffer from a relative lack of adaptive capacity.”<sup>14</sup> The report also highlights that urban expansion and changing rainfall patterns could cause nearly one-third of all major cities worldwide to exhaust their current water resources by 2050. It is critical that utility service providers and their partners invest in strategies that can increase their adaptive capacity to respond.

These challenges are exacerbated by rich countries continuously failing on their commitments to provide adequate climate financing to LMICs, particularly when it comes to climate adaptation. Only five per cent of tracked climate finance commitment goes to adaptation.<sup>15</sup> Less than 10 per cent of climate finance committed from international, regional and national climate funds went to locally focused projects in developing countries between 2003 and 2016.<sup>16</sup> Adaptation accounts for just four to eight per cent of tracked climate finance, which totalled \$579 billion in 2017-18. Given that adaptation challenges are particularly pronounced throughout cities in LMICs, it will be critical to overcome some of the structural barriers preventing more climate adaptation financing.<sup>17</sup>

12. Palanivel, T. (2017) Rapid urbanisation: opportunities and challenges to improve the well-being of societies. UNDP.  
 13. Godfrey, N., Zhao, X., (2019), *Financing the Urban Transition for Sustainable Development: Better Finance for Better Cities* Coalition for Urban Transitions  
 14. Bloomberg (2022), *The World's Fastest-Growing Cities Are Facing the Most Climate Risk*  
 15. Chandrasekhar, A., Dunne, D., Gabbatiss, J., McSweeney, R., Tandon, A., Viglione, G., (2022), *In-depth Q&A: The IPCC's sixth assessment on how climate change impacts the world* Carbon Brief  
 16. Soanes, M., Rai, N., Steele, P., Shakya, C., Macgregor, J., (2017), *Delivering real change: Getting international climate finance to the local level* IIED Working Paper, IIED  
 17. Bloomberg (2021), *Climate Adaptation Should Be A Public Good Not An Asset Class*

Figure 1

## The urban service divide and its implications for urban residents and the wider city



Source: World Resources Institute (2021)

## 1.2 The role of digital solutions and innovative partnerships in closing the urban service gap in LMICs

Digital solutions are uniquely positioned to improve urban utility service delivery in LMICs. The rapid expansion of mobile connectivity and the associated rise in phone ownership as well as the growth of mobile money/digital payment ecosystems have enabled the emergence of digital solutions to make essential urban utility services more accessible, affordable, reliable, safe, and sustainable.

These solutions are set to play a vital role in making cities more resilient to the challenges of population growth, climate change, and persistent inequality.<sup>18</sup> Figure 2 highlights different urban utility service gaps in LMICs and how digital innovation can help minimise these gaps in the sectors of energy, water, sanitation, plastics and waste management, and transport.

18. GSMA (2021) *Supporting Innovation in Digital Urban Services*

Figure 2

## How digital solutions can help address essential urban service gaps

Service gaps	Mobile solutions
<p>Unaffordable</p> 	<p>Pay-as-you-go models can make services affordable for low-income consumers by enabling micropayments.</p> <p>For service providers, mobile money can reduce operating costs and improve revenue collection.</p>
<p>Unconnected</p> 	<p>GIS can generate granular data to assess needs and coordinate service delivery in complex value chains.</p> <p>Digital tools provide the ability to identify hotspots and better match supply and demand for essential services.</p>
<p>Unreliable and unaccountable</p> 	<p>Smart monitoring and smart metering can improve operational efficiency.</p> <p>Internet of Things (IoT) can improve management of service delivery and consumption.</p> <p>Digital tools have the ability to establish an auditable trail of financial transactions and to measure environmental and social impact.</p>
<p>Unplanned</p> 	<p>Data and large data sets can inform plans for the provision of urban services.</p> <p>Big data can support evidence-based policymaking.</p>
<p>Unsafe</p> 	<p>IoT sensors can be used to monitor service quality and prevent faults.</p> <p>Digital solutions and platforms can drive accountability in the informal sector, making service provision safer for workers and customers.</p>



### 1.3 Defining and contextualising digital utilities

Here are some of the specific use cases, and sector challenges that digital solutions can enable and address:



## Energy

How digital solutions support improved services:



**Pay-as-you-go (PAYG)** services enable low-income customers to make micropayments and guarantee revenue collection for providers;



**Internet of Things (IoT)** technology and machine learning have the potential to optimise operations and improve performance;



**Smart metering** can minimise electricity theft, line losses and improve utility performance; and



**Digital tools and new business models** play a key role in the decarbonisation of unsustainable power supply chains. Digital tools will encourage generator replacement by reducing the cost of renewable energy solutions for businesses.

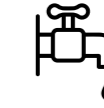
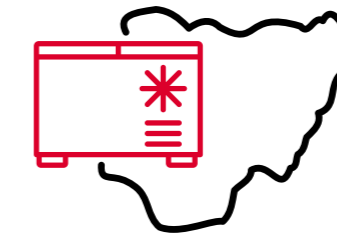
**Example from the GSMA Innovation Fund for Digital Urban Services cohort:**



### Koolboks

Nigeria

PAYG solar-powered refrigerator for commercial use by MSME traders



## Water

How digital solutions support improved services:



**PAYG** services enable low-income customers to make micropayments and guarantee revenue collection for providers;



**Smart monitoring** of system performance can minimise technical losses and improve operational efficiency;



**Mobile services** enable communication and complaint resolution between providers and customers; and



**Smart metering** can make operations and billing more efficient, and make utilities more commercially sustainable and transparent for funders and investors.

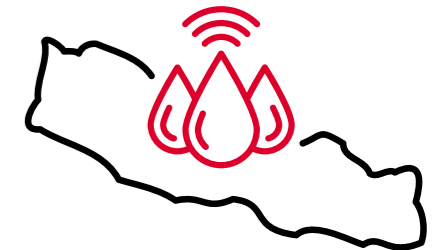
**Example from the GSMA Innovation Fund for Digital Urban Services cohort:**



### Diyalo

Nepal

Developing IoT-based digital solutions for water utilities



# Sanitation

How digital solutions support improved services:

- Mobile services** enable communication between providers and customers;
- Smart monitoring** of system performance and logistics tracking can minimise technical losses and improve operational efficiency;
- PAYG** services allow low-income customers to make micropayments and guarantee revenue collection for providers;
- Digital tools** can play a key role in connecting disaggregated value chains. Sanitation and waste management may have some similarities in their value chains, particularly when it comes to circular economy use cases, where digital tools could provide similar value; and
- The use of **unconventional data sets and big data** can support more effective planning and regulation in the sector.

## Example from the GSMA Innovation Fund for Digital Urban Services cohort:



### Bhumijo

Bangladesh  
Provision of affordable sanitation through public toilets in Dhaka



# Plastic and waste management

How digital solutions support improved services:

- Waste management platforms** can incentivise, facilitate, and optimise the collection, transport, sorting and recycling of waste. They can also play an important role in formalising the informal sector and enable upstream innovation in the plastics supply chain;
- Digital traceability tools** will be vital for innovators to create an auditable trail of recovered waste, prove compliance to Extended Producer Responsibility (EPR) policies, gain valuable market insights (e.g., where waste is located in the supply chain and where leakage is occurring or likely to occur) and to monitor the social and environmental impacts of waste management practices; and
- Mobile money services** could provide a more convenient, cost-effective, and transparent way for organisations to transfer credits to users.

## Example from the GSMA Innovation Fund for Digital Urban Services cohort:



### Regenize

South Africa  
Household waste collection and recycling, organised and tracked through mobile



## Useful links



**GSMA (2022)**  
Announcing The GSMA Innovation Fund for Digital Urban Services Cohort



**GSMA (2021):**  
Supporting Innovation in Digital Urban Services



**Veolia (2021):**  
Digital Solutions To Improve Basic Service Provision To The Urban Poor



**GSMA (2020):**  
Digital Solutions for the Urban Poor



**GSMA (2019):**  
Intelligent Utilities for All

The fast pace of digital transformation in the private sector is creating increased pressures on the public sector to improve the efficiency and effectiveness of public service delivery. The COVID-19 pandemic highlighted the value of public sector digital capabilities, and lockdowns galvanised the public sector to accelerate digitalisation initiatives throughout public sector organisations, including utilities and municipalities.<sup>19</sup> While the pandemic compelled governments to improve e-governance and innovation and rethink the conventional delivery of public services, this process has been uneven, and the income level of a country strongly correlates with its e-government rankings.<sup>20</sup> Capital cities or economic hubs are often the centres of digital innovation, often bypassing intermediary cities where a significant proportion of urban growth in Africa will be concentrated.<sup>21</sup>

With the unprecedented rate of urban growth in some LMICs, start-up-public sector partnerships have emerged as an innovative and agile way to address critical gaps in essential urban services. By bringing together the resources, expertise, and innovative technology of start-up companies with the public sector's knowledge, existing customer/user base and resources, start-up-public sector partnerships are well-placed to help close the urban service divide.

The start-up ecosystem has seen an increase in the number of public-purpose tech start-ups in recent years, due to a combination of factors such as increasing investor appetite for these types of companies and a growing awareness of the potential for technology to address social and environmental challenges. Public-purpose start-ups have five key characteristics:

1. They tackle long-term problems;
2. They have a mature and active relationship to government and policy;
3. They thrive through close links to university ecosystems;
4. They benefit from investments, Initial public offerings, and acquisitions; and

5. They are at the centre of an emergent debate about investment and ownership models.<sup>22</sup>

The top five technologies used by public-purpose start-ups to address public problem areas are:

1. AI/machine learning;
2. Cloud computing;
3. Big data analytic;
4. Communications tech; and
5. IoT.<sup>23</sup>

While the public-purpose tech start-up ecosystem is more mature in rich countries like the United States, the United Kingdom, and Israel, LMICs such as Kenya, Brazil, Chile, Nigeria, and India are also seeing many high-quality public purpose start-ups due to their assertive innovation or start-up policies (Kenya, Chile, India), but also because public purpose start-ups in many LMICs see "opportunities in plugging a gap in state capacity, rather than a natural complement to it."<sup>24</sup>



Governments often have a deep understanding of local needs and challenges. In addition, governments provide many resources, such as approvals, infrastructure access, distribution networks, etc., that are useful particularly to start-ups operating on public-purpose topics such as utility service provision. Figure 3 highlights some of the key ways public sector partners can add value to start-ups in their scaling journey, and how start-ups can foster synergies with public sector partners.

19. Tomo Tomorrow City (2020), *How the Covid Response and Recovery are Driving the Evolution of Digital Cities Now, Faster Than Ever Before*  
20. UN (2020), *COVID-19 pushes more government activities online despite persisting digital advice*. United Nations, Department of Economic and Social Affairs.  
21. GSMA (2022), *The challenge of service provision in intermediary cities: In search of solutions*  
22. StateUp 21 (2022), *Data-Driven Insights Into Global Public-Purpose Tech*  
23. StateUp 21 (2022), *Data-Driven Insights Into Global Public-Purpose Tech*  
24. StateUp 21 (2022), *Data-Driven Insights Into Global Public-Purpose Tech*



Figure 3



## Government haves and start-up needs framework

	01	02	03	04	05
<b>Government haves</b> 	<b>Service base</b> <i>Larger user base Knowledge, delivery, volume</i>	<b>Authority</b> <i>Influence and regulatory mandate Permissions and authorisations</i>	<b>Resources</b> <i>Availability and access Allocate and prioritise</i>	<b>Infrastructure</b> <i>Technology, grid, service Structure and capability</i>	<b>Network</b> <i>Distribution and coverage Opportunities for expansion</i>
	<b>Considerations for start-ups to identify achievable synergies</b>				
	<ul style="list-style-type: none"> <li>— Immediate customers</li> <li>— Expansion volume</li> <li>— Long-term vision</li> <li>— Acquisition channels</li> <li>— Retention and value</li> <li>— Goals for each segment</li> </ul>	<ul style="list-style-type: none"> <li>— Localised requirements</li> <li>— “Need-to-haves” vs “Nice-to-haves”</li> <li>— Power of validation and market proof</li> <li>— Cost-benefit analysis</li> </ul>	<ul style="list-style-type: none"> <li>— Capacity constraints</li> <li>— Customise to locality</li> <li>— Delivering value compatible with government objectives</li> <li>— Existing idle resources to convert into value creation comparative advantage</li> </ul>	<ul style="list-style-type: none"> <li>— Reality vs potential</li> <li>— Interoperability</li> <li>— Data sharing capacity, opportunities, limitations coordination</li> <li>— Leverage each partner’s strengths unlock value</li> </ul>	<ul style="list-style-type: none"> <li>— Strategic targeting</li> <li>— Phases of growth</li> <li>— Localised requirements</li> <li>— Operations and process efficiencies</li> <li>— Optimising for scale</li> </ul>
<b>Start-ups needs</b> 	<b>Customers</b> <i>Acquisition, monetisation, insights What segments are most worthwhile in terms of my end goals for impact, growth and return on investment?</i>	<b>Approvals</b> <i>Credibility, certification What is the purpose and how will I leverage this?</i>	<b>Resources</b> <i>Funding, personnel, land, etc. What should I prioritise in my Ask? How do I pitch my ability to deliver value from their contribution?</i>	<b>Integration</b> <i>Opportunity for digitisation How can I ensure smooth implementation? How can I integrate my solution for the long-term?</i>	<b>Distribution</b> <i>Channels and business pipeline How do I optimise my public partners network for our mutual benefit and unlock greater value?</i>

Source: The Hungry Lab - Adapted and contextualised to digital utility sector per interviews and research

Figure 4

## Start-ups haves and government needs framework

	01	02	03	04	05
<b>Start-ups haves</b> 	<b>Digital solutions</b> <i>Solving for market needs Digitalising delivery and service</i>	<b>Innovation</b> <i>Mindset and market mindshare Insights drive improvement</i>	<b>Commercialisation</b> <i>Business models and revenue Monetisable platform</i>	<b>Lean approach</b> <i>Agile methodologies Efficiencies, speed, adaptability</i>	<b>Impact</b> <i>Advancing SDGs with tech Measurable benefits for users</i>
	<b>Considerations for Government to identify achievable synergies</b>				
	<ul style="list-style-type: none"> <li>— Compatibility</li> <li>— Immediate capacity</li> <li>— Long-term potential</li> <li>— Deployment roadmap</li> <li>— Consumer benefits</li> <li>— Goal alignment</li> </ul>	<ul style="list-style-type: none"> <li>— Employee buy-in</li> <li>— Leadership</li> <li>— Incentive for innovation</li> <li>— Potential for unlocking greater value</li> </ul>	<ul style="list-style-type: none"> <li>— Revenue streams</li> <li>— Customer segments</li> <li>— Pricing and promotion</li> <li>— Revenue and profit-share structures</li> <li>— Growth potential</li> </ul>	<ul style="list-style-type: none"> <li>— Priorities, pace and interactive metrics</li> <li>— Technical alignment</li> <li>— Resource allocation</li> <li>— Comparative advantage</li> <li>— Unlock partnership value</li> <li>— Risk mitigation and management</li> </ul>	<ul style="list-style-type: none"> <li>— Scaling for impact</li> <li>— Impact objectives</li> <li>— Localised context</li> <li>— Public needs</li> <li>— Benchmarking performance</li> <li>— Data analytics to monitor and evaluate</li> </ul>
<b>Government needs</b> 	<b>Market adaptation</b> <i>Evolving consumer demands How can I leverage digital solutions and processes to fulfill evolving market needs?</i>	<b>Culture shift</b> <i>Upskilling, evolving mindset How can start-ups help us enhance necessary innovation to unlock greater service potential?</i>	<b>Income</b> <i>Financial sustainability How can start-ups help create self-generating income to sustain operations and increase budgets?</i>	<b>Resource efficiency</b> <i>Doing more within constraints How can I start-ups help us show quick, measurable results and validate our contribution to this partnership?</i>	<b>Public good</b> <i>Deepen and expand benefits How can start-ups add measurable value and provide digital insights for our reporting goals?</i>

Source: The Hungry Lab - Adapted and contextualised to digital utility sector per interviews and research

“The finding in a recent survey that half of 167 cities globally described identifying innovative suppliers as one of their toughest obstacles to achieving the United Nations’ Sustainable Development Goals (SDG) - the second hardest barrier after regulatory complexity - is horrifying. Globally, thousands of start-ups - just one type of government technology supplier - are developing high-quality, contextually sensitive products and services to help to address the big public needs that cities face.”

StateUp 21

It is important to note that this process is not one-sided. The start-up and the government partner should work together to identify and prioritise the haves and needs of each stakeholder as they align on partnership purpose and objectives (see Section 3.2). By doing so, both parties can ensure that they are deriving mutual and satisfactory benefits from the partnership. Correspondingly, Figure 4 highlights start-up haves and government needs.

Start-ups have a unique mix of agile thinking, entrepreneurial spirit, and technical expertise that allows them to quickly respond to evolving needs within the community. Furthermore, public-private partnerships (PPPs) can give public sector projects access to new funding streams, innovative business models, connections with key stakeholders, and unique expertise from the private sector. Ultimately, it allows them to go beyond traditional centralised service provision models and their traditional supplier base, and take advantage of innovation and technology trends shaping the wider sector.

In addition to filling critical service gaps, start-ups can offer public sector partners data that can support urban planning solutions and the effective provision of urban utility services. Data-sharing partnerships can therefore equip governments with the data they need to address urbanisation challenges with data-driven decisions<sup>25</sup> as well as providing start-ups with ways to generate additional value by turning information into business intelligence.<sup>26</sup>

Despite these obvious synergies, it is also critical to acknowledge and learn from past failures and disappointments, and acknowledge that some PPPs have meant that the public sector took on excessive risks, and costs, while in other cases, private sector partners have faced significant financial and reputational risks.<sup>27</sup>

25. Kong, J., Bocquet, C., and Bauer, G. K. (2021), *Innovative Data for Urban Planning: The Opportunities and Challenges of Public-Private Data Partnerships*

26. Barba J. (2022), *The six water technology trends for 2022, according to Idrica. International Water Association*

27. Heinrich Boell Stiftung (2018), *History RePPPeated*

## 1.4 Different roles public sector stakeholders can play in partnerships with start-ups

The public sector can play different roles as a partner to start-ups, depending on the specific needs and capacities of the start-up at that time (Table 1).

Table 1

### Examples of different start-up-public partnership types among global use cases

Sector/country	Transport- Electric Vehicle (EV) Support India	Waste Management - Circular Economy India	Energy - Marketplace Philippines	Waste Management - Recycling Malaysia
Start-up	Founded in 2020 by Indian Institutes of Technology grads, <b>Kazam</b> is an IoT-based charging station and mobile app for electric vehicles, as part of its mission to reduce emissions by 75 per cent. Through its agnostic EV charging software platform, Kazam is building India's largest EV charging station network.	Founded in 2020, <b>Cercle X</b> leverages technology to create an ethical, transparent and traceable supply of recycled materials. The start-up works with brands to handle their waste streams to create circular solutions.	Founded in 2017, <b>Exora</b> is an end-to-end energy solutions platform that aims to lower energy costs through its proprietary, specialised energy procurement bidding platform and data-driven analysis.	Founded in 2018, <b>ERTH</b> (E-waste Recycling Through Heroes) is a social enterprise that specialises in collecting and recycling electronic waste from households and businesses to offset greenhouse gas emissions. It offers e-payments and an enterprise recycling solution.
Public sector body	<b>Delhi Discom, BSES Rajadhani and BSES Yamuna</b> Joint Delhi government and private sector-owned electricity distribution companies.	<b>Reserve Bank of India</b> India's central bank and regulatory body of financial institutions.	<b>QBO Innovation Hub</b> QBO was formed by the Philippines Department of Trade and Industry to facilitate partnerships and collaboration between local entrepreneurs, industry, and government.	<b>Government of Malaysia</b> Jabatan Alam Sekitar (Department of Environment).
Role of public sector partner	<b>Government as approval authority and subsidy partner</b> Kazam was one of several companies officially selected as a vendor partner by the Delhi Government to manage 30,000 units and partnerships with top fleet operators in India. The Delhi government will provide a grant of Rs 6,000 to the first 30,000 applicants to install electric vehicle chargers to bring down the cost of a charging station.	<b>Government as pilot collaborator for proof-of-concept</b> In 2019, Cercle X worked with the Reserve Bank of India to convert their shredded currency notes after the country's demonetisation act into a range of creative product giveaways. This project, along with other big brand collaborations, helped provide the proof-of-concept for Cercle X to form its current digital platform for managing waste streams.	<b>Government as incubator</b> Exora received incubation support from QBO, and its clients must be approved by the Energy Regulatory Commission. Qualified customers can lower their power costs through competitive bidding platforms such as Exora.  Exora also hosts many industry speaking events, and collaborates with the government.	<b>Government as implementation and service partner</b> The Government of Malaysia is a sustainability partner of ERTH. The Department of Environment has approved ERTH as a "top authorised collection centre".  ERTH also recycles 100 per cent of the e-waste collected by its heroes with a government-licensed recycling facility.

## 1.5 Key trends shaping the future role of digital solutions and innovative partnerships in urban service delivery

There are many trends that are gaining momentum at various levels across different geographies and sectors in LMICs. The following key emerging trends are most relevant to the GSMA's Digital Utilities Innovation Fund areas:

1. Government support for start-ups and innovation ecosystems is on the rise across LMICs – with pioneering cities taking the lead;
2. Circular economy approaches are being actively supported across the public and private sectors given global sustainability needs;
3. Advances in digital innovation across a range of emerging technologies such as IoT, AI, and big data are creating new pathways for digital solutions and innovative partnerships; and
4. New funding models with the capacity to support multi-stakeholder partnerships and public-private collaboration are emerging.

**Trend 1: Government support for start-ups and innovation ecosystems is on the rise across LMICs – with pioneering cities taking the lead.**

Governments across LMICs are increasingly interested in digitisation and start-up

innovation to capitalise on the surge in market demand. This can be seen by the rising number of government-supported start-up initiatives, such as Make it Happen in the Philippines and Startup Tunisia, that are building the enabling ecosystem to further support start-ups.

Such government initiatives are also contributing to increased funding as they help start-ups show the user traction, geographic coverage, and potential for scale in terms of viable implementation needed for investment. In recent years, there has been a rise in government investment, programmes and resources into developing start-ups and start-up partners for innovation at both the national level, and regional and city levels. These programmes have helped to create an environment in which start-ups can thrive.

In some instances, governments leverage their market-shaping capacity by earmarking public procurement for start-ups, or streamlining public procurement rules to allow early-stage innovators to compete with more established corporates. In others, governments provide partnership opportunities to start-ups to promote joint innovation objectives, and raise the profile and capabilities of start-ups, while also sharing vital resources and knowledge, which has helped to accelerate the growth of start-ups.

In recent years, pioneering cities and other relevant government institutions have taken the lead in terms of piloting and scaling digital solutions and innovative PPPs that have the capacity to improve urban service delivery. Some of the pioneering government initiatives that support start-ups and provide partnership opportunities are listed in Box 1.

Box 1

### Governments breaking down barriers for start-ups to partner in key markets

**Alternative Service Delivery Unit – Green Cape, South Africa** - Green Cape's Alternative Service Delivery Unit (ASDU) has been working with some informal settlements in South Africa to democratise the provision of alternative service delivery and circumvent the public procurement process. Through ASDU's social mobilisation, informal settlements are empowered with technologies such as solar-powered Wi-Fi-enabled streetlights. ASDU leverages its partnership with the government to support alternative service providers in tender management and assessment.<sup>28</sup>

**Rural Electrification Agency, Nigeria** – The Nigeria Electrification Project, implemented by the Rural Electrification Agency with support of the World Bank, P is an innovative programme to kick-start off-grid electrification through grant funding, create an energy database with detailed energy market data and provide technical assistance. The NEP uses a market-based approach through which private companies are expected to develop mini-grids or deploy SHSs in specific settlements with subsidies from the Rural Electrification Agency.<sup>29</sup>

**Kerala Start-up Mission, India:** In the state of Kerala, the Kerala Startup Mission (KSUM) has been created to support and advance entrepreneurship development and incubation activities for high-growth tech start-ups across the state. It is recognised as one of the leading regional start-up ecosystem enablers. KSUM has supported a number of digital utility related start-ups, including sanitation start-up Bandicoot, the world's first robotic scavenger to replace humans to clean manholes and eliminate manual scavenging. Bandicoot is seeing

traction and currently able to scale in partnership with other state governments, including Tamil Nadu, Andhra Pradesh, Haryana and Gujarat.

**Jakarta Smart City Initiative:** The Government of Jakarta has prioritised the Jakarta Smart City Initiative with “a mission to realise a New Jakarta that is more data-driven and transparent, as well as supporting collaborations through the use of technology for better public services.”<sup>30</sup> Within this initiative, Jakarta Future City Hub is designed to empower the entrepreneurial ecosystem in Jakarta by presenting an innovation hub between the Jakarta Provincial Government and start-up innovators. This innovation hub is expected to accelerate smart city innovation by connecting policy makers with innovators.<sup>31</sup>

**Johannesburg 2040 Growth and Development Strategy (GDS):** GDS was launched as a long-term development strategy in 2010. In 2013, the City of Johannesburg stated its intention to transform into a smart city and a Smart City Strategy and Implementation Roadmap was developed and approved in 2014. In line with the GDS, various pilot smart city initiatives have been launched in Johannesburg, including public Wi-Fi, eHealth, eLearning, and smart meters.<sup>32</sup>

28. GSMA (2022), Driving alternative service delivery in South African informal settlements – Lessons from GreenCape

29. GSMA (2021), Innovative Data for Urban Planning: The Opportunities and Challenges of Public-Private Data Partnerships

30. IBM (2019), Jakarta Smart City

31. Jakarta Smart City (2022), Start-up and Government Collaboration: The Success Stories

32. African Construction Expo (2019), Joburg Smart City Strategy Revised 2019-2021

Across LMICs, the nationwide push in numerous countries to advance the development of their start-ups ecosystem and attract global investors fosters fertile ground for start-up-public sector partnerships. These opportunities not only help start-ups grow and tap into commercial markets and funding, but also strengthen the linkages of all the diverse and valuable but often-siloed stakeholders. Some national initiatives, such as India's national smart city strategy and Swachh Bharat Mission (Clean India campaign), also incentivise and set regulatory criteria with regards to private sector partnerships for the selected cities in the programme.<sup>33</sup> Many cities offer specific collaboration opportunities with start-up hubs for piloting and scaling digital solutions, including utilities services. Start-ups and other private sector innovators should therefore target such cities with favourable enabling infrastructure and government support when selecting operating markets (see Appendix Box 1 for further context on India's pioneering approach to start-up-public sector collaboration).<sup>34</sup>

**Trend 2: Circular economy approaches are being actively supported across the public and private sectors given global sustainability needs.**

As estimated by Accenture, the global waste management space by 2030 represents a \$4.5 trillion global opportunity, due to the significant investment and innovation needs associated with sustainability, climate adaptation, and economic efficiencies.<sup>35</sup> Start-ups are well-placed to take a portion of this growing market.

The amount of waste produced globally is increasing rapidly, especially in Africa and South and South-East Asia where formal waste management systems are underdeveloped or non-existent. The World Bank predicts

Box 2

### The public sector's role in catalysing Qlue's scaling journey in Indonesia

Indonesia-based civic-tech start-up Qlue's app and government dashboard provides two-way communication between city residents and governments. Residents can report problems and request services, while governments can monitor and respond through Qlue's platform for visualising data. Qlue collaborates with the Bureaucratic Reform Agency to conduct monthly district officer performance evaluations based on performance and responsiveness to citizen concerns as reported by Qlue's citizen app.

Qlue was launched as a pilot project with the Jakarta Smart City initiative in 2014, and has now scaled with significant Series B funding in 2021. Qlue's 2014 pilot project with Jakarta City provided the proof-of-concept and validation needed to catalyse the company's rapid growth and expansion, including raising Series A and B funding from a variety of corporate and traditional venture capitalists. Qlue has also established key partnerships with MNOs.

33. Aijaz, R. (2021), India's Smart Cities Mission, 2015-2021: A Stocktaking. Observer Research Foundation.

34. Aijaz, R. (2021), India's Smart Cities Mission, 2015-2021: A Stocktaking. Observer Research Foundation.

35. Deshpande, A., (2019), The Great Business Opportunity in Asia Nobody is Talking About. Entrepreneur Asia Pacific

that global annual waste will increase to 3.4 billion tons by 2050, one-third of which will be disposed of in unregulated landfills or burned in the open. This waste will mainly pile up in the environment, as 70 per cent of the waste in Africa and Asia is estimated to be mismanaged.

Given the scale of the challenge and the lack of public investment by local governments across Africa and Asia, private service providers have a substantial addressable market. Circular economy approaches in sectors such as sanitation or waste management are making these private service delivery models more viable by unlocking revenue streams from value-added products such as organic fertilisers, recycled products, and energy. These approaches also offer potential opportunities for cross-subsidisation as ability and willingness to pay in sectors such as sanitation can be a challenge for decentralised service providers, while many private waste management providers struggle to serve low-income urban areas.

Beyond this, circular economy approaches also open new pathways for public-private collaboration in waste management. For example, container-based sanitation service provider Sanivation partners with local governments to develop and operate waste-to-energy plants. The waste-to-energy treatment plants turn waste products into biomass fuels that can be sold and used as a smell-free fuel source for cooking or heating. Sanivation has worked with several intermediary cities in Kenya such as Naivasha, Malindi, Wajir and Kisii. In an ongoing project in Malindi, Sanivation unlocked about \$7 million to launch a 20-year sanitation plan involving pit emptying services, transfer stations and a treatment plant.<sup>36</sup>

**Trend 3: Advances in digital innovation across a range of emerging technologies such as IoT, AI, and big data are creating new pathways for digital solutions and innovative partnerships.**

The market potential for emerging technologies to advance deployment of digital utilities solutions and SDGs in LMICs is significant. There are several emerging technologies and digital innovations that will continue to shape opportunities for start-ups and the public sector working across the utilities ecosystem:

- **IoT:** The latest release of the International Data Corporation's Worldwide Internet of Things Spending Guide indicates a gradual growth of the IoT market in the Asia Pacific region from 2021 to 2025 is expected to reach \$437 billion by 2025, with a compound annual growth rate of 12.1 per cent. This growth is mainly driven by increased adoption of IoT for use cases such as location tracking, remote working, and facial recognition, as well as the deployment of 5G in the region. The decline in the cost of sensors is also a significant development, making IoT use cases such as water leakage detection or monitoring and controlling power quality more relevant to public utilities. According to data from Goldman Sachs and BI Intelligence, the average cost of sensors has dropped from \$1.30 in 2004 to \$0.38 in 2020.<sup>37</sup>
- **AI and big data:** Passively generated data held by the private sector (mobile big data, or data generated by digital platforms), as well as advances in publicly available geo-spatial data sets (remote sensing data), hold great potential to spur development in general, and urban planning specifically. Data-sharing PPPs are still relatively nascent in LMICs, and therefore there is limited evidence on the effectiveness and relevance of some underlying use cases. The opportunities associated with innovative data sources in supporting national and municipal authorities to make urban planning and urban service provision more inclusive and more evidence-based remain underexploited. The COVID-19 pandemic has fuelled government engagement with MNOs to use big data to monitor and predict the spread of the pandemic and evaluate the effectiveness of different mitigation measures. The pandemic is also expected to be a catalyst for data-sharing PPPs, since many public sector and civil society stakeholders have witnessed the tremendous insights that can be derived from partnerships with the private sector.<sup>38</sup>

36. GSMA (2022), *The challenge of service provision in intermediary cities: In search of solutions*  
 37. The Atlas (2020), *The average cost of IoT sensors is falling*  
 38. Kong, J., Bocquet, C., and Bauer, G. B. (2021), *Innovative Data for Urban Planning: The Opportunities and Challenges of Public-Private Data Partnerships*



- **Digital platform models:** For many, digitalisation has become synonymous with the deployment of digital platforms and the general perception is that utility services have yet to receive the 'Uber' treatment. Platform models are gaining traction and attracting significant funding across many LMICs markets, and there is increasing attention on their applicability for essential utility services. The key enablers of this trend in LMICs are increased access to mobile internet, increased smartphone ownership, young digitally literate populations, and increased venture capital funding. The market dynamics in the utility sectors – energy, water, sanitation, and waste management – shape how these platforms can be deployed, and where value can be generated. Some of the potential sources of value of digital platforms in the context of public-private collaboration for improved urban utility service delivery include:

- **Network effects:** Value increase with the number of users;
- **Trust:** Rating, verification and review of systems, or other safety features;
- **Removal of barriers of entry:** Platform disrupts closed-shop markets;
- **Market creation:** Platform creates the possibility for business models and forms of service delivery that previously did not exist;
- **Efficiency:** Platform can facilitate more efficient exchange between parties;
- **Revealed prices:** The act of many buyers and sellers using the platform means prices are revealed; and
- **Traceability and open ledgers:** Value generated simply by transparently recording exchanges.

- **Digital payments:** According to the Global Findex 2021 report, 76 per cent of adults globally had an account at a bank or regulated institution such as a

credit union, microfinance institution, or a mobile money service provider. In Africa, mobile money has been a key driver in the rise in account ownership. For instance, in Uganda, account ownership increased from 30 per cent in 2011 to 66 per cent in 2021. In LMICs, the share of adults making or receiving digital payments grew from 35 per cent in 2014 to 57 per cent in 2021, with 83 per cent of adults in LMICs receiving a digital payment also making a digital payment. COVID-19 has been a key catalyst of digital payment adoption by utility service providers. While only 18 per cent of adults in LMICs paid utility bills directly from an account in 2021, one-third of these adults did so for the first time after the beginning of the COVID-19 pandemic.<sup>39</sup> Challenges remain, with half of the world's unbanked population concentrated in seven countries and many financially inexperienced users unable to benefit from account ownership, yet the rise in digital payment penetration globally offers unique opportunities for public-private collaboration. Digital payments:

- Improve revenue-collection for public and private utility service providers;<sup>40</sup>
- Can be combined with other digital innovations such as prepaid smart metering;<sup>41</sup>
- Can enable transparency and drive operational efficiency for multi-stakeholder collaboration across fragmented value-chains such as urban sanitation and waste management;<sup>42</sup> and
- Offer pathways for start-up-public sector partnerships supported through innovative financing models such results-based financing or smart subsidies (see Trend 4).<sup>43</sup>

39. Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., (2022), *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*  
 40. Waldron, D., Frank, C., Sharma, A., Sotiriou, A., (2019), *Testing the Waters: Digital Payments for Water and Sanitation*  
 41. GSMA (2020), *CityTaps: Delivering safe water to the urban poor through prepaid smart metering and mobile money*  
 42. GSMA (2019), *Streamlining the complexity of urban sanitation with digital solutions*  
 43. GSMA (2021), *Smarter subsidies and digital innovation: Implications for utility services*

**Trend 4: New funding models with the capacity to support multi-stakeholder partnerships and public-private collaboration are emerging.**

A range of donors, funders, and investors recognise that shared value creation and sustainability requires multi-stakeholder collaboration and partnerships. While the risks and increased complexity associated with these partnerships has meant that investors have traditionally been wary of funding start-ups collaborating with the public sector, different funders and funding models are emerging to close the gap, overcome some of the initial valleys of death facing these complex partnerships, and provide long-term patient capital and support that can truly allow these partnerships to deliver impact at scale.

Some of the funders playing a particularly prominent role in this space include:

- **Partnering for Green Growth and the Global Goals 2030 (P4G):** P4G is a global platform accelerating pioneering green partnerships to drive inclusive and resilient economic growth. It bridges the gap between development and investment agendas, turning ideas and commitments into concrete, inclusive and transformation solutions on the ground that mobilise investments from the private sector to deliver impact. This work unlocks opportunities for more than 50 partnerships clustering around themes in food and agriculture, water, energy, cities and circular economy. P4G provides catalytic funding to selected start-up and scale-up partnerships that have clearly articulated their business model with potential to scale and replicate. It also works with the partnership it supports to prepare their business models for investment readiness and pitch high performing investment-ready partnerships to financial institutions (e.g., Investment Fund for Developing Countries (IFU) and the Private Infrastructure Investment Group (PIDG)/InfraCo Africa) to cultivate interest and unlock investment opportunities.
- **Global Innovation Fund (GIF):** GIF is a non-profit, impact-first investment fund. It invests in the development, rigorous testing,

and scaling up of new products, services, business processes, or policy reforms that are more cost-effective than current practice and targeted at improving the lives of the world's poorest people. Through its grants and risk capital, GIF supports these breakthrough solutions from for-profit firms, non-profit organisations, researchers, and government agencies to maximise their impact and catalyse meaningful change.

- **Transform:** TRANSFORM is a unique joint initiative between Unilever, the UK's Foreign, Commonwealth & Development Office (FCDO) and EY. Established in 2015, it works to accelerate impact enterprises, blending funding and support to deliver market-based solutions to the world's biggest development challenges. TRANSFORM uses its capabilities and expertise in marketing, distribution, digital, and business resilience to deliver transformative market-based solutions to low-income households in sub-Saharan Africa and South Asia that last. The initiative has supported 61 projects in 13 countries so far.
- **Imagine H2O (IH2O):** IH2O is a global water innovation accelerator that provides entrepreneurs with the resources, insight and visibility to launch and scale water solutions. Entrepreneurs benefit from access to mentorship, industry exposure, customer and investor connections and strategy, marketing, and sales support. Since 2009, IH2O's accelerator has helped over 90 innovative companies win customers and receive more than \$1 in every \$10 of early stage investment in the water sector. IH2O launched IH2O Asia in April 2019 in partnership with Enterprise Singapore and SUEZ. IH2O Asia aims to bridge promising water technologies to businesses and utilities across South-East Asia through a Singapore-based, virtual accelerator programme.
- **ADB Ventures:** ADB Ventures support technology start-ups with solutions for emerging Asia. It provides financing and seed and early equity stages, leverages deep sectoral and relationship insights from the wider ADB, helps start-ups expand into new markets, facilitates non-dilutive capital, and makes start-ups ready for environmental, social and governance (ESG) and

other relevant impact reporting. Its climatic programme focuses specifically on the opportunities and barriers facing climate-tech entrepreneurs in the region.

- **Untapped Global:** Untapped Global's innovative smart asset financing model finances revenue-generating assets for entrepreneurs and SMEs in Africa and Latin America. Smart asset financing uses IoT from on-the-ground assets to assess risk of investments and deliver real-time data to investors on investment performance to secure lucrative returns. To date, Untapped Global has financed assets for over 5,000 entrepreneurs across a dozen countries in Africa and Latin America who work across sectors such as clean water, solar, e-mobility, and inclusive fintech.<sup>44</sup>
- **Agence Française de Développement Digital Energy Challenge:** The objective of the Challenge is to support the development of innovative solutions for energy access, the integration of renewable energy and public utility performance improvement. It invites public utilities (public power utilities and public independent system operators, power pools, regional organisations, energy regulators, rural electrification authorities) in partnership with technology/service providers.
- **Aqua for All:** Aqua for all deploys patient, risk-tolerant, flexible and concessionary capital to facilitate and de-risk private investments. Their financial instruments include first and second loss capital, guarantees, technical assistance, results-based funding (pay for success) and design/preparation stage grants.

The rise in funding opportunities for partnerships across utilities sectors is complemented by the emergence of innovative financing mechanisms that are enabled by increased digital penetration and more sophisticated digital use cases.

Digital solutions, notably digital payments via mobile money, have already enabled a new wave of consumer asset financing through pay-as-you-go (PAYG) services and business models. The GSMA

supported the PAYG solar sector in its infancy through seed grants to many of the now leading companies in the market. PAYG models are a clear example of how digital solutions enable innovative financing mechanisms: locking technologies, built on machine-to-machine communication, enable service providers to manage credit risk for low-income and unbanked customers. The PAYG model has now expanded beyond solar to other use cases such as clean cooking stoves, solar water pumps, smartphones, cold storage, as well as other use cases.

The enablement effect of digital solutions to innovative finance is, however, not limited to PAYG models, and in recent years we have seen the emergence of new forms of innovative finance that utilise mobile services. These include, but are not limited to:

- **Results-based financing (RbF)** where the verification of results relies on digital technology;
- **End-user subsidies** where delivery utilises mobile data or services;<sup>45</sup>
- **Asset financing models based on revenue share**, where mobile payments and remote collection is used to manage risk;
- **The use of new data sources in managing credit risk**, including in credit scoring or repayment management; and
- **Climate financing instruments**, such as carbon credits or distributed renewable energy certificates (D-Recs).

These models are likely to gain prominence as IoT assets are increasingly deployed and digital payments adopted more widely. This is also set in the context of the need to rapidly expand existing infrastructure and service delivery capacity in low- and middle-income country cities, and provide vital funding to innovative service delivery models that rely on start-up-public sector collaboration, hardware financing needs, as well as other use cases that are often overlooked by traditional investors.

44. Disrupt Africa (2022), *Untapped Global raises \$10.3m to provide smart asset financing to emerging market entrepreneurs*

45. GSMA (2021), *Smarter subsidies and digital innovation: Implications for utility services*



## Section 2

### Key definitions for conceptualising start-up-public sector partnerships



## 2.1 Defining public-private partnerships

### 2.1.1 Elements that define PPPs

The term public-private partnership describes a range of possible relationships between public and private entities in the context of infrastructure development and service provision. PPPs involving start-ups have features that distinguish them from other PPPs.

Traditionally, PPPs have focused on large-scale infrastructure such as roads, airports, ports, electricity infrastructure, railways and housing. These traditional PPPs tend to involve large corporates rather than start-ups or SMEs, and the aim of the partnership from the government side is usually to bring private capital into public infrastructure development projects.

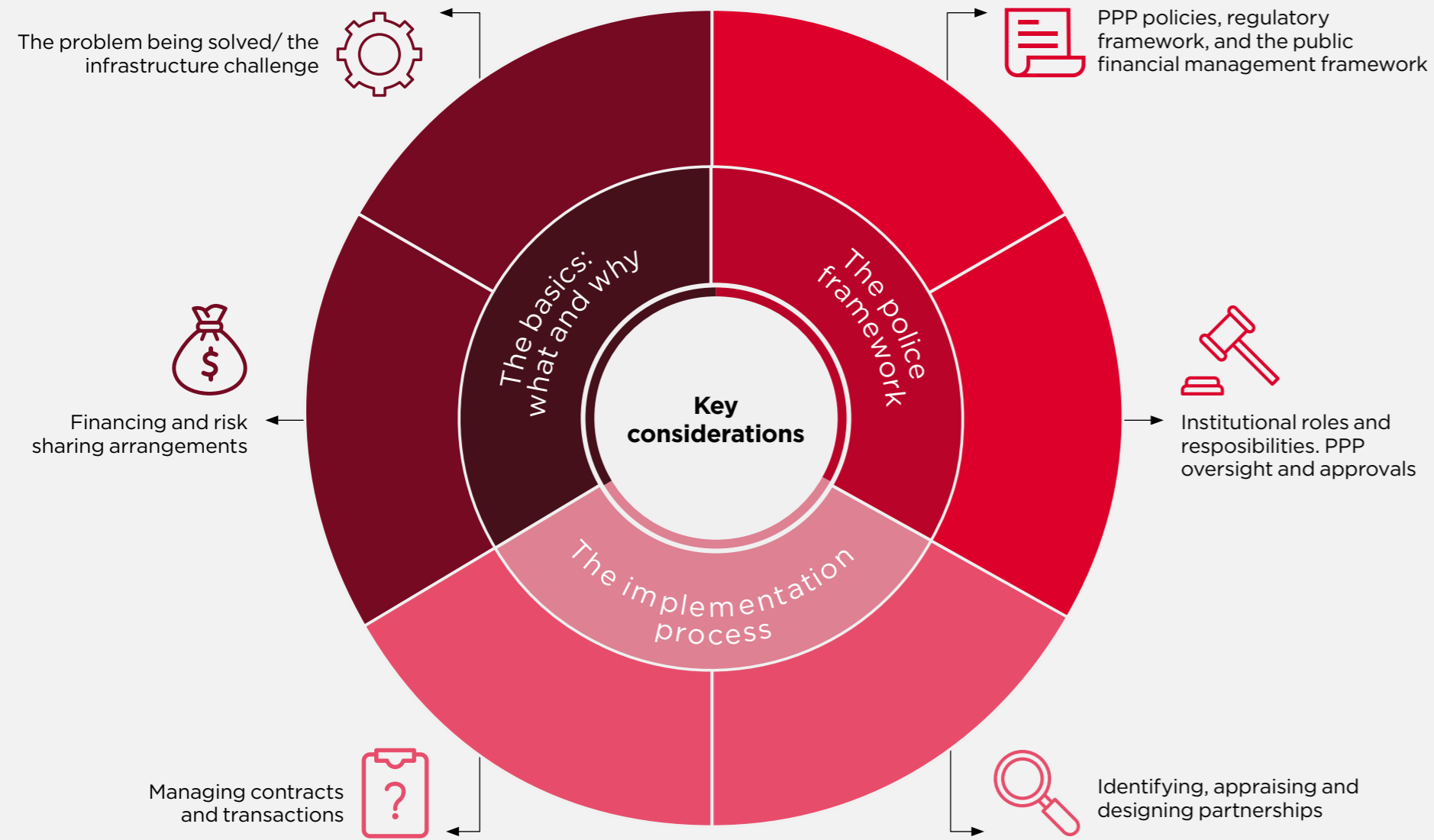
While partnerships between start-ups/SMEs and the public sector can also be framed as PPPs, their unique characteristics, strategic objectives, and processes merit a distinction from these more traditional PPPs. Some of the most important features are:

- » **The level of private capital participation;**
- » **The degree of transfer in management/operations;**
- » **The focus of the partnership and the outcomes sought;**
- » **The degree of risk sharing in the commercial/revenue model;**
- » **The market and regulatory conditions surrounding the service being provided; and**
- » **Duration of the partnership.**

Beyond the features of a specific PPP, both sides of the partnership also need to consider the context and processes that surround the partnership. Figure 5 outlines some of these considerations.

Figure 5

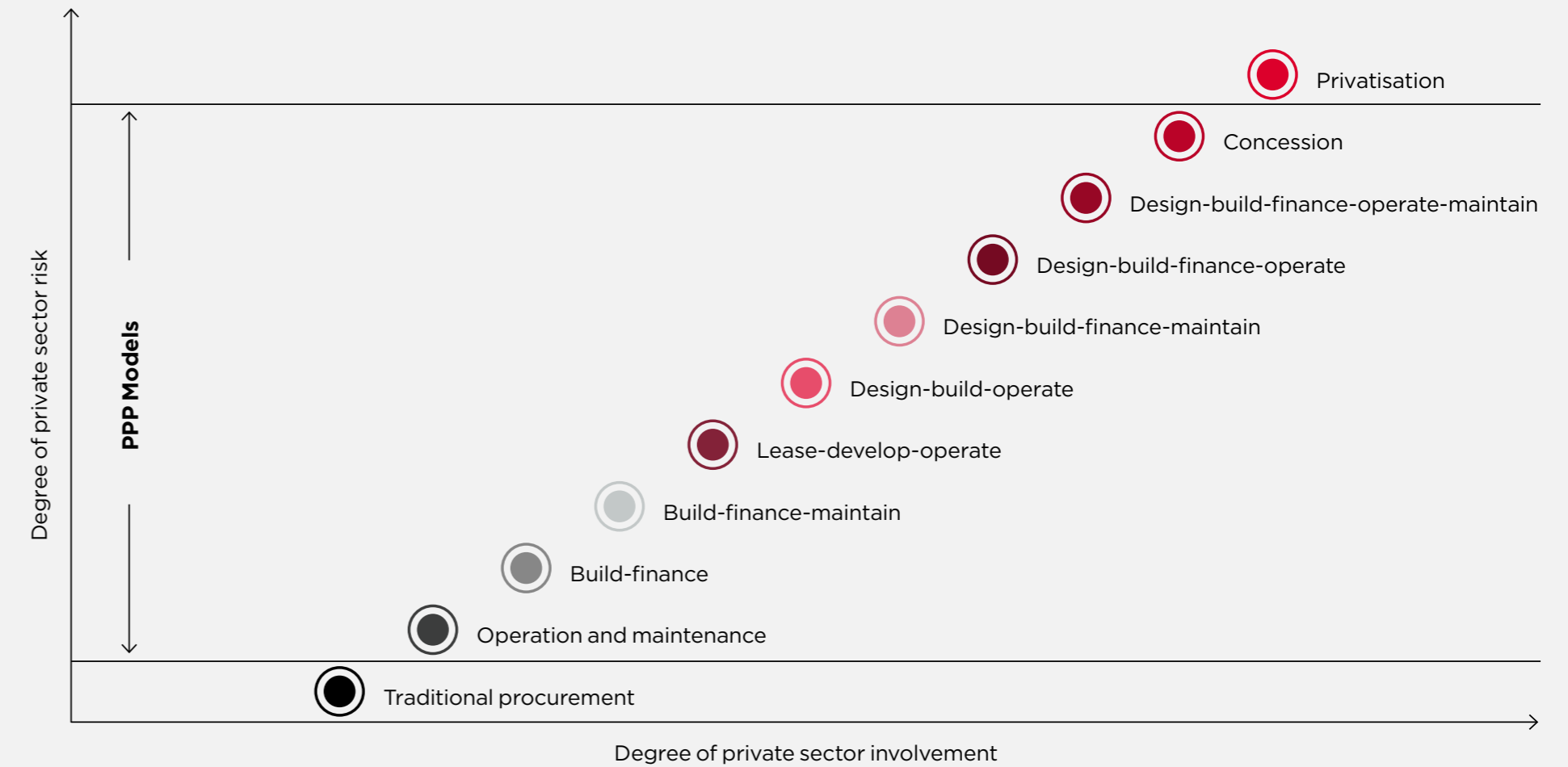
### Key considerations for PPPs



Source: Adapted from World Bank Institute (2012) *Public-Private Partnerships Reference Guide*

Figure 6

### PPP models based on varying private sector involvement



Source: Canadian Council for Public Private Partnerships

Figures 6 and 7 provide an overview of how PPP models can vary based on the degree of private sector involvement and the degree of private sector risk taken. A full set of definitions for the models described in Figure 6 can be found in Table 1 in the Annex.

Figure 7

## Classification of PPP models



Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)
Supply and management contract	Outsourcing	Public	Public	Public	1-3
	Operational management	Public	Public	Public	3-5
	Maintenance management	Public	Public/private	Private/public	3-5
Turnkey		Public	Public	Private/public	1-3
Affermage/lease*		Public	Public	Private/public	5-20
		Public	Public	Private/public	5-20
Concessions	Franchise	Public/private	Private/public	Private/public	3-10
	Build-Operate-Transfer	Public/public	Private/public	Private/public	15-30
Private ownership of assets and PFI type	Private finance initiative	Private/public	Private	Private/public	10-20
	Build, own operate	Private	Private	Private	Indefinite
	Divestiture	Private	Private	Private	Indefinite

\* Build-Lease-Transfer (BLT) is a variant  
 Source: UNESCAP (2011), *A Guidebook on Public-Private Partnership in Infrastructure*

## 2.1.2 - Public sector contexts

As a potential private sector partner, it is critical to understand the degree of state involvement and state penetration in basic service delivery to identify relevant partnership opportunities. State involvement in service provision differs substantially across countries and sectors, though there are four broad 'levels' of state participation. Figure 8 highlights what these different forms of state involvement mean for service provision, and highlight the role of private sector/decentralised service providers.

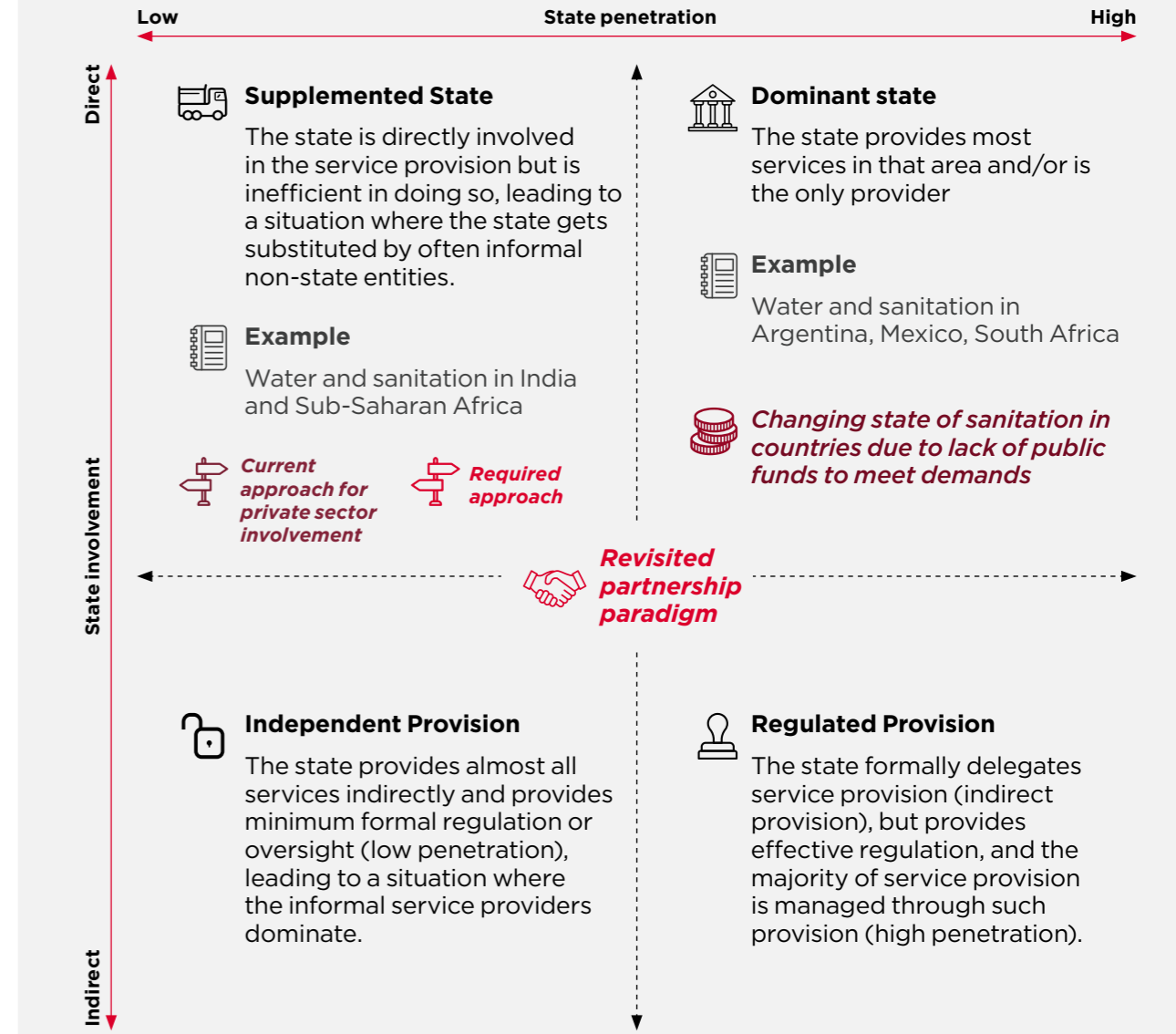
Figure 8 also highlights what varying degrees of state penetration and state involvement mean for the delivery of urban sanitation services in LMICs. In many countries, lack of funding means that the state cannot meet demands directly, as private, and informal providers close the gap. It also stresses that when informal providers dominate, private providers can struggle to enter the market/sustain business. Regulated provision implies that the state formally delegates and regulates service provision, and state-sanctioned service providers fulfil their mandates for parts of/an entire city. Through regulated provision, the state can still help private service providers meet public policy objectives, such as reaching those at the bottom of the urban income distribution by investing in innovative marketing campaigns or subsidy programs targeted at the poor.<sup>46</sup>

Beyond the level of state participation in the market, it is also important to consider broader sector dynamics. In some of the utilities sectors, services can be dependent on large and highly centralised infrastructure networks. For example, large urban water networks or national electricity grids are textbook cases of natural monopolies. That is, where the extent of the need for large integrated networks means that monopoly provision, with effective

46. GSMA (2021), *Smarter subsidies and digital innovation: Implications for utility services*

Figure 8

## Types of public service provision



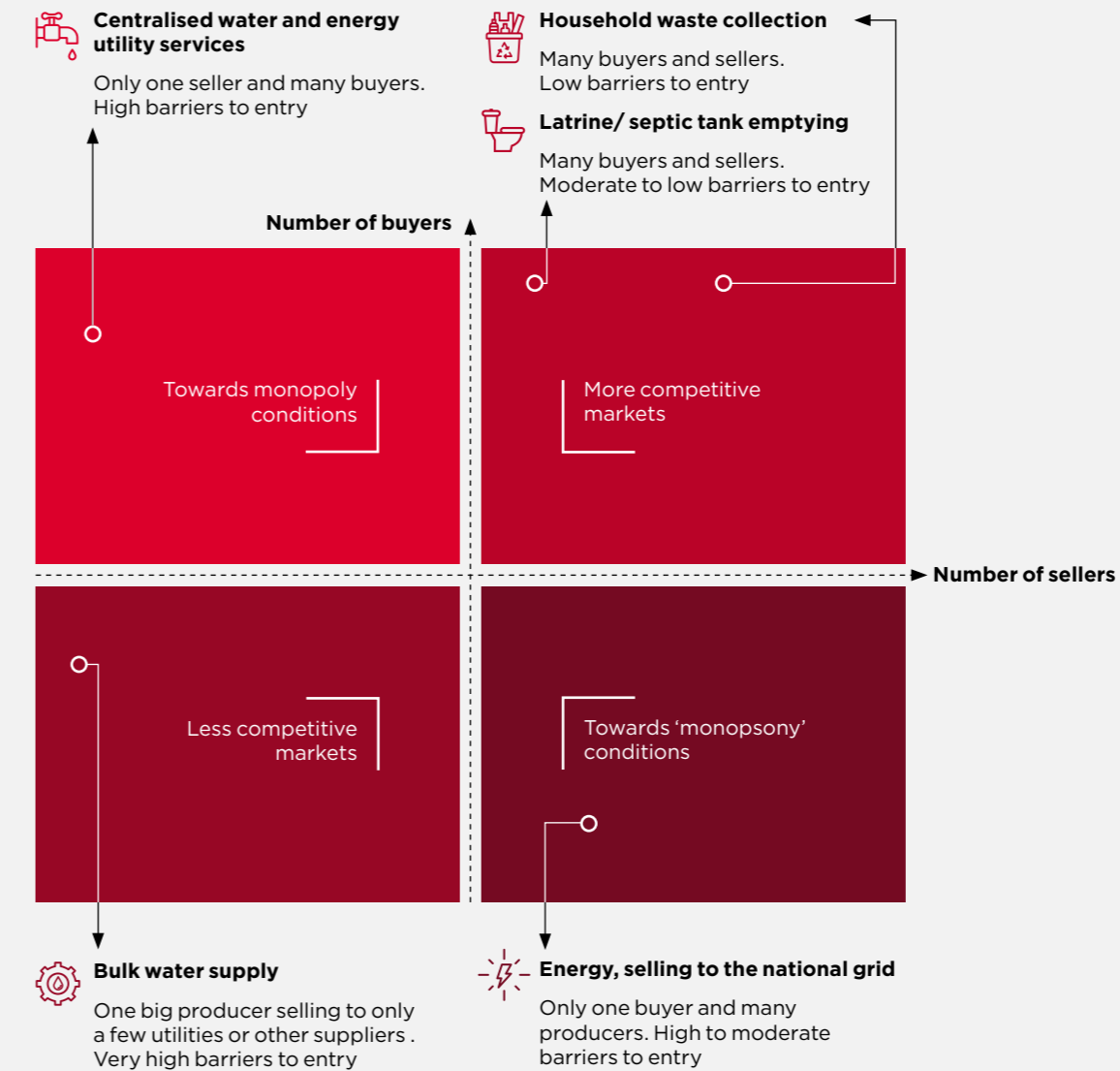
Source: Adapted from Asian Development Bank Institute (2020), *Revisiting the Public-Private Partnership for Rapid Progress on the Sanitation-Related Sustainable Development Goals*





Figure 9

## Types of service provision and monopoly provision



Source: GSMA (2022), *Digital platforms for utility services - emerging trends and what might come next*

price controls, can in some circumstances be the most efficient way to deploy and run services. While this is the case for centralised water and energy services, this does not apply to all service models in those sectors or mean that within those sectors there is not scope for digital platforms. Off-grid services across all the utility sectors as well as along different parts in fragmented value-chains can be where platforms find their niche.

Figure 9 provides a very broad characterisation of how some utility services can be organised, based just on the dynamics of the number of buyers and sellers, and highlights the potential differences between services. This will look very different across markets and cities, depending on how services are organised and regulated.

### 2.1.3 - Business and revenue models

In terms of business models and income streams, it is also becoming more common to see revenue share arrangements between start-ups and public sector partners. Table 2 lists examples of different types of PPPs, from public-sector provision to full privatisation.

While it is useful to consider these types of partnerships separately, they are not necessarily mutually exclusive. For example, Drinkwell's partnership with Dhaka Water Supply and Sewerage Authority (WASA) not only enables Dhaka WASA to reach informal settlements it previously was unable to reach, data generated by Drinkwell also allows Dhaka WASA to make future investment decisions based on more accurate, real-time information.

# Start-up-public sector partnership typologies and case studies

Focus of the PPP	B2G – When start-ups/SMEs partner with a public sector institution to provide a service/product that improves the public sector partner’s operational efficiency						B2C – When start-ups/SMEs partner with a public sector institution to provide a service/product to a customer base that traditionally falls within the public sector institution’s service mandate						
LMIC example	<p><b>Water:</b> <i>Wonderkid</i> provides bespoke software solutions to water utilities and other service providers. Its B2B model is well established in the Kenyan market, and in recent years it has expanded into other African countries. Wonderkid supports utilities on digital payments, billing efficiency and revenue collection, operational oversight, and customer service and information.</p>	<p><b>Energy:</b> <i>Company of Intelligent Systems and Networks Research (CISNR)</i>, a tech start-up based out of UET Peshawar, has developed a unique grid distribution monitoring system along with smart metering. ElectroCure and TransfoCure, when deployed across the electricity distribution network, provide real-time monitoring and control of the power distribution infrastructure and consumption data.</p>	<p>Through a grant project supported by the GSMA Digital Utilities Innovation Fund, CISNR partnered up with MNO Jazz and the Peshawar Electric Supply Company (PESCO) to install their ElectroCure and TransfoCure modules on two of PESCO’s feeder lines to improve electricity reliability for the 262,500 connected consumers.</p>	<p>Electricity distribution challenges have a serious impact on end users, who may have to pay more because someone could be illegally tapping into their line and must purchase generators for when there is load shedding. This creates a vicious cycle of load-shedding and financial losses as customers become unwilling to pay for poor services, particularly as those stealing get it for free. This leaves the remaining customers with high electricity bills to cover the losses.</p>	<p>The solution developed and successfully implemented by Jazz, CISNR and PESCO makes a strong case for other public utilities to leverage CISNR’s cost-effective, locally manufactured metering solution to minimise line losses and electricity theft, which continue to be among the most important challenges facing Pakistan’s power sector. Beyond its work in the energy sector CISNR is also offering smart metering and SCADA services to water utilities.</p>	LMIC example	<p><b>Sanitation:</b> Since 2011, <i>Sanergy</i> has been working to solve the sanitation challenge by designing, manufacturing and distributing low-cost, high-quality sanitation facilities called Fresh Life Toilets (FLTs) in Nairobi, Kenya. This is a container-based solution (CBS) where waste is collected hygienically in safe containers and then transported for treatment and recycling.</p>	<p><b>Water:</b> <i>Drinkwell</i>, a US-based company with subsidiaries in India and Bangladesh, has developed a sensor-based water treatment solution for purifying water and distributing it through water ATMs.</p>	<p>CBS solutions have emerged as a viable low-cost option for sanitation service delivery, particularly in low-income urban settlements where the need for sanitation services is high and infrastructure would be costly to install. The portable nature of CBS makes it appealing in low-income urban contexts as it requires little space and limited to no in-house construction.</p>	<p>Drinkwell’s solution has the potential to improve the lives of low-income urban residents in Dhaka and other cities in the region that can only access unsafe and expensive water from informal tanker cartels and other informal providers.</p>	<p>Sanergy uses digital mapping, tracking, and communication tools for customer engagement, internal operations, and to identify potential new customer segments.</p>	<p>In October 2017, the GSMA Utilities Innovation Fund awarded a grant to Drinkwell in partnership with Dhaka Water Supply &amp; Sewerage Authority (Dhaka WASA) and MNO Robi Axiata. Drinkwell has installed over 196 urban community water kiosks in Dhaka in partnership with Dhaka WASA, and has also installed four water kiosks in Chittagong, Bangladesh’s second largest city, in partnership with the city’s water utility and with support from the World Bank and other funders such as the Global Innovation Fund, Danone Communities, Imagine H2O, and P4G.</p>	<p>Sanergy has a partnership with the Nairobi County Government and aims to serve one million people in the city by the end of 2025. Upon demonstrating the viability and sustainability of its business model in Nairobi, building PPPs with other city governments in Kenya is a key focus for Sanergy. They have developed a robust government relations department that builds relationships with government officials and helps to develop strong collaborations. Beyond Nairobi, Sanergy has also recently partnered with the Kisumu Water and Sanitation Corporation (KIWASCO), aiming to initially serve 20,000 urban residents with safely managed sanitation services. Sanergy has also hired a Director of New Cities with extensive public sector experience to spearhead engagement with municipalities and public utilities – a great example for other start-ups aiming to scale through partnerships with the public sector.<sup>47</sup></p>
Useful links	<p>GSMA (2020) <a href="#">Scaling Digital Solutions in the Water Sector – Lessons from CityTaps and Wonderkid</a></p>	<p>GSMA (2020) <a href="#">Digitising billing and meter reading for water utilities – Wonderkid</a></p>	<p>GSMA (2017) <a href="#">Wonderkid: Digitising water utilities in Kenya</a></p>	<p>GSMA (2020) <a href="#">Partnering to minimise electricity theft and line losses in Pakistan – Jazz, CISNR and PESCO</a></p>	<p>GSMA (2020) <a href="#">Improving electricity grid services through smart metering</a></p>	<p>GSMA (2019) <a href="#">IoT Capability Beyond Connectivity – Smart Utility - JAZZ, CISNR, GSMA</a></p>	Useful links	<p>Sanergy (2021) <a href="#">Driving sustainability in cities through integrated waste management solutions</a></p>	<p>GSMA (2019) <a href="#">Sanergy: Using mobile to unlock circular economy approaches to sanitation in Nairobi</a></p>	<p>Devex (2019) <a href="#">WASH business: A mixed business model in waste-to-value</a></p>	<p>GSMA (2019) <a href="#">Drinkwell: Building a network of purified water ATMs in Dhaka</a></p>	<p>World Bank (2021) <a href="#">Tapping into water innovation: A new partnership to accelerate access to water and wastewater technologies in the Asia-Pacific</a></p>	

47. Nation (2022). *Kisumu partners with private investor to provide toilets in informal settlements*

Table 3

## Relevant public sector partners for start-ups

### 2.2 Defining types of relevant public sector partners

When referring to PPPs and its subset—start-up-public partnerships—it is important to define the types of public sector partners most relevant to digital utilities. Of course, depending on a given country/regional/city context, there may be overlap between various categories. It is also important to not merely pay attention to what a certain public sector organisation's de jure authority is, but to understand its de facto role on the ground. In many LMICs, the gap between de jure and de facto can be quite large, as there may be other dynamics shaping the political economy of urban service provision in a given city. Often, start-ups aiming to form partnerships with the public sector therefore need to invest in researching and understanding this context, while also in some instances partnering with multiple public agencies in the context of overlapping public sector service and regulatory mandates. This is particularly pronounced in sectors like sanitation and waste management, or intertwined spheres of authority between local, regional, and national government institutions.

Public sector entity	Public utility	Municipality authority/local government/city council	Regulatory body	Public sector entity	Government enabling organisation	Government research organisation	National/regional ministry/government department	Statutory body	Public development authority
<b>Definition and relevance</b>	<p>A public utility company delivers basic services to the general public, including electricity, water and/or gas. Utilities are typically wholly, majority or partially state-owned, often forming natural monopolies in a particular geography, given the nature of services.</p> <p>Public utilities typically are relevant partners for start-ups operating in the water, energy, and sanitation sectors.</p>	<p>A municipality is a political subdivision of a state within which a municipal corporation has been established to provide general local government for a specific population concentration in a defined area.</p> <p>Municipalities are particularly relevant for start-ups operating in the waste management sector, but are often also an important entry point to a city for start-ups that have a different primary public sector partner.</p>	<p>A regulatory body is a government organisation that oversees specific industries and practices. Some common types of regulatory bodies include utility regulation authorities, consumer safety agencies, national reserve banks, and food and drug commissions, etc. Depending on the sector, regulators work in either a national, regional, or city-level setting, with energy services usually regulated nationally, while sectors such as waste management tend to be regulated at a local level.</p> <p>While regulators are rarely a primary partnership stakeholder, they often approve and/or create guidelines underpinning start-up-public sector partnerships. They can also be a powerful stakeholder when it comes to shaping the priorities of public sector organisations.</p>	<b>Definition and relevance</b>	<p>A public sector enabling organisation, in this toolkit's context, includes many different types of government bodies that support and invest resources to enable private sector development for economic growth, job creation, and social and technological innovation, among other impacts. In recent years, many entities supporting start-ups and start-up ecosystems have been created.</p> <p>Government enabling organisations can be critical in facilitating entry points for engaging potential public sector partners and leveraging their clout within government to advocate for start-ups.</p>	<p>There are many different types of government research organisations carrying out research initiatives for the public sector and beyond. This research supports a wide range of government objectives, including policy making, statutory and regulatory functions, and providing a national strategic resource in key areas of scientific research.</p> <p>Government research organisations may have public sector innovation objectives that align with the objectives of potential start-up-public sector partnerships.</p>	<p>A ministry is a department of a government, led by a political minister. Ministries are usually subordinate to the cabinet and prime minister, president or chancellor. A government will usually have several ministries, each with a specialised field of service. National ministries vary greatly between countries.</p> <p>In countries with strong traditions of federalism and regionalism, provincial ministries/departments can also be important stakeholders.</p>	<p>A statutory body or statutory authority is a body set up by law (statute) authorised to implement certain legislation on behalf of the relevant country or state, sometimes by being empowered or delegated to set rules (e.g., regulations or statutory instruments) in their field.</p> <p>Rural electrification agencies are statutory authorities and are often mandated to collaborate with private service providers to help meet certain public policy objectives like increased energy access.</p>	<p>In some countries, cities, towns, and counties may form public development authorities (PDAs), sometimes known as public corporations, to assist in administering federal grants or local programs, enhance governmental efficiency and service provision, and/or improve a municipality's general living conditions.</p> <p>In India, development authorities primarily focus on challenges related to housing and infrastructure.</p>
<b>LMIC example</b>	<p>Dhaka Water Supply And Sewerage Authority: Learn more about their partnership with water start-up Drinkwell in our webinar: <a href="#">Webinar: Scaling digital innovations in urban water</a></p> <p>Kisumu Water and Sanitation Company: Learn more about their partnership with sanitation start-up Sanergy: <a href="#">How innovative latrine is restoring dignity of Kisumu slum dwellers</a></p>	<p>Freetown City Council: Learn more about their partnership with waste-management start-up Freetown Waste Transformers: <a href="#">Supporting the provision of waste to energy in a Freetown informal settlement</a></p> <p>Kampala Capital City Authority: Learn more about their collaboration with private entrepreneurs to provide pit emptying services: <a href="#">Kampala Capital City Authority - Unlocking the power of mobile-enabled Sanitation</a></p>	<p>Rwanda Utilities Regulatory Authority (RURA): Learn more about their engagement of the start-up ecosystem to help improve utility service delivery under its regulatory mandate:</p> <ul style="list-style-type: none"> <li>— <a href="#">Techify Mobility Challenge 2020</a></li> <li>— <a href="#">RWANDA: Rura launches competition to collect e-waste in Kigali and Musanze</a></li> </ul> <p><a href="#">Water Services Regulatory Board, Kenya</a></p> <p>Lagos Waste Management Authority</p>	<b>LMIC example</b>	<p><a href="#">Start-up India</a></p> <p><a href="#">Start-up Tunisia</a></p>	<p><a href="#">South Africa National Energy Development Institute</a></p> <p><a href="#">Indonesia National Research and Innovation Agency</a></p>	<p><a href="#">Ministry of Energy, Sri Lanka</a></p> <p><a href="#">Ministry of Water, Kenya</a></p>	<p>Rural Electrification Agency Nigeria: Learn more about their partnership with off-grid energy start-ups: <a href="#">Case study: Nigeria Electrification Project</a></p>	<p><a href="#">Bangalore Development Authority</a></p>



## Section 3

# Best practices for partnerships



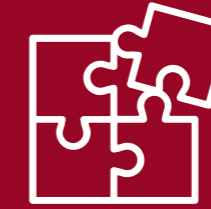
### Intro to best practices

The following section explores best practices in considerations and recommendations for a start-up when planning for and pursuing a start-up-public sector partnership in the digital utilities space. It is divided into the following three topics:



### ASSESS Readying

Fundamental considerations for a start-up to reflect upon as its own standalone entity when evaluating readiness for a partnership with a potential public sector partner.



### ALIGN Planning

Common, interconnected building blocks to consider when planning for a start-up-public sector partnership. These considerations should ideally be mutually discussed for alignment between parties.



### ACT Embarking

Recommended activities, insights and lessons learned from other start-ups to apply when moving from planning to action in pursuing a partnership, including examples of choosing the right angle to approach a public sector partner, as well as how to obtain funding and additional resources for support.



### 3.1 Start-up self-assessment

#### Readying a start-up for a partnership starts with self-reflection

Before approaching a public sector partner, a start-up should first perform a self-evaluation with respect to its own motivations, capabilities, and strategic objectives to pursue, secure and maintain a partnership. There are four common types of self-evaluation considerations:

1. **Needs and motives;**
2. **Internal team capacities;**
3. **Financial capacity; and**
4. **Ecosystem positioning.**

#### Needs and motives for considering a public sector partnership

Before committing significant time, technology, and financial and human resources towards a partnership project, it is important to start with the fundamentals and understand more precisely what a public sector partnership would require from a start-up and what value it could potentially bring.



#### Example questions for start-ups aiming to assess their needs and motives:


1. Would our digital solution fulfil a public need and purpose?
2. Will a public sector partner bring a large, captive customer base that is essential for our product validation and growth, thus making it worthwhile to pursue a partnership?
3. Will a public sector partner bring the authority, credibility, resources and/or gravitas that we need to operate, grow and/or attract other substantial clients? Can the partnership lead to follow-up opportunities that will catalyse our scaling journey?
4. Is there a direct product-market fit with the public sector partner's customer base in which our digital solution can be deployed, or is this only a pilot project for marketing purposes with no clear long-term objectives?
5. What vital needs of our company are being met by pursuing a public sector partnership?
6. Not all public sector partners are created equal. What information do we need at this early stage to weigh which partner, angle and related opportunities can best meet our needs?


#### Quick tips


##### Effective partnering appears to depend on:


- **Self-awareness:** Knowing what you are good at, your patterns of behaviour and tendencies, and areas for further growth.
- **Contextual awareness:** Knowing what is happening in your immediate environment – both professionally and socially – in your organisation, that of your partners and beyond; and awareness of the complex interplay between yourself and your context.
- **Haves and needs framework:** Create a haves and needs framework that illustrates key synergies between your start-up and your public sector partner.

#### Useful links

 **Founders Factory:**  
How To Build Successful Corporate Partnerships as an Early Stage Tech Company

 **Devex:**  
Bridging The Development Partnership Gap

 **Touchdown VC:**  
How to Form Strategic Partnerships Without Getting Crushed


 **GIZ:**  
Collaborative Innovation between Startups and the Public Sector


#### Quick tips


##### Relationships and incentives:


- A start-up's business model predicated on public sector collaboration often invests in a government relations/affairs team that is exclusively focused on cultivating relationships with public sector stakeholders, understanding their priorities, building new partnerships, and sustaining existing partnerships with the public sector.

#### Useful links

 **Startup Grind:**  
The Startup's Guide to Government Relations

 **Hewlett Foundation:**  
A Guide to Organizational Capacity Assessment Tools

 **Bec Martin:**  
What Is Government Relations Strategy and Why is It Important for Startups and SMEs

 **MIT:**  
Important Steps when Building a new Team

#### Assessing internal team capacity

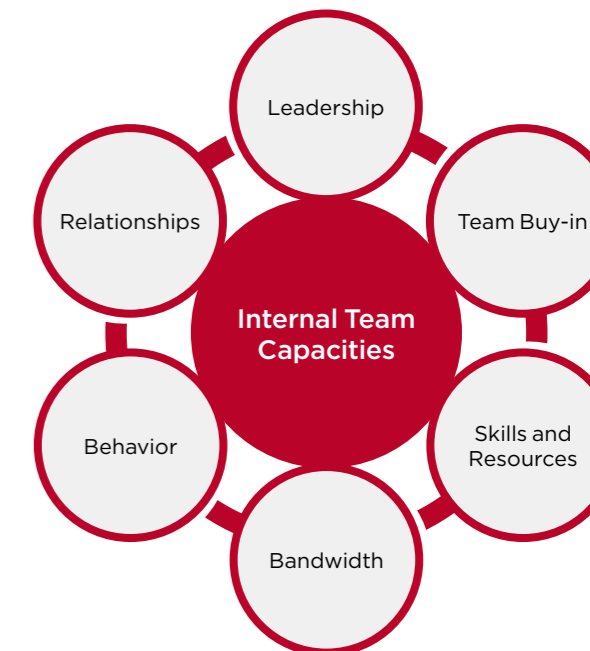
While a start-up may decide that a public sector partnership is the appropriate way forward, it is critical that a start-up reflects on its own internal team capacity and whether it aligns with pursuing, and maintaining a public sector partnership, which can be complex and time-consuming.

Each start-up should consider their own unique situation in the context of their partnership needs, and the abilities, skills and team dynamics that may enable (or inhibit) an effective partnership.



#### Example questions for start-ups aiming to assess their internal team capacity with reference to a public sector partnership:

1. Would a potential partnership have the necessary buy-in of the relevant management and team members, or is this an initiative pushed forward by one or two individuals but lacking the wider support to execute?
2. In pursuing a partnership, does the partnership's management and operating team have the requisite technical and soft skills to interact with, lead and integrate with the public sector partner's way of operating?
3. Is there sufficient time and bandwidth among the leadership and team members to invest in pursuing and implementing a partnership with a public sector partner without sacrificing quality of existing operations? What can we learn from corporates and their government relations teams?
4. Are we aware of our internal weaknesses and constraints that may hinder a partnership? If so, how can we overcome such constraints? Does it make sense to hire a government relations/engagement team member with demonstrated expertise in working in/with the public sector?
5. Can this partnership be implemented with only ourselves and the public sector partner, or do we need to consider involving another party, such as an NGO, development agency, or corporate stakeholder?



### Assessing your start-up's financial capacity prior to partnership

Depending on the stage your start-up in its growth journey, your financial capacity and risk appetite might vary greatly. For example, a start-up can be bootstrapped, at seed/early stage, or post-Series A. Beyond this there are other important financial considerations depending on a start-up's business model, and investor relations. Ultimately, each start-up's financial situation is unique, and therefore must be evaluated on an individual basis. The ease with which a start-up can access financing such as debt is also key to consider.




#### Example questions for start-ups aiming to assess financial capacity with reference to a public sector partnership:


1. Are we solvent enough to meet our financial obligations without difficulties while investing resources into pursuing and maintaining a partnership?
2. What level of capital is each partner expected to bring?
3. How will we structure the revenue model between parties and share risk?
4. Can we afford to pay our staff/leadership to spend time pursuing a partnership rather than on other income-generating activities? What about the opportunity costs?
5. Will the public sector partner be able to bring in financial resources and/or attract additional investors to our project?
6. Do we have other steady sources of revenue, such as from private clients, should this partnership not materialise, or are we wholly dependent on this partner to drive our future?
7. Do we know what financial resources we need to sustain ourselves until the partnership can begin generating income?
8. Can we self-fund or do we need outside funds should the partner be unable to commit financially to the project?
9. Depending on the prospective partner and the type of partnership, do we meet the financial pre-conditions, if any, to approach the partner in this specific partnership capacity?
10. Can we extract additional funding as a result of this partnership or would it put existing investment in jeopardy?
11. Does the public sector partner have a reputation of not paying on time?

### Quick tips

**Do your research:** Different public sector collaboration opportunities entail different financial capacities along a start-up's scaling journey. Government tenders in many countries may require a start-up or private sector partner to meet a certain threshold of financial size. Other partnership opportunities focus on early-stage start-ups, and may be more flexible.

### Useful links

 **Axel Springer Consulting Group:**  
An in-depth Guide on Financial Modelling for Startups

 **Founders Factory:**  
A guide to financial modelling—and why it's key to your company's success


 **Social Entrepreneurship Support Network:**  
Creative Social Enterprise Business Model Ideas: 10 Ways to Address Affordability

### Quick tips


- **Be strategic** – past relationships and partnerships can be an entry point for government relations. This includes connections to past accelerators or donor-funded grant opportunities with strong relations to governments, or partnerships with corporates such as MNOs that regularly engage with government.


### Useful links


 **MASSCHALLENGE:**  
What is an Innovation Ecosystem and How are They Essential for Start-ups?

 **CENFRI:**  
Innovation ecosystems in sub-Saharan Africa

 **Lux Research:**  
State of Innovation in Asia: Key Industries and Players Shaping Asia's Innovation Ecosystem

 **Product Tribe:**  
How To Research The Market And Identify Opportunities

 **Open View Partners:**  
Building Your Partner Ecosystem, Part 1: Who Are Your Potential Ecosystem Partners?

 **GSMA:**  
Building Synergies Course – How start-ups can successfully partner with MNOs

### Assessing a start-up's positioning across its market and ecosystem

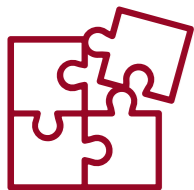
Often, start-ups may lack the necessary clout, name recognition, and track record to be a relevant to a potential public sector partner. However, this does not mean that start-ups lack the opportunity to enhance its brand equity and competitive positioning. By assessing where it currently stands in its various ecosystems, a start-up can strengthen its ability to harness resources, enhance brand equity and anticipate objections from the prospective public sector partner.

There are a few key themes that a start-up should focus on in its ecosystem positioning self-assessment: its market positioning within its external customer ecosystem; its competitive ecosystem; and other enabling ecosystems from which it can tap resources and networks, such as its local start-up ecosystem and/or its current partner ecosystem. It is highly recommended that start-ups establish partnerships with complementary peers and other private sector players with a long history of government engagement and partnerships such as MNOs that can provide additional clout. This helps a start-up better enhance its brand perception, leverage additional resources, and address potential weak points in the marketplace earlier on in the process.



#### Example questions for start-ups aiming to assess financial capacity with reference to a public sector partnership:

1. How is our start-up's brand and reputation currently positioned among our key target markets, customer segments and service channels? How can we leverage our customer network to enhance our brand, such as recruiting customer ambassadors, publicising testimonials or obtaining more referrals?
2. Where do we stand in terms of market recognition, clout, and competitiveness compared to our peer group and immediate sector competitors, if any?
3. How can we enhance our positioning among our peers and leverage each other's complementary strengths for mutual benefit?
4. How strong are our relationships and reputation within our existing network and partner ecosystem? How can we leverage our suppliers and other key players in our value chain to create stronger linkages and new relationships with potential public sector target partners?
5. How can we leverage our region's start-up ecosystem support system, such as mentors and incubation resources, to enhance our positioning and relationships?



### 3.2 Planning and aligning for a partnership

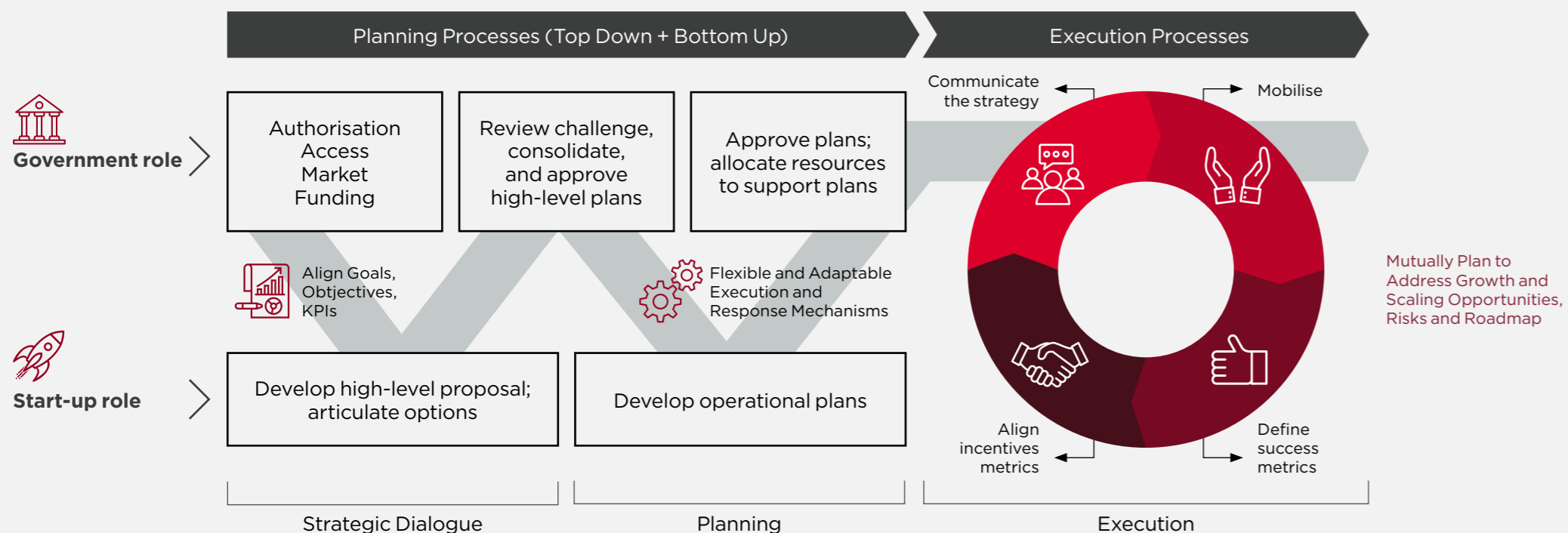
#### Aligning the basic building blocks of an effective digital utilities start-up-public partnership

Once you have performed the requisite self-reflection assessment needed to determine that you are well-positioned to pursue a partnership with the public sector, it is important to map out partnership components, objectives, and key stakeholders involved in the partnership.

Before building and sustaining a partnership, it is critical to align on objectives and milestones. Figure 10 shows some of the key building blocks that both partnership stakeholders should align on before embarking in the partnership. The trajectory of these partnerships is not linear, and it requires patience, persistence, and constant attention to the interconnected building blocks in line with the needs, constraints, and goals of each party.

Figure 10

#### The Key Start-up-Public Sector Partnership Stages



Source: Adapted from various frameworks, BCG, Team Synthesis and Analysis

#### Quick tips

In a recent McKinsey survey on managing complexity in business, alignment on partnership objectives was listed, along with trust and communication, as the most common core reason contributing to success and failure.

#### Useful links



**Forbes:**  
Aligning your organisation with your strategic partner relationship



**Strategic Facilitators:**  
Partnership alignment: Harness the power of your business partners to get things done

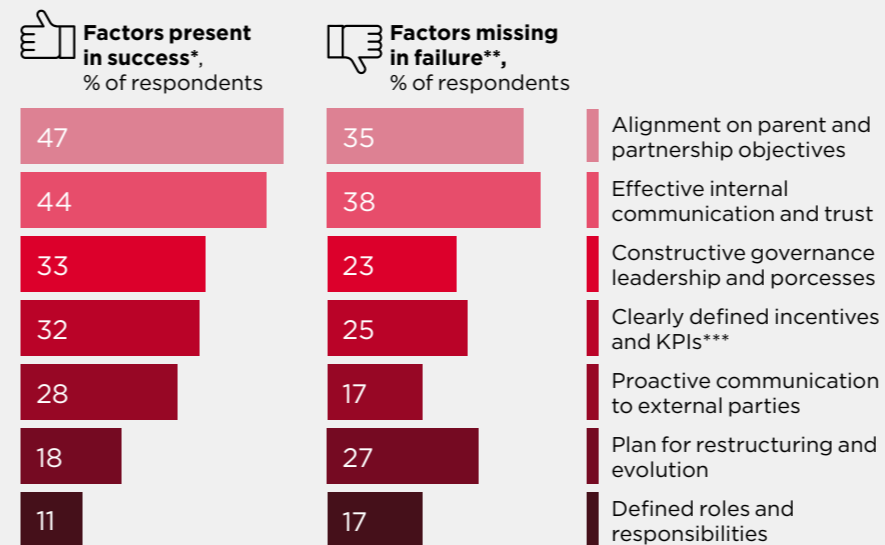


**Harvard Business Review:**  
The ecosystem of shared value

Figure 11

#### Success Factors for Joint-Ventures

Managers cite several core reasons for joint-venture success and failure



\*Respondents' top choices out of a list of 10 components whose presence could have a favorable effect on their partnerships (n=708). \*\*Respondents' top choices out of a list of 10 components whose absence could have a negative effect on the partnership (n=262). \*\*\* Key performance indicators.

Source: 2015 McKinsey Joint Ventures and Alliances Survey

#### Aligning purpose

Once both partners, especially the start-up, have assessed their own purpose for pursuing a partnership, it is imperative that all parties align on the purpose of the partnership:

- Reason for partnership;
- Shared vision;
- Aligned objectives and goals; and
- Stakeholder inclusion and parameters.



#### Example questions for start-ups aiming to align with their public sector partner:

1. What is the partnership's purpose in terms of service and delivery of the solution? Is it a strategic, long-term decision or another more immediate reason for an ad hoc purpose?
2. Are both parties aligned in the vision, whether grand or small, of the partnership's desired impact?
3. What are the drivers that might motivate the public sector partner to work with a start-up in fulfilment of its purpose?
4. How do both parties' goals align with each other? What are the specific metrics and objectives that must be accounted for each party?
5. What are the realistic constraints that may affect the partnership's ability to realise its desired purpose?
6. Given the typical differences between government's public service purpose and a start-up's commercial interests, how can both parties align to create a shared purpose for the partnership?
7. To fulfil the partnership's purpose, what other stakeholders do we need to consider, such as an NGO, corporate or development agency?

## Developing a proposal for the prospective public sector partner

When reflecting about how to approach and position a potential partnership, start-ups can benefit by researching and preparing a strong proposal or pitch that highlights the value it would bring to the public sector partner. Value to the public sector partner can be defined in many ways and can include increased financial revenue, operational savings, enhanced service delivery, greater impact by being able to reach low-income residents, key data points and other benefits.



### Some best practices for successful proposal development:

1. Use your commercial experience to demonstrate technical and organisational capacity and financial responsibility.
2. Highlight your technical know-how so that your partner does not assume others can do what you are proposing to do.
3. Develop a clear value proposition by demonstrating two types of value:
  - a. How do we leverage our synergies to better achieve our shared goals?
  - b. The value to each partner: How we can work together to achieve our individual goals. Focus on your partner's goals in your pitch.
4. Demonstrate mutual benefit: Show that it is truly a win-win partnership, whereby the more one partner benefits, the more the others benefit. You can use a haves and needs framework to identify your value proposition.
5. Be clear about your big ask: What is it you want from your partner?
6. Be realistic and open to new ideas; your timeline expectations might not align with those of your partner, and there may be opportunities that you could have not been aware of before directly engaging the potential partner.
7. Be transparent about the underlying financial agreements needed to sustain the partnership.
8. Clearly show who would be responsible for what and when over the course of the partnership. These will be your partnership's KPIs and will be essential for ensuring a sustainable partnership, where each partner is clear on their areas of responsibility.
9. Demonstrate to your potential partner the value they could gain from your data (such as waste streams, traffic flow or electricity use) by understanding the bigger picture of your partner's role in society.

## Quick tips

- **Be prepared to negotiate** the financial agreement for profit-sharing. Your partner will likely be willing to negotiate the terms of the agreement in a back-and-forth exchange.
- **Develop a conceptual monitoring and evaluation system**, leveraging data from digital solutions. This will show your partner that you are committed to delivering on your promises.

## Useful links



**10 Steps to Perfect Your Startup Pitch** (although focused on investor pitches, the elements and thought processes are transferable to public sector considerations)



**Startup Nation:** Strategic partnerships: Hitch your wagon to a star



**WRAL Techwire:** How do start-ups secure valuable partnerships?

## Quick tips

Understanding your potential partner before approaching them is critical. Do not underestimate how much critical thinking is required to understand your partner from their perspective and their incentive structure. In understanding compatibility and working dynamics, also consider how crucial or value-add your start-up solution is to that prospective partner. How can you solve your partner's problem? What will your partner want to see to trust you?

## Useful links



**HEC:** The Key to Involving the Private Sector More in Public-Private Partnerships



**Forbes:** Eight Ways To Build Trust-Based Relationships With Potential Business Partners



**McKinsey:** Improving the management of complex business partnerships

## Understanding partner dynamics to improve communication and build trust

When planning a partnership, it is important to consider the compatibility of organisational cultures and communication styles, as these factors can significantly help or impede effective collaboration.

Additional factors must also be considered when assessing respective organisations cultures and communication styles. It is recommended that the start-up communicate and agree upon, prior to formalising a partner:

- Trust and accountability;
- Team and organisational accountability resources;
- Contribution and risk sharing communication; and
- Collaboration approaches.



### Example questions for start-ups aiming to assess and improve communication mechanisms and build trust:

1. Is this prospective public sector partner responsive and open to the digital innovation that the start-up will bring, or will the start-up face resistance among public sector staff?
2. Are the communication styles of both partners compatible enough in terms of pace, frequency, and mode to facilitate close collaboration?
3. Are the partners aligned and satisfied with the contribution and investment of each party to the partnership, both in terms of project/solution delivery as well as relationship management?
4. Are the roles and responsibilities of each party mutually aligned with the partnership's objectives and allow each partner to demonstrate their individual strengths?
5. Do we have a framework for regular communication and evaluation of partnership milestones, as well as raising potential challenges?





### 3.3 Taking a public sector partnership beyond the pilot stage

#### How to overcome barriers to scale

It is important to consider key factors for scaling when designing your partnership with a public sector organisation. These partnerships often fail to scale beyond the pilot stage, so

it is important to prepare to confront these challenges in advance.

For example, start-ups may need to raise additional funding, hire new staff, or build new partnerships to scale their operations. Additionally, start-ups may need to overcome regulatory hurdles or develop new technologies to support a larger customer base. By considering these factors early on, start-ups can develop a roadmap for success as they scale their public partnerships in the digital utilities sector.



**Start-ups need to identify strategies for moving beyond the pilot stage and overcoming scaling challenges. Some key questions to ask when it comes to scaling a partnership with a public sector partner include:**

1. Will the implementation of the partnership require ongoing support from the start-up? Can the partnership be easily scaled up or down, depending on the needs of the public entity? By carefully evaluating the sustainability and scalability of the business model, start-ups can ensure that their partnership will be able to weather any unforeseen challenges.
2. What are our goals for scaling the partnership?
3. What start-up resources and capabilities are required for scaling?
4. What funders should we approach?
5. What funding instruments does the scaling of the partnership require?
6. How will risk-sharing between the partnership stakeholders evolve as the partnership scales?
7. What scalability challenges do we anticipate and how can we overcome them?
8. How will we measure success?

#### Quick tips

Citytaps (smart water meters) and Wonderkid (GovTech for water utilities) are two GSMA grantees who have successfully navigated scaling journeys. Their key scaling factors included:

- Market attractiveness
- Seed funding
- Flexibility of business model
- Commercial sustainability

#### Useful links

 **GSMA:** [Scaling Digital Solutions in the Water Sector - Lessons from CityTaps and Wonderkid](#)


 **GSMA:** [Innovative Data for Urban Planning: The Opportunities and Challenges of Public-Private Data Partnerships](#)

Figure 12

## The Start-up – Public Sector Scaling Journey



Figure 13

## 14 key considerations for partnership stakeholders at different partnership stages

What each party should value in the other party when selecting a potential partner							
	01	02	03	04	05	06	07
<b>Government should look for:</b>	<b>Partner Selection, Planning &amp; Design</b>  Performance Aligned goals Responsiveness Ability to execute Ability to add value	<b>Formation, Implementation</b>  Ability to generate revenue Professionalism Generate & share revenue Adaptability	<b>Pilot, Testing &amp; Validation</b>  Ability to share insights and communicate	<b>Feedback, Improvement &amp; Iteration</b>  Ability to iterate and adjust to feedback Ability to problem-solve and pivot	<b>Growing &amp; Scaling Engagement</b>  Operational leadership Capacity to manage phased scaling and growth to other markets	<b>Ongoing Management &amp; Sustainability</b>  Ability to provide value-added insights, recommendations and data Frequent reporting	<b>Exit (Where applicable for planned finite partnerships)</b>  Both parties should be able to collaborate on jointly deciding on best option
	<b>Start-ups should look for:</b>  Track record of collaboration with private sector and/or start-ups Aligned innovation mindset and expectations Requisite level of digital maturity and adoption Requisite level of resources, coverage, volume and feasibility Ability to add further strategic value later Knowledge of customers	Ability to minimise bureaucratic red tape Capacity to operate within a commercial model Sufficient buy-in from personnel Ability to maintain continuity should leadership change Reasonable partnership thresholds, partnership requirements Ability to balance impact metrics with commercial KPIs	Ability to understand setbacks and adjust timelines as needed Ability to contribute additional resources as needed Ability to give and receive feedback	Ability to pivot at reasonable pace Open to change and improvements Ability to provide support and flexibility to setbacks	Interest and capacity to grow commercially beyond pilot stage Guidance and resource allocation for expansion	Open to additional opportunities for co-creating value and synergy, new offerings Ability to adapt to or implement agile processes	Ability to assess future outlook Ability to provide data-driven record on performance and achievement of partnership to date

### Implementing, scaling and sustaining a partnership

When embarking on the activities towards implementing a start-up-public sector partnership business model, it is important to consider how the partnership will be sustained and how it can be scaled. Sustainability is essential to ensure that the start-up-public sector partnership can continue to deliver value to both partners over the long term.

When implementation of a start-up-public partnership is complete and it is time to scale the partnership, there are important considerations for the business model to ensure long-term sustainability. Key issues include:

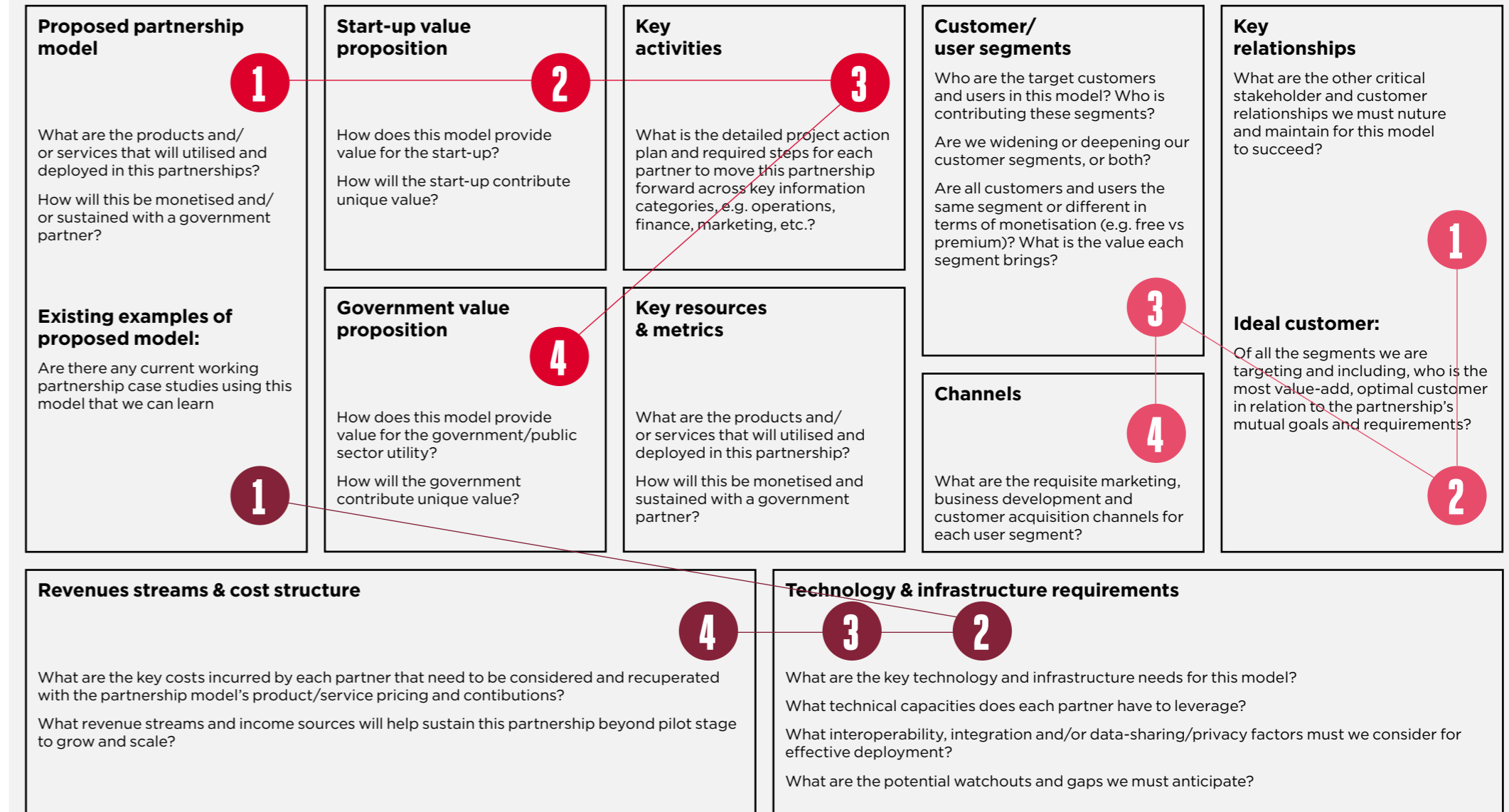
- How to price the product or service delivered by the start-up: too high a price may limit uptake and prevent the partnership from achieving its goals, while too low a price may not cover costs and make the partnership unsustainable in the long run;
- Managing intellectual property;
- How to make decisions when faced with challenges/sudden changes during the partnership journey; and
- Is a business model pivot required to make the partnership more sustainable – which other partners could have a vested interest to invest in the partnership after it has delivered value?

### Partnership Business Model Canvas Tool

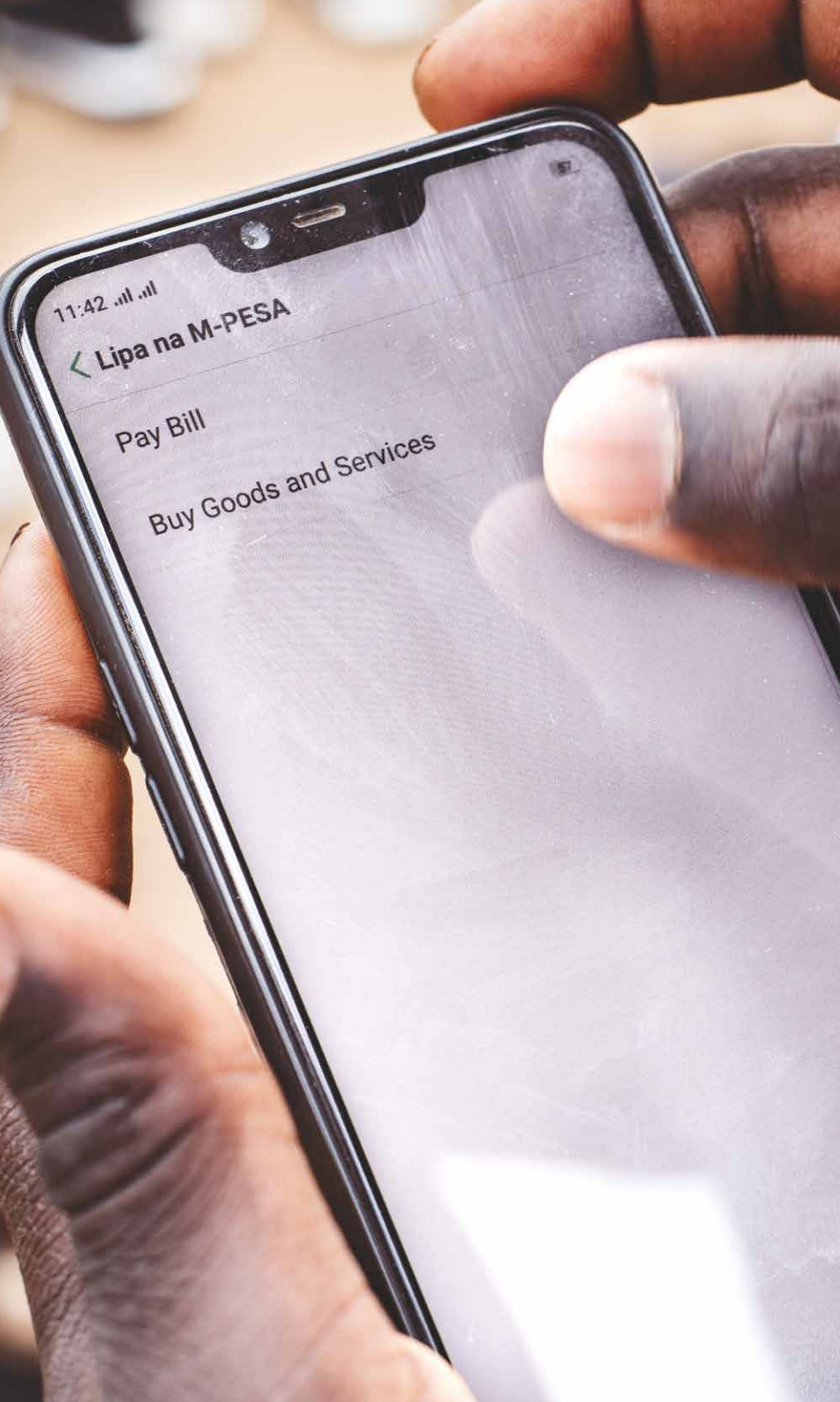
The Partnership Business Model Canvas contains key partnership factors for success that a start-up should consider (see Figure 15). In each box, there are examples of questions one should consider in discussion with the public sector partner to strengthen the partnership.

Figure 14

## Partnership Business Model Canvas



Sources: Contextualised from the Hungry Lab Start-up Partnership Frameworks; author's Synthesis & Analysis from interviews; adapted from Osterwalder & Pigneur Business Model Canvas



## Section 4

### Tips, tools and additional resources

#### Quick tips

- **Make yourself visible:** In large, complex institutions with broad mandates, such as government, ideas can easily be lost without a champion — an individual with influence and commitment — to elevate them and move them through the system.

#### Useful links



**CASE at Duke:**  
[Find and Cultivate the Right Government Champions](#)



**Growthmentor:**  
[The Ultimate Guide to Startup Advisors](#)



**AGS:**  
[The Ultimate Guide to Change Management Change Champions and Agents](#)

#### 4.1 Tips: Engaging your wider ecosystem to engage the public sector

As a start-up, it can be difficult to navigate the complex world of government partnerships and regulations. Even before pursuing a partnership, it is recommended to begin establishing a network of contacts within your wider ecosystem, and within your target government entity. Doing so can be invaluable in increasing your start-up's chances in securing the partnership(s) you need to succeed.



##### Diverse advisors

Consider how you can build a strong circle of advisors on subjects specific to your partnership's business, technical, policy, regulatory and other needs. Having a reputable advisory circle with strong networks can also elevate your standing and credibility for public sector partners.



##### Find a champion

Anyone with the relevant influence can become your champion, including your wider enabling ecosystem of investors, schools, mentors, and advisors. Champions are critical as they advocate on your behalf, using their influence to advance your goals. Champions can also be satisfied customers or other existing partners, such as corporates and other private sector partners.



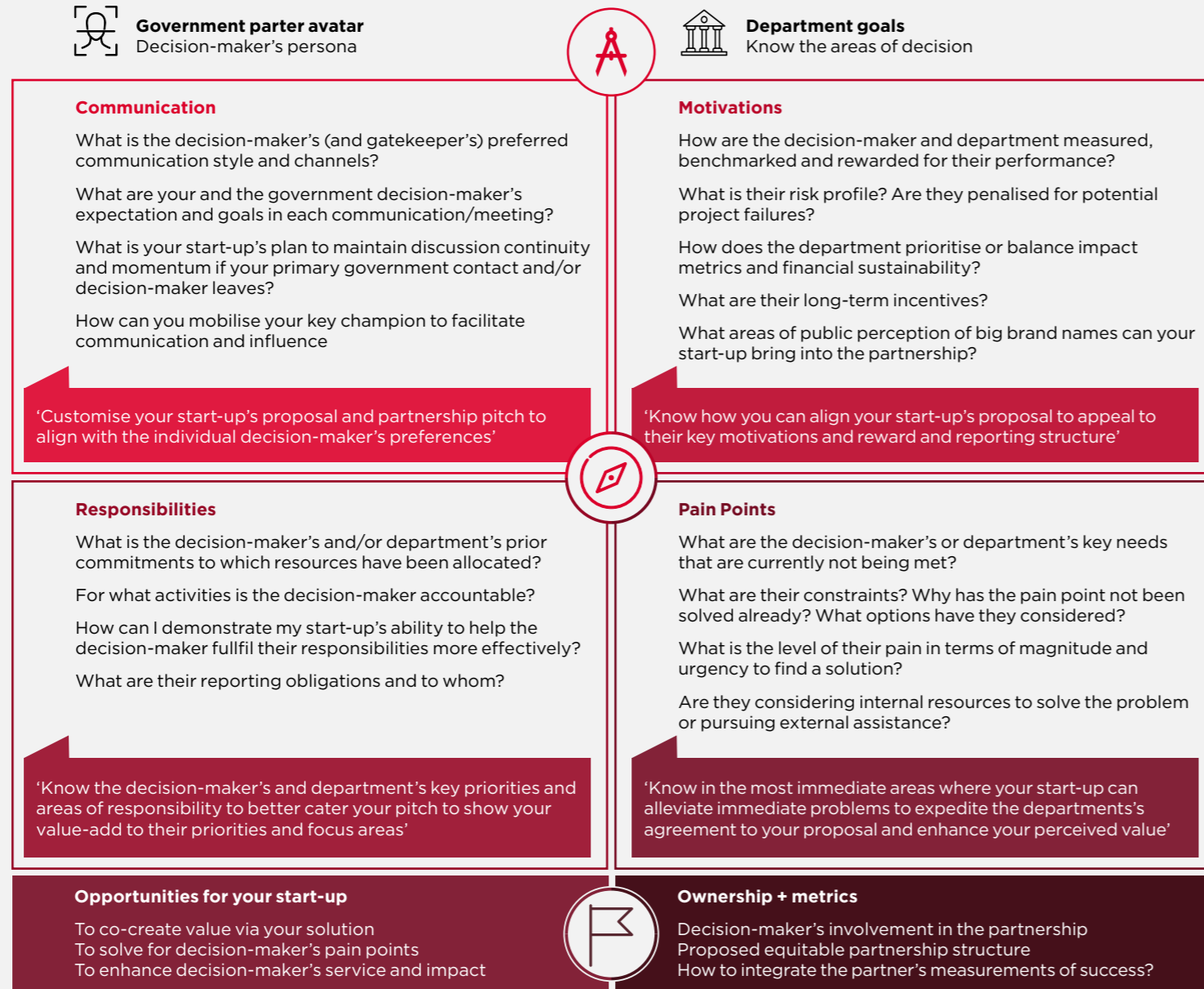
##### Establish strong government contacts

Identify advisors with government experience who can help you:

- Understand the regulations that apply to your industry;
- Lend credibility and industry authority;
- Navigate the complex government bureaucracy;
- Locate and connect with potential partners in government;
- Understand the grant application process; and
- Secure funding through government grants or contracts.

Figure 15

## Government Partner Mindset Map for Start-ups



### 4.2 Tips: Approaching your partner

Pursuing and persuading a public sector decision-maker to sign onto a partnership proposal may require significant effort – particularly in some challenging governance contexts. Therefore, a partner persona framework is an important tool for start-ups to use when trying to understand their potential partner. By creating a profile of their partner's key decision-maker(s), a start-up can better understand how to tailor their message and positioning to the target audience.

Some key elements include demographics (age, location, gender, etc.) and psychographics (values, interests, motivations). It is important to integrate their individual profile with the overarching needs and responsibilities of their position and the organisation's goals for the department your decision-maker is overseeing.

### 4.3 Tips: Contracting and procurement

One of the key challenges that start-ups face when pursuing government contracts in the utilities sector is a lack of understanding of the government procurement process. This can lead to start-ups submitting bids that are not responsive to the RFP requirements, or failing to adequately price their services. In addition, many start-ups lack the necessary experience and resources to navigate the complex web of government regulations and red tape. This can result in significant delays in contract negotiations or even rejection of bids.

#### Best practices for database searches

Here are a few tips to keep in mind when conducting database searches:

- Do not rely on one database or research source when identifying funding opportunities. The availability and quality of data can vary between markets and geographies, so it is best to cast a wider net. E.g., Crunchbase has a very robust database of digital utilities start-ups and investors in India, but is very limited on the same type of information for Pakistan;
- Diversify your keyword search as different databases have different classifications and taxonomies of verticals and sector-specific terms. E.g., Crunchbase does not have an official digital utilities category, but it does have other classifications, such as sustainability, waste management, cleantech and other relevant terms; and
- Look at existing or previous fund portfolios. These often contain relevant or similar start-up case studies and other vital information that may help strengthen your application and pitch.
- Leverage partnerships and funding relations to learn more. Many start-ups in LMICs receive support through donor-funded/ government-backed accelerators, innovation funds, and challenges. These entities have a great network and free resources that can support start-ups in their partnership journey.



#### Do your research to understand different organisational procurement frameworks and requirements

Here is a link to the World Bank's Primer on Procurement Frameworks and Business Opportunities. In addition, to be eligible to bid on government tenders, start-ups typically must be registered with the appropriate government procurement database, where companies can search for government tenders that match their interests and capabilities.



#### Partner with a reputable Vendor

One approach, where appropriate and possible, is to partner with a reputable vendor who will be able to provide start-ups with valuable resources and support, including help with proposal development, contract negotiation, and compliance. By leveraging the expertise of a vendor partner, start-ups can focus on their core business and overcome the challenges associated with contracting and procurement in the public sector.



#### Be prepared

Have a clear and concise proposal, understand the agency's requirements, and complete all required paperwork. By being organised and prepared, start-ups can demonstrate their commitment to the project and their commitment to meeting the needs of the agency. Having the appropriate legal advice and foundational material ahead of time can be very important in expediting approvals, navigating contract complexity, and demonstrating professionalism.

# Conclusion

## Innovation



Digital solutions have demonstrated their value for improving urban services in LMICs. However, more innovation is needed to develop business models that can be deployed on a wide scale and account for the financial constraints of utilities and municipalities, as well the needs of low-income customers.

## Urbanisation and climate change



Though the start-up-public sector partnership landscape for improved urban utility services is still nascent, trends such as rapid urbanisation, urbanisation without structural formation, and climate change will mean that municipalities and public utilities will have to collaborate with start-ups and private sector innovators to close the urban service divide. While there has been more attention placed on the opportunities related to start-up-public sector partnerships for urban utility services, it is also clear that there are many barriers to such partnership models, particularly when it comes to taking such partnership models to scale.

## Pioneers and challenges



Examples in countries that have pioneered these partnerships such as Kenya, India, and Bangladesh highlight that start-up-public sector partnerships can support cities in making urban utility service delivery more affordable, reliable, safe, and sustainable. Despite these successes, it is important for start-ups to be aware of the challenges and complexities associated with public sector collaboration, and better assess where synergies with the public sector lie and how their service can support the public sector in meeting its objectives.

## Collaboration



This toolkit sought to highlight the role of start-up-public sector collaboration in the context of many challenges facing cities in LMICs (Section 1), provide a conceptual framework of how to think through, frame, and define start-up-public sector partnerships (Section 2), offer practical tips and tools to start-ups navigating these complex partnerships (Section 3), and highlight additional resources that might be relevant to those aiming to catalyse start-up-public sector collaboration (Section 4). Given how nascent many partnerships and the wider start-up public sector ecosystem are, it will be critical to continue to conduct research on the developmental, commercial, and social impact of these innovative partnerships, and use case studies to generate granular insights.

## Drivers for change



Trends will continue to drive start-up-public sector partnerships for improved urban utility service provision. These include increasing devolution and public sector programmes that encourage and incentivise start-up participation in urban service delivery, the increased relevance and maturity of circular economy use cases, increased adoption and availability of frontier technologies and digital payments, as well as increased availability of funders and funding models to support multi-stakeholder partnerships.

## Digital Utilities Partnership Hub



The GSMA Digital Utilities programme convenes start-ups, relevant public sector organisations such as state-owned utilities, and other relevant corporates such as MNOs to catalyse innovative partnerships and collaboration for urban utility service provision. Alongside this toolkit, the GSMA Digital Utilities programme is launching the Digital Utilities Partnership Hub. The hub is our comprehensive source of information on the role of digital solutions and innovative partnerships for improved urban service delivery, highlighting key insights and case studies from our work with public and private sector stakeholders over the last decade.

## Support



The GSMA Digital Utilities programme is committed to supporting start-ups and their public sector partners aiming to form, sustain, and scale partnerships for improved urban utility service delivery. To achieve our objectives, the programme engages in:

- **De-risking and catalysing innovative urban utility services:** Providing grants to private sector innovators to test and demonstrate the role of digital urban service solutions;
- **Research and insights:** Generate rigorous evidence on innovative solutions to essential service provision by gathering insights from Innovation Fund grantees and conducting research with partner organisations with deep expertise in utility service provision;
- **Partnership facilitation and convening of key ecosystem stakeholders:** Drive replication and scale through convenings and leveraging our own networks as well as those of key partners who work to enable similar solutions; and
- **Technical advice to MNOs, municipalities, and utility service providers:** Provide advice on the role of digital innovation for improved utility service provision and insights on how to achieve multi-stakeholder partnerships.

## Enabling Forums



Our market engagement team is looking forward to convening public sector stakeholders and start-ups for our next digital urban utility forums in Bangladesh and Kenya in Q4, and our programme is looking forward to leveraging our strategic partnerships with key enablers and funders such as Imagine H2O Asia, the International Water Association, GOGLA, the World Bank, the Asian Development Bank, the World Resources Institute and other partners to continue to drive public-private collaboration to close the urban service divide.

Please get in touch with us at [digitalutilities@gsma.com](mailto:digitalutilities@gsma.com) if you would like to learn more or visit [www.gsma.com/mobilefordevelopment/digitalutilities/](http://www.gsma.com/mobilefordevelopment/digitalutilities/)

# Appendix

Box 1

## A closer look: learning from India's support of start-up-public sector partnerships

India's approach to start-up innovation and public-private collaboration in cities may offer important lessons for other ecosystems. India has established start-ups working across utilities sectors such as energy, water, and waste management, has strong links to local and international funding opportunities, and a public sector commitment to solve societal challenges through public-private collaboration. Figure 1 summarises some of the key drivers of start-up-public sector partnerships in India.

India has many national programmes and sector-specific initiatives to encourage private-public collaboration, especially in support of start-ups to accelerate tech innovation. The key flagship initiatives include:

- Start-up India (Digital) - the main portal for start-ups to register, obtain resources and find opportunities
- Make in India (Manufacturing)
- National Ease of Doing Business programme

Under the Ministry of Corporate Affairs, this programme is designed to break down key barriers to facilitate business development and transparency.

In the state of Kerala, the Kerala Startup Mission (KSUM) has been created to support and advance entrepreneurship development and incubation activities for high-growth tech start-ups across the state. It is recognised as one of the leading regional start-up ecosystem enablers. KSUM has supported a number of digital utility related start-ups, including sanitation start-up Bandicoot, the world's first robotic scavenger to replace humans to clean manholes and eliminate manual scavenging. Bandicoot is seeing traction and currently able to scale in partnership with other state governments, including Tamil Nadu, Andhra Pradesh, Haryana and Gujarat.

Figure 1

## Learning from India's support of start-up-public sector partnerships

### 1 Strong University-to-market pipeline

Public academic institutions, especially the prestigious IIT/IIM system, produce many innovative start-up founders.

### 2 Favourable, national policy with localised implementation

National initiatives, such as Swachh Bharat (Clean India), Make in India and Startup India, create opportunities for start-ups to add value to public service for its citizens.

Individual states have the freedom to implement and adapt policies to better serve their local start-up ecosystem.

### 3 Public-public collaboration

Rather than working as isolated departments, many states have government department that collaborate with each other to support start-ups and private sector investment.

### 4 Start-up friendly processes

For officially registered start-ups, the government has eliminated traditional procurement barriers. In addition, widespread government digitalisation campaigns to reduce inefficiencies across departments have created opportunities for start-ups.

Sources: Author's Synthesis & Analysis

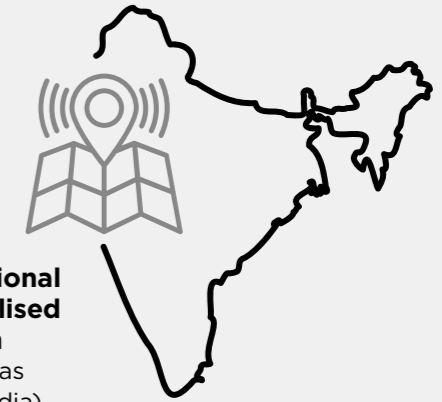


Table 1

# PPP Contract Types

Contract Type(s)	Design-Build-Finance-Operate ( <b>DBFO</b> ) Design-Build-Operate ( <b>DBO</b> ) Operations & Maintenance ( <b>O&amp;M</b> )	Build-Operate-Transfer ( <b>BOT</b> ), Build-Own-Operate-Transfer ( <b>BOOT</b> ), Build-Transfer-Operate ( <b>BTO</b> )	Rehabilitate-Operate-Transfer ( <b>ROT</b> ), for example
Overview Description and Reference	Under this nomenclature, the range of PPP contract types is described by the functions transferred to the private sector. The “maintain” function may be left out of the description (so instead of DBFOM, a contract transferring all those functions may simply be described as DBFO, with responsibility for maintenance implied as part of operations). An alternative description along similar lines is Design-Construct-Manage-Finance (DCMF), which is equivalent to a DBFOM contract	This approach to describing PPPs for new assets captures legal ownership and control of the project assets. Under a BOT project, the private company owns the project assets until they are transferred at the end of the contract. BOOT is often used interchangeably with BOT, as <b>Yescombe</b> [#2, page 12] describes. In contrast, a Build-Transfer Operate (BTO) contract, asset ownership is transferred once construction is complete. As <b>Delmon</b> [#1, pages 20-21] describes, ownership rights mainly affect how handover of assets is managed at the end of the contract	In either of the naming conventions described above, “Rehabilitate” may take the place of “Build” where the private party is responsible for rehabilitating, upgrading, or extending existing assets
Type of Asset	New infrastructure	New infrastructure	Existing infrastructure
Functions Transferred	As captured by contract name	Typically, design, build, finance, maintain, and some or all operations  Under some definitions, BOT or BTO may not include private finance, whereas BOOT always includes private finance	Typically, design, rehabilitate, finance, maintain, and some or all operations  Under some definitions, BOT or BTO may not include private finance, whereas BOOT always includes private finance
Payment Mechanism	Can be either government or user pays	Can be either government or user pays	Can be either government or user pays

Contract Type(s)	Concession	Lease or affermage	Franchise	Management	Private Finance Initiative ( <b>PFI</b> )
Overview Description and Reference	“Concession” is used for a range of types of contract, as described in <b>Delmon</b> [#1, Box 1 on page 9]. In the PPP context, a concession is mostly used to describe a “user-pays” PPP. For example, in Brazil, the “concession law” applies only to fully user-pays contracts. On the other hand, “Concession” is sometimes used as a catch-all term to describe a wide range of PPP types—for example, all recent PPPs in Chile have been implemented under the “concession law”, including fully government-pays contracts	A lease or affermage contract is similar to a concession, but with the government typically remaining responsible for capital expenditures. The <b>World Bank’s explanatory notes on water regulation</b> [#4, pages 36-42] describes lease contracts, as well as concessions	“Franchise” is sometimes used to describe an arrangement similar to a lease or affermage contract for existing assets—as for example in <b>Yescombe</b> [#2, page 12]	Under a management contract, a private party is paid a fee for managing an existing asset or business. Management contracts transfer limited responsibilities and risk to the private party, and are not always considered as a type of PPP. The <b>World Bank’s explanatory notes on water regulation</b> [#4, pages 36-42] also described how management contracts are used in the water sector	The United Kingdom was one of the first countries to introduce the PPP concept, under the term “Private Finance Initiative”, as described in the House of Lords’ review of the PFI program. “PFI” is typically used to describe PPP as a way to finance, build and manage new infrastructure
Type of Asset	New or existing infrastructure	Existing	Existing	Existing	New
Functions Transferred	Design, rehabilitate, extend or build, finance, maintain, and operate—typically providing services to users	Maintain and operate, providing services to users	Maintain and operate, providing services to users	Some aspects of operations (management)—typically many operational staff remain public-sector employees	Design, build, finance, maintain—may include some operations, but often not providing services directly to users
Payment Mechanism	User pays—in some countries, depending on the financial viability of the concession, the private party might pay a fee to government, or might receive a subsidy	User pays—private party typically remits part of user fees to government, to cover capital expenditures	User pays—private party typically remits part of user fees to government, to cover capital expenditures	Government pays—usually a fixed element plus performance-related element	Government pays

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