

# Smarter cities, simpler cities

Accounting for the  
city of the future

Spotlight  
on India



# About ACCA

ACCA (the Association of Chartered Certified Accountants) is the global body for professional accountants. It offers business-relevant, first-choice qualifications to people of application, ability and ambition around the world who seek a rewarding career in accountancy, finance and management.

ACCA supports its **188,000** members and **480,000** students in **181** countries, helping them to develop successful careers in accounting and business, with the skills required by employers. ACCA works through a network of **95** offices and centres and more than **7,110** Approved Employers worldwide, who provide high standards of employee learning and development. Through its public interest remit, ACCA promotes appropriate regulation of accounting and conducts relevant research to ensure accountancy continues to grow in reputation and influence.

Founded in 1904, ACCA has consistently held unique core values: opportunity, diversity, innovation, integrity and accountability. It believes that accountants bring value to economies in all stages of development and seek to develop capacity in the profession and encourage the adoption of global standards. ACCA's core values are aligned to the needs of employers in all sectors and it ensures that, through its range of qualifications, it prepares accountants for business. ACCA seeks to open up the profession to people of all backgrounds and remove artificial barriers, innovating its qualifications and delivery to meet the diverse needs of trainee professionals and their employers.

In June 2016 ACCA formed a strategic alliance with Chartered Accountants Australia and New Zealand (CA ANZ). The alliance represents the voice of 788,000 members and future professional accountants around the world, who share the commitment to uphold the highest ethical, professional and technical standards.

More information is available at: [www.accaglobal.com](http://www.accaglobal.com)



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This report presents the key messages from the report titled 'Smarter cities, simpler cities'. The report reflects on how professional accountants can support urbanisation in a way that creates a positive impact. In doing so, it addresses two headline areas:

- the global case for smart cities, to increase awareness among the accountancy community about this concept
- a spotlight on India, to examine a specific scenario where the accountancy community can be part of the solution in simplifying the move towards smart cities.

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## ABOUT THE AUTHOR



Narayanan Vaidyanathan develops ACCA's research and insights programme with a focus on the future direction of business and the accountancy profession. His experience covers strategy, research and product development in a range of sectors.



Across the world, more of us now live in cities than ever before. This is a long-term global trend that is expected to shape the way our societies will operate in the future. Making communities work for the people living in them is a complex task – one which will become increasingly important in the future as the number of urban residents is set to increase by two billion (a 50% increase) over the next thirty years. Smart cities offer a promising alternative that aims to combine the best of what technology can offer with a best-practice approach to structuring efficient and effective processes that maximise the limited resources available to a city.

Put differently, this involves ‘professionalising’ the approach to managing a city. And key players in delivering this approach are professional accountants. At ACCA, we define this as an individual who possesses the core technical and numeric skills required of accountants,

but also much more. In particular, it refers to those who can combine core skills with effective stakeholder partnering based on a strong understanding of how the organisation operates (so accountants are not just record keepers of past performance, but influencers of future performance), a strong ethical compass and excellent communication skills.

ACCA is delighted to partner with the Institute of Cost Accountants of India (ICAI) on this report which has a particular focus on the Smart Cities Mission in India, and to further strengthen our collaboration with the Institute of Directors (IoD) as part of driving stakeholder engagement on this topic. As referred to in the report, skills building in the accountancy profession is a key enabler for the success of this mission, and ACCA looks forward to deepening its engagement in India to contribute to this important goal.

**Helen Brand OBE**  
**Chief executive**  
ACCA



The Institute of Cost Accountants of India (ICAI) has since its inception in 1959, maintained an on-going focus on contributing to the growth of the industrial and economic climate of the country. As the only recognised statutory professional organisation and licensing body in India specialising exclusively in Cost and Management Accountancy, we continue to play a key role in championing the importance of cost accounting, and related priorities such as effective forecasting and budgeting.

These priorities have a special significance in the context of the Smart Cities Mission in India, where an ambitious multi-year programme will see the allocation of funds across several layers of government (from central to state to municipal level) and across all parts of country. Such a large-scale endeavour will place new responsibilities on municipalities to manage funds effectively – which in turn will place important added responsibilities on the accountants working within these municipalities.

A lot of the Smart Cities related discussion in India has referred extensively to the role of government and of the technology providers, who would be responsible for installing 'smart' solutions. We believe that there is an important third leg in this matrix – the accounting community. This community will ultimately be relied on heavily to ensure promised funds are delivered for the stated projects, and importantly will have the responsibility to track funds usage and impact over the coming 4-5 years that are crucial for achieving Smart City objectives.

We would like to place on record the contribution of CMA Sanjay Gupta, Former Chairman, WTO and International Affairs Committee of the Institute in this regard. This report is one step towards building capacity within the accountancy community to support the Smart Cities Mission and we are pleased to work with ACCA on this important initiative.

**CMA Manas Kumar Thakur**  
**President**  
ICAI



India is not only the fastest growing economy in the world, but also a bright spot in the global socio-economic system. The recent government initiatives in the last two dynamic years have made significant reforms in the form of Digital India, Make in India, GST, Smart Cities and Housing for all.

Cities around the world are growing incredibly fast, with more than seven billion people predicted to live in them by 2050. We will need better connected smart cities with integrated urban facilities, to meet the demands of the future. We need best practices in engineering design, architecture, waste management, digital economy, finance, legal and insurance services, with support of communication, and healthcare. We need to take a more holistic and interdisciplinary view of smart cities.

India's Smart Cities Mission is an urban renewal and retrofitting program by the Government of India, to develop 100 cities all over the country making them highly advanced, citizen friendly with digital infrastructure, communications, market viability and sustainable real estate.

Change is a key element of the Smart Cities Mission. There will be an expectation of strong leadership by the city administration, both in delivering outcomes, and managing the finances needed. In addition, innovative thinking and effective management will also be essential for Special Purpose Vehicles (SPVs), or Public Private Partnerships (PPPs).

The Institute of Directors (IoD) has, over a journey spanning 26 years, grown to associate with over 31,000 senior executives, representing prominent organizations from the private, public and government sectors India-wide. IoD welcomes the opportunity to extend its total support to realising the ambition of smart cities, and is delighted to continue its existing collaboration with the Association of Chartered Certified Accountants (ACCA), in jointly organising the special 'Evening workshop with ACCA', on 'Smart City Mission – Accountancy Capacity Building' on 14th December, 2016 in New Delhi.

**J. S. Ahluwalia**  
**President**  
Institute Of Directors, India



## **ALBERTO BERNAL GARCIA**

Alberto Bernal Garcia is senior vice president, Smart Cities Global Practice at Indra, a world leader in the development of comprehensive technological solutions in defence and security, transport and traffic, energy and industry, telecommunications and media, financial services, and public administrations and healthcare. In October 2015, Indra and the Confederation of Indian Industry (CII) signed a memorandum of understanding with a view to collaborating to design a common offer of solutions and technologies for smart cities in India. He is also Indra's representative in the Spanish Smart Cities Council, created to lead and manage Spain's new National Smart Cities Plan 2015–17. He sits in several committees on smart cities in industrial and public organisations in Europe and Spain.



## **CAROLINE TWIGG**

Caroline Twigg is European Union (EU) and international manager at Bristol City Council in the United Kingdom (UK), overseeing the city's international strategy and a coordinated response to Bristol's global partnerships and projects, as well as co-leading a city-wide response to the EU referendum result. Previously, she was head of the Collaborative R&D and International team at the Future Cities Catapult (the UK government's think-tank on city development), and lived and worked in Delhi for three years, establishing an office and work programmes for the World Business Council for Sustainable Development (WBCSD). She has a geography degree from Oxford University and a Certificate in Cross-Sector Partnership from Cambridge University.



## **FARIS DEAN**

Faris Dean is a solicitor with Richard Nelson and is a chartered certified accountant, having trained with two of the Big Four accountancy firms. He is also chairman of the ACCA Global Forum for Business Law. He has a particular interest in smart city projects in India and the Middle East. Faris advises businesses on corporate, commercial and regulatory legal matters. He has advised on legal aspects of smart cities, including data protection and intellectual property joint venture agreements between the public and private sectors. Faris gained his law degree from the University of Leicester and his postgraduate legal diploma from London.



## **GENERAL JJ SINGH, PVSM, AVSM, VSM (RETD.)**

General J.J. Singh is a national leader with over 48 years' contribution to nation building and having the distinction of being the chief of army staff and later governor of the state of Arunachal Pradesh. The general rose to be chief of army staff and commanded the second largest army in the world from 31 January 2005 to 30 September 2007. During 2007 he held the appointment of chairman chiefs of staff of the armed forces. He has commanded an army of 1.2 million soldiers and managed defence assets of many billion rupees as the army chief.

The general served as governor of Arunachal Pradesh from 2008 to 2013. He was instrumental in the implementation of the Indian prime minister's development package of INR 200 billion for the development of the state in major infrastructural projects related to road, rail, air connectivity and power. By the end of his tenure he was often described 'a people's governor'.

The general is a prolific writer and comments regularly in leading newspapers and other channels. He has written on smart cities from a range of perspectives, including the role of community policing and environmental sustainability. His autobiography *A Soldier's General*, published in 2012 by Harper Collins, India.

A thinking general who has distinguished himself as a hands-on professional leading from the front, General Singh believes in the credo 'Fight to Win'; a warrior and a winner, he is an achiever against odds and in 2016 was honoured with the decoration of Legion d'Honneur by the government of France.



## **JAGAN SHAH**

Jagan Shah has 20 years of professional work experience in various aspects of urban development in India. He studied architectural design at the School of Planning & Architecture (SPA), New Delhi and architectural history and theory at the University of Cincinnati and Columbia University, US. He has served as the director of Sushant School of Architecture, Gurgaon and taught at the SPA from 1998 until 2006. From 2007 to 2010, he was the chief executive of Urban Space Consultants, providing consultancy in policy formulation, spatial planning, heritage conservation, transportation and livelihoods development, for clients such as Infrastructure Development Finance Company, Delhi Integrated Multi-Modal Transport System, Jaipur Virasat Foundation, Sir Ratan Tata Trust and India Foundation for the Arts.



## **KHYATI SANGHVI**

Khyati Sanghvi has extensive experience in project and corporate finance and infrastructure projects. In the infrastructure field, specifically power, telecoms, roads and port sectors, she has advised and represented the entire spectrum of participants, including lenders, project sponsors, equipment suppliers and private equity investors. Before joining BTG Legal, Khyati was associated with some major law firms, including India Law Services, SJ Law and AZB & Partners. She has also worked as an in-house counsel for Gammon Infrastructure Projects Limited. Some of the clients advised by her include Essar Power, First Solar, Gammon Infrastructure, Adani Power, HCC Infra, Madhucon Infra, Sadbhav Group and L&T Infra Finance. Khyati has a bachelor's degree in law from the University of Mumbai.



### MUKUL G. ASHER

Mukul G. Asher is professorial fellow at the National University of Singapore, and a director, Public Policy Global Village Foundation (GVF), based in Delhi. He is currently serving as chairman of the 5th State Finance Commission of Haryana. He specialises in public financial management and social security issues, primarily focusing on Asia. He has written or edited 12 books, and has published extensively in international journals. He has consulted with several multilateral institutions, such as the IMF, World Bank, WHO and the Asian Development Bank.



### PAVAN SRINATH

Pavan Srinath is a fellow at the Centre for Smart City Governance at Takshashila, India and head of strategy and programmes at Takshashila. He started his career in public policy by working on urban policy, migration and climate change adaptation at Public Affairs Centre, Bangalore. Pavan joined Takshashila after a brief stint at Arghyam, Bangalore, where he worked on urban water and sanitation, including groundwater. His research interests focus on the intersection of science, cities and policy, and include urban governance, climate, public health, public finance, space exploration and defence economics. Following an academic training in the biosciences from the Indian Institute of Technology – Madras, Pavan trained in public policy at Takshashila. He is a co-author of peer-reviewed articles in the *Journal of Molecular Biology* and *Journal of International Migration and Integration*, and of two books: *The State of Our Cities: Evidence from Karnataka* (OUP 2012) and *Changing the Urban Face of Karnataka* (PAC 2012), along with several research papers and articles.



### PHILIPP RODE

Philipp Rode is executive director of LSE Cities and associate professorial research fellow at the London School of Economics and Political Science. He is co-director of the LSE Executive MSc in Cities programme. As a researcher, consultant and adviser he has been directing interdisciplinary projects at the LSE, comprising urban governance, transport, city planning and urban design, since 2003. The focus of his current work is on institutional structures and governance capacities of cities as part of an international collaboration with UN Habitat and on city-level green economy strategies, which recently included co-directing the cities research programme of the Global Commission on the Economy and Climate. Rode is executive director of the Urban Age Programme and since 2005 has organised Urban Age conferences in partnership with Deutsche Bank's Alfred Herrhausen Society in over a dozen world cities, bringing together political leaders, city mayors, urban practitioners, private sector representatives and academic experts.



### PRASHANT MARA

Prashant Mara is the founding partner of BTG Legal. Before establishing BTG Legal, he worked as the co-head of India Desk at Osborne Clarke. Prashant was co-chair of the firm's India Group, in a similar cross-border leadership role to his current work with BTG. He divided his time between the Cologne and London offices of the firm. Immediately before joining Osborne Clarke, Prashant ran the India Desk of a French law firm in Paris. Part of his role at BTG Legal involves leading cross-border teams of lawyers on various investments and acquisitions projects, with a keen focus on renewable power transactions involving Indian and European companies. He also assists European companies in various sectors (including in the defence, energy – nuclear and renewable, infrastructure and automotive sectors) in structuring their operations in India. Prashant is also a frequent speaker at conferences in Europe and India on the smart cities and infrastructure sectors.



### PRATAP PADODE

Pratap Padode is founder and director, Smart Cities Council India. Smart Cities Council, headquartered in Washington DC, is a global consortium of experts, practitioners, and academicians involved in over 7,500 smart cities case studies. Smart Cities Council India has been working with state governments such as those of Rajasthan, Maharashtra, and Telangana in educating their city populations. It is also working with the US Trade and Development Agency (USTDA) for three cities, namely Ajmer, Allahabad, and Vishakhapatnam. It has planned a multi-city tour of 15 cities across India where it will initiate conversations on the city development plans among architects, urban planners, thinkers, conservationists and academia, which will culminate in the fourth SM@RT CITIES SUMMIT in February 2017.



### TARUN SHARMA

Tarun Sharma is co-founder and director at Nagrika, an indigenous organisation working in specific urban local contexts to shape small towns. He led the urban division at Ecorys, a research advisory firm, and has previously also worked with Deloitte, Nielsen-Indicus and McKinsey. He has managed and implemented various government- and donor-funded projects on issues related to urban renewal, housing, livelihoods, mobility and land titling. He has also worked with the Ministry of Urban Development and the Ministry of Housing on their flagship projects. He holds a masters degree in public policy from the National University of Singapore and a Bachelor in Economics degree from Delhi University.

A smart city is not a destination – rather it is a journey of continuous improvement.

## DEFINITION OF A SMART CITY

It can be tempting to adopt an extremely prescriptive list of all the supposed elements of a smart city, but this would miss the point. As has been recognised in various initiatives across countries, every city is different, and consequently the definition of ‘smartness’ is not a one-size-fits-all.

A smart city is not a destination – rather it is a journey of continuous improvement. The key to achieving this continuous improvement is a rounded approach where the efficiency of inputs drives the effectiveness of outputs – both of which ultimately support the viability of outcomes.



**Efficiency of inputs** refers to the most productive use by a city of available (typically limited) resources. These could be financial resources (eg raising funds, budget allocation and tracking/management), human resources (eg visionary leadership) and others.

This input efficiency, however, needs to translate into **effective outputs**. These outputs are traditionally the features associated with a smart city – infrastructure solutions (like smart energy meters) across sectors such as transport, water, sanitation, power, housing, health and so on. Importantly though, a smart city is not necessarily about using expensive technology – rather it is about using the right technology solutions, and as part of wider

approach that assesses input (efficiency) and outcome (viability) implications as well.

**Viability of outcomes** encompasses a range of requirements. These include the ability of a smart city’s features to stand the test of time, either through the continuing relevance of its outputs, or in its ability to be adapted or upgraded without significant reinvestment. It also refers to the existence of an effective governance infrastructure that allows for the engagement and empowerment of citizens within the decision-making process – so that an on-going feedback loop is maintained between the city administration and its citizens.

## FACTORS DRIVING THE ADOPTION OF SMART CITIES

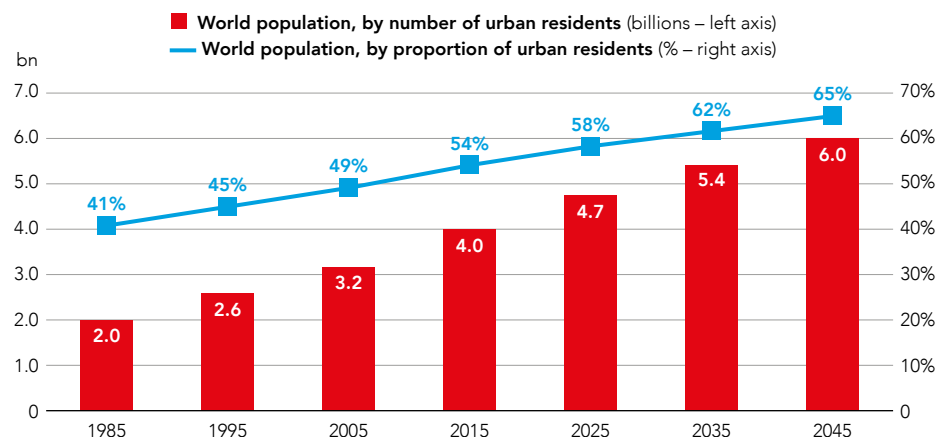
### 1. Urbanisation

Globally, more and more of us are living in cities. This is not just a function of the world population increasing as a whole – the proportion of individuals living in cities is also increasing.

Furthermore, this increased urbanisation applies across a wide spectrum of cities ranging in population from the hundreds of thousands at the smaller end up to so called ‘mega-cities’ with population in excess of 10 million.

This has driven the need for a coherent approach to city management that is relevant to all sizes of city. In designing such an approach, the aim is to provide a sensible road map for the smaller cities as they grow into larger, and potentially mega, cities.

**Figure 1.1:** Projected growth in global city populations



Source: United Nations (Department of Economic and Social Affairs)



Looking ahead, the vast majority of newly urban dwellers are expected to be in Asia and Africa, with India leading globally in the number of urban dwellers being added.

**2. Rise of cities in Asia and Africa**

Looking ahead, the vast majority of newly urban dwellers are expected to be in Asia and Africa, with India leading globally in the number of urban dwellers being added. Many of the countries in Asia and Africa will be making or continuing the transition from agrarian to industrialised societies. Consequently, many of the cities they live in may be relatively new or may only recently have started experiencing significant growth. This presents an important opportunity to use smart city principles – and to lay the foundations for viable outcomes that stand the test of time.

**3. Fuelling economic growth engines**

Cities are economic growth engines, with an estimated four-fifths of global gross domestic product (GDP) being generated in them<sup>1</sup>. If cities are the economic engines driving countries forward, then improving their productivity will have a disproportionately high impact on country GDP and, by extension, global GDP.

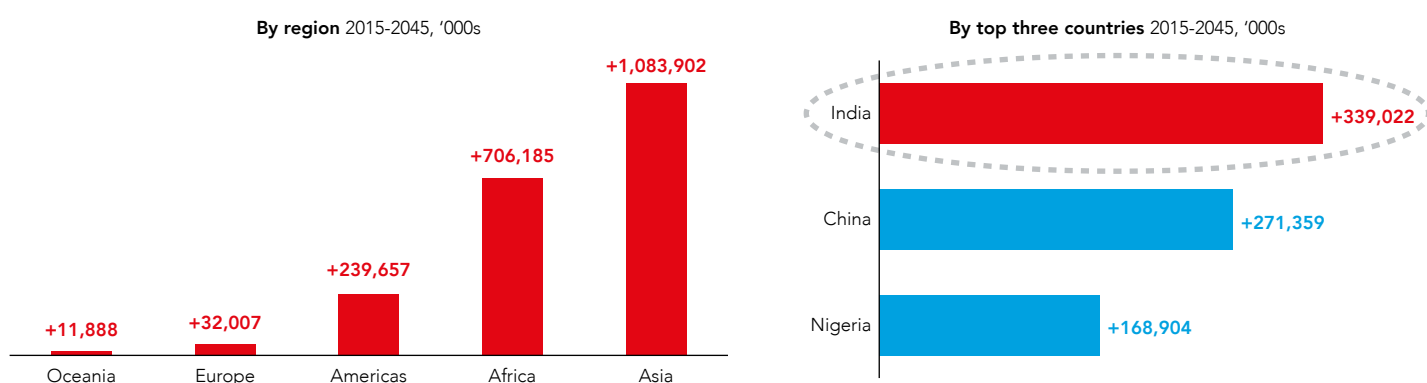
Smart cities are all about deriving the maximum utility from resources, which aligns with the productivity agenda. Also, smart cities can be custom-built from scratch to become an economic hub that supports a local economy, while offering transport connectivity and environmental sustainability.

**Table 1.1:** Projected increases in city sizes

City population	Number of cities		Increase	
	2000	2030	absolute	%
300,000 to 500,000	501	832	331	66%
500,000 to 1 million	385	731	364	90%
1 to 5 million	314	558	244	78%
5 to 10 million	30	63	33	110%
10 million or more	17	41	24	141%
<b>GRAND TOTAL</b>	<b>1,247</b>	<b>2,225</b>	<b>978</b>	<b>78%</b>

Source: United Nations (Department of Economic and Social Affairs)

**Figure 1.2:** Increases in urban population around the world



Source: United Nations (Department of Economic and Social Affairs)

1 The World Bank, *Urban Development - overview*, [www.worldbank.org/en/topic/urbandevelopment/overview](http://www.worldbank.org/en/topic/urbandevelopment/overview), accessed 07/11/2016.

The use of a city and its facilities should be open to all members of society, including those who may have health challenges, mobility constraints or other issues.

#### 4. Environmental impact

Increased urbanisation, with its link to industrialisation, has created catastrophic levels of pollution, particularly in larger and mega-cities. Many urban agglomerations routinely record air pollution at several multiples of WHO guideline levels (10 micrograms per cubic metre of particles less than 2.5 micrometres in diameter). Both Delhi and Shanghai are over ten times the WHO guideline level<sup>2</sup>.

This situation is untenable and smart cities may offer a way to reconcile the apparent clash between the city as an economic engine and as a place for human life to flourish. Unless this is addressed as an urgent priority, the collateral damage in healthcare costs will overwhelm cities, many of which already have weak healthcare infrastructure.

#### 5. Accessibility and assisted living

In the early 1950s, populations in North America (both the US and Canada) had an average life expectancy that was 26 years longer than in Asia – that gap has now narrowed to about seven years (79 years versus 72 years)<sup>3</sup>. This changing age demographic is set to continue into the future and makes smart cities an increasingly relevant concept, owing to their ability to make a range of public services more user-friendly.

The use of a city and its facilities should be open to all members of society, including those who may have health challenges, mobility constraints or other issues. This is needed to ensure the full participation of all residents in a city, and to avoid sub-optimal use of talent and skills.



2 World Health Organization, *Global Health Observatory (GHO) data - Exposure to ambient air pollution*, [www.who.int/gho/phe/outdoor\\_air\\_pollution/exposure/en](http://www.who.int/gho/phe/outdoor_air_pollution/exposure/en), accessed 07/11/2016.

3 United Nations, Department of Economic and Social Affairs, Population Division (2015). *World Population Prospects: The 2015 Revision*, accessed 07/11/2016.

Finance and accounting professionals will play a key role in ensuring that as activities, responsibilities, and budgets increase, cities have skills in place to benefit from these changes.

### RELEVANCE OF SMART CITIES TO PROFESSIONAL ACCOUNTANTS

There are several reasons because of which smart cities will require the pro-active involvement of professional accountants to realise their full potential.

#### 1. Financial management for an increasing and varied pool of smart cities:

Given the drivers discussed earlier, it is perhaps not surprising that an increase in the number of smart cities is forecast. One estimate suggests a tripling from 28 smart cities in 2015 to 88 in 2025<sup>4</sup>.

Also, smart cities run the gamut from developed countries to emerging markets, from large cities to small and medium sized ones, from a centralised 'top-down' city-wide administration approach to one that has greater localised variation and from established mature cities to those that are being custom-built from scratch as smart cities.

This projected increase in number of smart cities, coupled with the variety of models involved, will increase the demand for professional accountants who are needed for robust financial management of these cities. Without them the day-to-day delivery of a smarter city will be at the mercy of all the usual delivery risks such as wastage of funds, fraudulent reporting of financial performance or lack of contractual rigour (eg with Public Private Partnerships).

#### 2. Getting value for money from technology:

Smart cities use technology (to a greater or less extent) to optimise service delivery and to add value to the lives of citizens. Looking ahead there are several areas where this dependence on technology is likely to increase. These include the use of Internet of Things (IOT), big data and on-going innovations based on open-source standards. These innovations all exploit the increased availability of data, and the ability to analyse the data to better predict user behaviour.

Professional accountants are needed to understand the impact of technology on business decision making (particularly cost-benefit analyses), and to ensure that the right digital tools are adopted for the right reasons – ie in the best interests of citizens. This is important to provide objective fact-based reasons for adoption, and reduce the risk of expensive solutions being pushed by vested interests.

#### 3. Greater fiscal responsibility for cities:

One of the models being explored around the world to drive growth is to give cities greater autonomy in managing their own activities and budgets. Oversight from a central governmental authority is reduced in favour of greater decision-making control for the city. The upside for the city might be less dependency on the central government to secure funds each year (which might in some cases be quite a political process).

**Table 1.2:** Different styles of smart city around the world

CITY	DEVELOPED MARKET	EMERGING MARKET	SMART FEATURES TO EXISTING CITY	NEW CITY CUSTOM BUILT	MAINLY CENTRALISED PLANNING	CENTRALISED AND LOCALISED
Amsterdam	✓		✓			✓
Modderfontein		✓		✓	✓	
Rio de Janeiro		✓	✓		✓	
Singapore	✓		✓			✓
Songdo	✓			✓	✓	
Barcelona	✓		✓			✓

<sup>4</sup> IHS Markit, Smart Cities to Rise Fourfold in Number from 2013 to 2025, July 2014, [press.ihsmarkit.com/press-release/design-supply-chain-media/smart-cities-rise-fourfoldnumber-2013-2025](http://press.ihsmarkit.com/press-release/design-supply-chain-media/smart-cities-rise-fourfoldnumber-2013-2025), accessed 07/11/2016.

Professional accountants are the link between operating processes, organisational performance and financial value.

On the other hand, cities will need to be more commercial and forward thinking, and cannot wait passively for allocations from higher levels of government.

In India the government has announced the creation of 100 smart cities, many of which are small and medium sized cities outside of the traditional large city hubs. One of the expectations within the programme is a greater role for cities to raise and manage their own funding (as only a portion of total funding will be covered by centre and state governments) – a task which will be new, and daunting to many (particularly smaller) cities. Finance and accounting professionals will play a key role in ensuring that as activities, responsibilities, and budgets increase, cities have skills in place to benefit from these changes.

#### 4. Breaking down siloes in the operating model:

Reducing silos is integral to creating a smart city. The starting point for a smart city is to achieve the most efficient use of limited input resources. To do so, it is absolutely vital that departments within a city government and, indeed, different

levels of government (city, state and centre) are all joined up to avoid expensive wastage of time and resources.

Traditional hierarchical structures across government departments have encouraged policy development in individual siloes. The impact of one policy on another has not always been considered which creates duplication and waste. For example in the UK, funding for mental health is not a 'protected' area of government expenditure. Therefore, if patients are released from care too early to save costs, they might be at risk of committing major or minor offences, requiring police support and infrastructure. This creates unintended consequences with reductions in one area causing increased expenditure in another, ironically resulting in a higher overall spend.

Professional accountants are the link between operating processes, organisational performance and financial value. They are therefore well placed to provide a holistic project management view and drive the breaking down of siloes to ensure best value for taxpayer funds.



This section focuses on the smart cities initiative launched in India in 2015.

### **POLICY BACKGROUND**

Municipal accounting in India has been evolving over more than 30 years. From isolated experiments in specific cities (such as Mumbai and Chennai in the 1980s) that were led by external bodies such as the World Bank, the initiative shifted to the centre from the early 2000s. This resulted in the creation of frameworks such as the 'Guidelines for the Utilization of Local Bodies' Grants' and 'Model Municipal Law (MML)' by the Government of India in order to form the basis of administration for urban local bodies (ULBs) across the country.

### **Government of India Smart Cities Mission**

Smart Cities Mission is an ambitious urbanisation programme launched by the Indian government in 2015. The programme aims for the creation of 100 smart cities and has been allocated INR 480bn (c. £5.3bn) over five years by the central government. An equal amount, on a matching basis, will have to be contributed by the state government or urban local body (ULB – city- or municipal-level administration).

A few headline factors influence the philosophy of the mission.

### **Bottom-up model for development:**

Smart Cities Mission provides for multiple models of development in recognition of the fact that needs differ between cities.

So, while some cities may be created afresh (greenfield), many others involve replacement of a built-up area (redevelopment) or upgrading existing structures (retrofit).

### **Professionalising the approach:**

A concerted attempt has been made to reflect on required improvements, to compete nationally to be selected for the programme on the basis of their development indicators and potential, and to build a business plan that sets out a road map for achieving goals.

### **Implementation of vision:**

There is greater emphasis on financial discipline and skills at city level – for creating and managing budgets, and allocating and sourcing funds. A 'project' approach to smart city initiatives is being tried which will involve the creation of special purpose vehicles (SPVs) to lead implementation.

### **Wider eco-system of development:**

This initiative is part of a mix of programmes that collectively seek to tackle India's developmental challenges. Examples of other relevant programmes include the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), which supports the development of basic amenities such as water, sewerage and transport, and Digital India, which focuses on e-delivery and digitally enabled services.



Respondents within accounts department were asked about their opinions of the smart city plans for their city; these opinions were classified as optimistic (35%), cautious (38%) or pessimistic (28%).

**SURVEY RESULTS**

In order to obtain a first-hand view of the status of municipal accounting in the proposed smart cities, interviews were conducted with stakeholders working in municipal governments in 40 cities across the country. Two individuals were interviewed from each city – one working in accounts and finance, for example chief accounting officer or similar, with respondents being permanent employees having 10 to 32 years of experience; and the other working in an operational area relevant to that city’s smart city plan, such as water or waste management, and who interacts with accountants – in order to provide a rounded view.

This survey was conducted during June and July 2016.

**Summary findings**

**1. Perceived level of readiness**

Respondents within accounts department were asked about their opinions of the smart city plans for their city; these opinions were classified as optimistic (35%), cautious (38%) or pessimistic (28%). Cities in the top 20 of the Smart Cities Challenge were slightly more optimistic than the sample as a whole, perhaps because of a higher level of preparation, and therefore a greater belief that plans could be achieved. It is worth noting, though, that even those who were pessimistic claimed that the concept of smart cities was a good

one – the pessimistic view was linked to doubts about the realisation of the concept, rather than the idea itself.

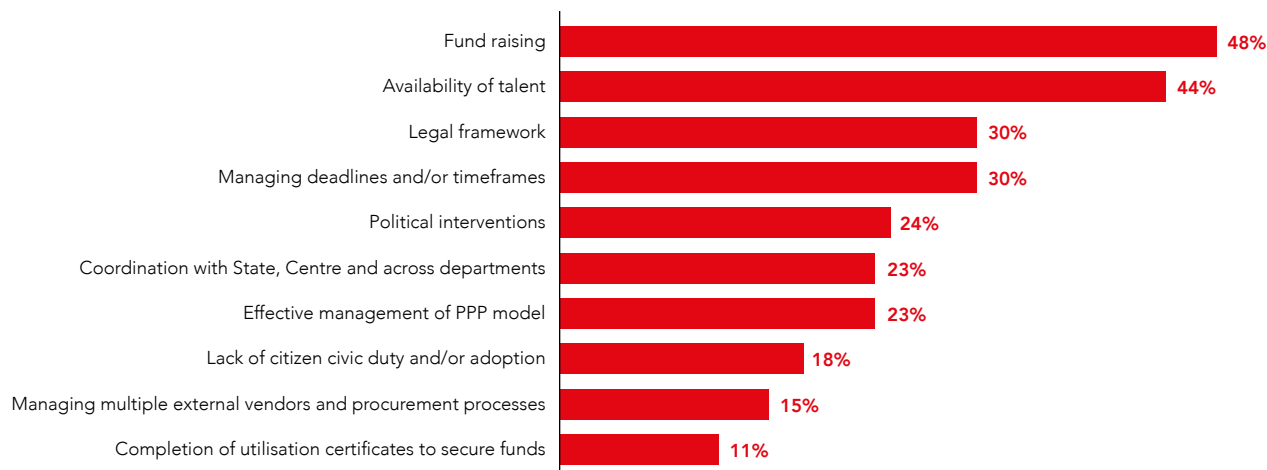
The operational staff members were of the view that improvements would be needed, when asked about their accountancy teams’ current levels of preparation for supporting delivery of smart city plans. Slightly over one-quarter (28%) claimed that a ‘lot of improvement’ was required, with a further 60% taking the view that ‘some improvement’ was needed.

**2. Key dependencies**

When reflecting on the main dependencies over the next three years for successful implementation of smart city plans, areas mentioned (across operations and accounting staff combined) included:

- i. fund raising and availability of talent – concerns mentioned by almost half of all respondents
- ii. the legal framework (the large number of clearances, documentation for public private partnership (PPP) contracts, etc.)
- iii. project management concerns linked to tight deadlines set by the Smart Cities Mission; concerns of political intervention; and coordination – across the centre, state and municipal government, and between departments in the municipality.

**Figure 2.1:** The key challenges over 2016–2019 for executing smart city plans



There is an overall shortage of staff within accounting teams.

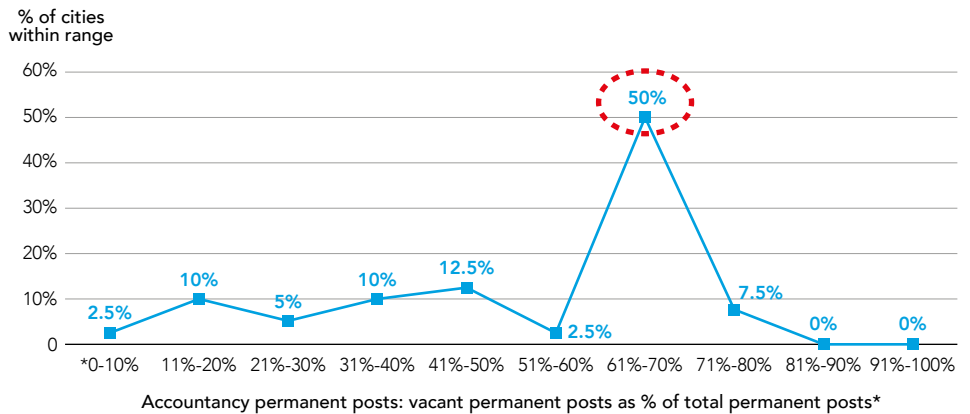
**3. Staffing considerations**

There is an overall shortage of staff within accounting teams. In half the cities surveyed between 61% and 70% of permanent posts within accounts and finance lie vacant. Clearly, such a situation is bound to place challenges even in a business-as-usual scenario, let alone with the additional pressures linked to delivering smart city plans.

Furthermore, at the time of the survey, in 60% of cities surveyed, more than half of accounting employees were in fact not permanent employees of the ULB. While there can be a legitimate case for bringing

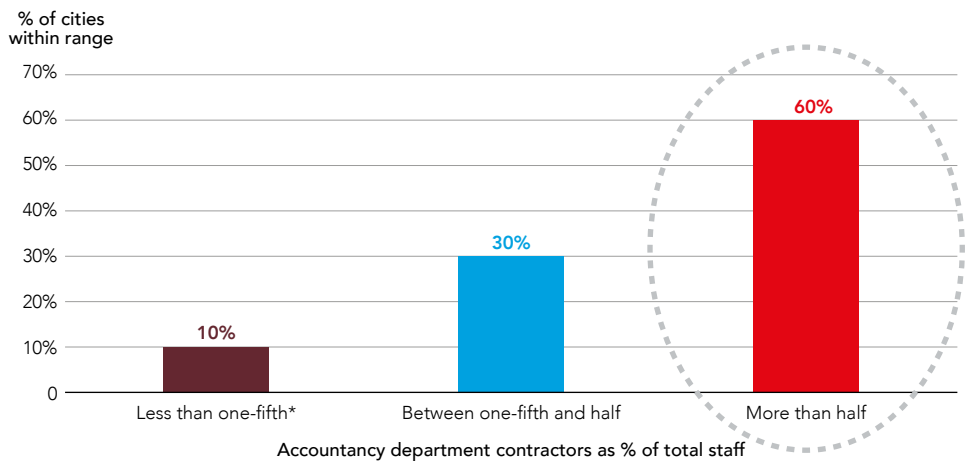
in external specialists for specific, time-bound contributions, such individuals are generally best used as ‘top-ups’ to the existing resources, rather than constituting the majority of the team. When the dependence on contract staff is so heavy, there is a risk of these contract staff members leaving (for example, if the specific project for which they were engaged is completed or there are better opportunities elsewhere) and taking their knowledge and skills with them. This makes it difficult to ensure long-term retention and improvement of skills, and could be the source of expensive recurring costs for the ULB.

**Figure 2.2:** Vacancies within accounts and finance department



\*0-10% means that in accounts departments, vacant permanent posts were between 0% and 10% of total permanent posts. 2.5% of cities surveyed fell into this range.

**Figure 2.3:** Percentage of contract/consultant staff working in ULBs



\*Less than one-fifth means that in accounts departments, contractors were less than one-fifth of total staff, 10% of cities surveyed fell into this range.

**Budgeting, planning and forecasting has therefore emerged as a key area requiring attention**

**4. Priority requirements for the future**

The operations respondents did not view many core accounting skills (such as preparing financial statements) as being the main areas of concern. Looking ahead, the areas they particularly focused on as requiring support from the accounts team were 'Payments/Funding at required time periods' (cited by more than half the respondents) followed by 'Multi-year budgets to support/track expenditure' (cited by almost a quarter of respondents).

Accountancy respondents are very clear about the need for skills enhancement and the areas where this is required. 'Budgeting, planning and forecasting' were mentioned as an area requiring training by almost everyone (98%). 'Cost and expenditure management' (85%) was the second most commonly cited area.

In addition to asking respondents about the number of staff needing training in a specific area, the respondents were also asked to rank the level of priority for training in each area. On this measure, 'Revenue generation' topped the list, with the greatest number (30%) citing this area as their number one priority for training (this area was also cited as the top challenge over the next three years), while 'Budgeting, planning and forecasting' (23%) came second.

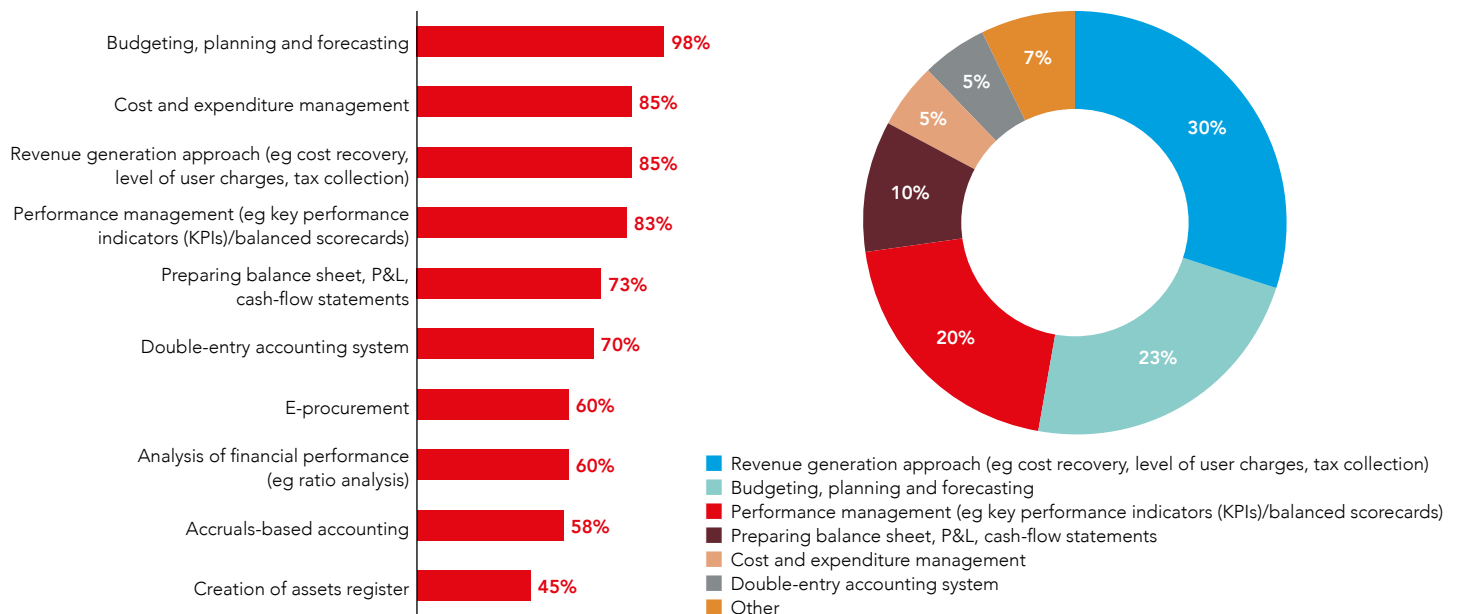
Accountancy staff members were also asked about additional or new responsibilities they expected when looking ahead, in the context of delivering smart city plans.

Key areas that emerged were: an understanding of PPP (cited by 50%) and project management approach (activity chart models, cited by 38%). The next most frequently mentioned area (cited by 23%) was 'Budgeting, planning and forecasting'.

'Budgeting, planning and forecasting' has therefore emerged as a key area requiring attention:

- i. operations staff, when looking ahead, see these skills as a key area where they need support from their accountants
- ii. almost all accountants seek training in this area
- iii. many of them view it as their top priority for training, and
- iv. accountants flag it as a key area where they expect additional or new responsibilities.

**Figure 2.4:** Areas where training is needed to support execution of smart city plans (left) and the areas listed as top priorities for training (right)





One of the key enablers for effective budgeting and forecasting is an accruals based approach, so that activities can be mapped to revenues and costs, rather than just a pure recording of cash in and cash out.

With respect to the final point above, robust multi-year budgeting will in fact be a new responsibility for many municipal accountants. This is because the approach is shifting from the historic procedure whereby funds are awarded annually from higher levels of government to a more long-term process: Smart Cities Mission has stated its funding intentions in advance for the next four to five years. Budgeting and forecasting allocations must therefore reflect a clear multi-year plan for using these funds efficiently and effectively.

One of the key enablers for effective budgeting and forecasting is an accruals based approach, so that activities can be mapped to revenues and costs, rather than just a pure recording of cash in and cash out. At present, the vast majority of ULBs surveyed have begun the process of migration to a double entry accruals system (DEAS).

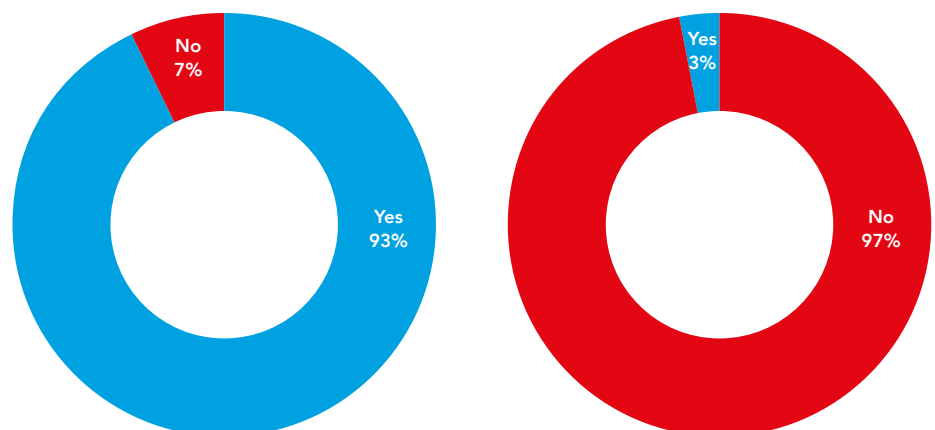
The minimum requirement, however, has been set as a commitment to 'work towards' migration – rather than the setting of a hard deadline and firm requirement to complete this migration. As a result, while 93% have initiated the migration, only 3% have actually completed the process, with the rest maintaining single-entry in parallel, which is unnecessarily increasing the workload. Completing this migration will be an important enabler to support the requirements of smart city plans.

These survey results are reflective of the broader challenges that are being recognised in the municipal accounting space. Briefly, these may be thought of as:

**Legislative challenges:** the national-level frameworks and MML provide a common denominator, but they are ultimately guides for influencing at state and municipal level; and the bodies that produced them cannot directly enforce compliance. Furthermore, risks from retrospective changes to the law and lack of speedy legal recourse for dispute resolution are among the legal issues perceived by private participants, particularly in the context of PPP contracts. Not least, specific challenges in areas such as land acquisition and more generic concerns about legal permits and clearances are areas which could dampen interest.

**Operational challenges:** manual procedures and a multiplicity of registers for recording transactions, shortage of staff and gaps in skills, incomplete adoption of basic best practices such as double-entry accruals systems, and insufficient use of the internal audit function, are all factors that are being recognised and responded to – and how effectively these challenges are managed will have a considerable impact on policymakers' ability to create smart cities. There is also a key operational dependency on the leadership of the state government, which is the critical link between the vision at the centre and the day-to-day reality at municipal administration level.

**Figure 2.5:** Percentages of ULBs that have (left) initiated and (right) completed migration to a double-entry accruals system



Several factors are relevant to helping to chart the path ahead; and in doing so, it is important to recognise best practice examples already in place, and to learn from them.

### **CHARTING THE WAY FORWARD**

Several factors are relevant to charting the way forward; and in doing so, it is important to recognise best practice examples already in place, and to learn from them.

**Standardisation where possible:** this can help materially to reduce complexity; while variations across states may be inevitable given administrative and political differences, there is a case for greater homogeneity at least within a state (for example, the standardisation of accounting systems achieved in Karnataka).

**Strong support and backing from state:** the state government is a crucial intermediary linking the smart cities vision at the centre with the operational reality at the municipal level (for example, coordination has historically been achieved in Tamil Nadu via a state-wide urban development fund). A key element here is the role of State Finance Commissions in addressing issues linked to accounting, procurement, management information systems and resource generation possibilities.

**Structured and phased implementation by municipalities:** there can be difficulties in introducing sweeping accounting and financial reforms involving municipal departments rapidly or in a single release. Indore Municipal Corporation (IMC) is an example of a successful experiment in

implementation of accounting systems reforms – particularly as it was conceived, initiated and carried out without technical or financial assistance from any organisation nor was it directly required to reform by a higher-level government.

**Individual capacity building:** ultimately all reform is made by individuals, and these individuals need to have the necessary skills to achieve the required outcomes.

- i. The AMRUT programme has recognised this, and will be a key provider of nationwide training for skills development.
- ii. Another option to enable access to skills may involve graduates of commerce, costing, accounting, etc. being called upon by the municipality for certain tasks, as part of a panel – similar to the way architects are empanelled for approving building plans for plot sizes smaller than a certain level.
- iii. Educational entities, such as local universities and professional accountancy bodies, can play an enabling role in creating a skills partnership. This can help with designing training courses, providing skilled or semi-skilled resource (internships), sourcing professionals for panels (point ii above), and overall strategic guidance for accountancy capacity building for the ULB.



Creating smart cities is about creating simple cities – ones where the current day-to-day functioning and effective future planning are embedded into the operating model in a simple, workable way.

**Sharing of learning and expertise across states:** city administration is a state subject typically seen within the boundaries of the relevant state. However, some of the greatest efficiencies occur when ULBs across the country learn from each other – isolated pools of experience that are not shared nationally is sub-optimal. Looking ahead, annual sessions with cities from various states to share lessons would help with smart city delivery.

**Governance and legal:** tactical and strategic areas are mentioned below.

- i. **Tactical** areas directly increase speed of execution for the smart cities agenda, for example:
  - *single-window clearance* whereby a separate new body (or a similar existing body) assists private players in acquiring land and clearances for the projects;
  - *best practice PPP governance* whereby a national mission director (under Apex Committee) could lead formulation of best practice PPP templates that can be tailored for specific scenarios;
  - *efficient dispute resolution* whereby a specialised body for redress or a commercial court is formed in each state, providing a forum for speedy and commercially sound dispute resolution;
  - *commercial incentives* are provided, eg regulatory benefits (like tax breaks) that reduce transactions costs.
- ii. **Strategic** areas improve the ecosystem within which smart cities are to be created, for example:
  - *Data protection framework* unifying laws from Information Technology Act 2000, National Cyber Security Policy 2013, laws for Internet Service Providers, and the Indian Penal Code 1860;

- *Regulatory framework* for smart cards and other payment systems since several smart city plans envisage financial inclusion through smart cards, with several types of payment and transactions through the card;
- *Net neutrality and general internet access* policy that keeps in mind the benefits of free public access to the internet;
- *Sector-specific policies and regulations* for example, in waste management, regulations and pricing linked to segregation of organic and inorganic waste, and a framework to determine Viability Gap Funding for large organisations (including housing societies) dealing with issues linked to decentralised solid waste management.

Creating smart cities is about creating simple cities – ones where the current day-to-day functioning and effective future planning are embedded into the operating model in a simple, workable way. The accounting function, in many ways, is the glue that binds all the different parts of the organisation together, and is also the part of the organisation that will have to bring a focus on day-to-day issues.

Accountants are required to get things right on a continuous basis so that the ambitious goals of a smart city are not just achieved in the short-term, but also sustained in the long-term. And it is the accounting team that must take primary responsibility for monitoring how effectively initiatives are working post-launch. For example, costs for initial set-up and development are often overshadowed by unexpectedly high operating and maintenance costs which were not fully appreciated at the start of project. Accounting teams will play a key role in focusing on these sorts of simple, but essential priorities.

