



Harnessing the Smart City opportunity

Laying the foundations





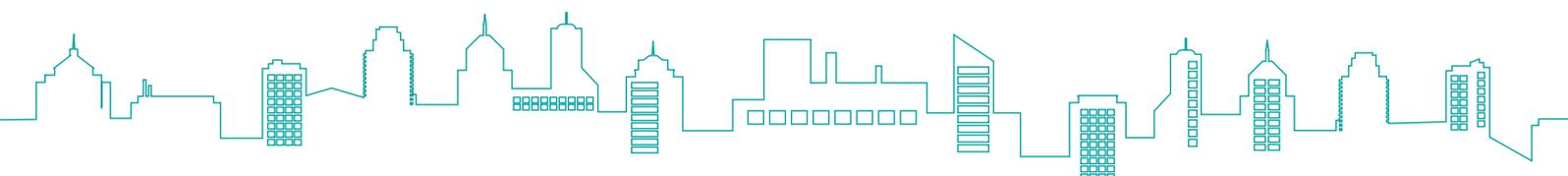
Cities are home to over half of the world's population and this figure is estimated to increase to over 65 percent by 2050.¹ Australia will feel the squeeze of urban growth in full force, with all of the nation's capital cities expected to double in size by 2061.² Such rapid densification is placing an unprecedented burden on the physical infrastructure and social fabric of cities.

Today, 64 percent of all travel happens within urban environments, and the total amount of urban kilometres travelled is expected to triple by 2050.³ Transport infrastructure, already struggling with existing demand will continue to face increased strain unless alternative solutions are sought out. Aging assets, housing affordability, scarcity of water and traditional energy sources, and increasing social inequality are hindering the ability of resource-strapped cities to compete globally and create liveable, inclusive environments for their citizens.

1 United Nations: <https://esa.un.org>

2 United Nations: <https://esa.un.org>

3 Arthur D Little: <http://www.adlittle.com/future-of-urban-mobility.html>



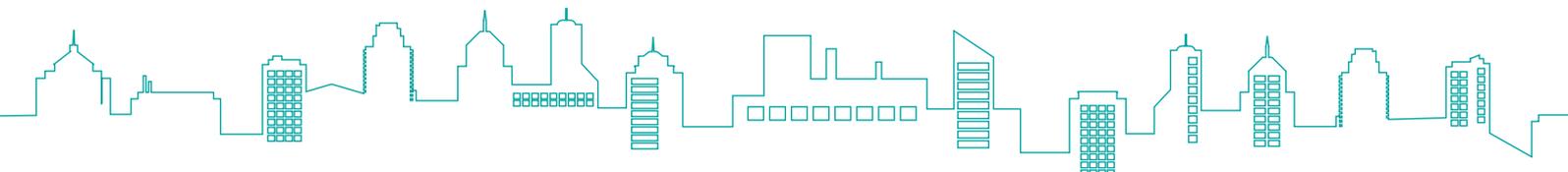


A smart solution?

But it's not all doom and gloom. Seeking to harness the opportunities and address the challenges presented by rapid urbanisation, local governments are increasingly looking to embark on 'Smart City' transformations.

A 'Smart City' is one which leverages ICT and emerging technologies such as the Internet of Things (IoT), cloud computing and ubiquitous connectivity, alongside advances in cognitive computing, machine learning and artificial intelligence, for the advancement of liveability, sustainability and economic benefit.

To date, however, many Smart City initiatives or, more precisely, 'pilots' have been exactly that: point solutions driven by technology lacking an underlying, integrated Smart City strategy. Smart bins, smart streetlights, smart parking et al all offer benefits in their own right, but such "quick fixes" have not always proven to be sustainable nor scalable. In fact, some may have missed the mark in terms of understanding and addressing the core issues facing city stakeholders.



Paving the way

Steps to success

At the heart of true Smart City success is a fundamental mind-set shift, embedding Smart principles, practices and technology within the very fabric of a City's operating model. In much the same way as modern commercial buildings now incorporate 'Green' capabilities as standard, true Smart Cities of the future (or 'Smarter', if you prefer) will incorporate these techniques by default. Getting to that point will take time, however, as Cities deal with legacy structures, policies, risk profiles and of course the challenges of managing current business-as-usual.

There are a number of foundational elements that Cities should consider, as they move along this journey.



Citizen centric

Creating the strategic framework and guiding principles with a 'citizen-centric' view is a key foundational component of Smart City thinking. Putting people first (be they residents, visitors, business owners or indeed Council staff) helps to ensure that the real needs of the community are being addressed, rather than succumbing to the allure of 'shiny toys'. Not only does it focus on the real 'why' of embedding Smart City thinking, the various stakeholders become an integral part of the solution, with a sense of ownership and stewardship of the process.



Innovatively funded

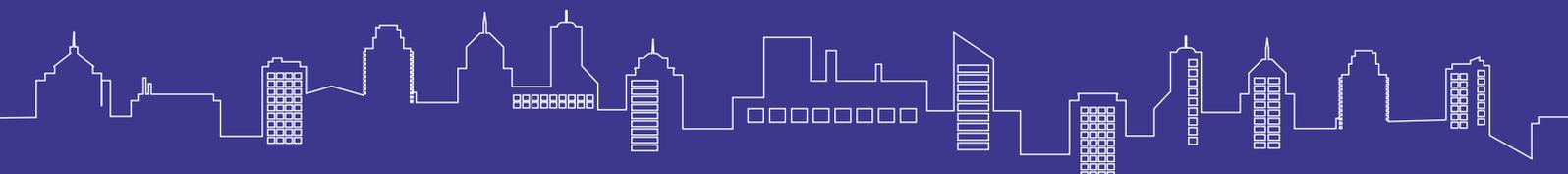
Sufficient funding is essential for the viability of Smart City strategies. However, upfront funding, particularly in the face of rate-capping and pressures on city budgets, is not always easy to secure. Neither are returns always short-term, or even monetary in nature; for example when considering environmental and quality of life factors. Councils are increasingly seeking alternate financing models - with various forms of Public Private Partnerships (PPP), concession models or funding via third-parties or even philanthropic sources all becoming more popular. The Federal Government, through initiatives such as City Deals or the Smart Cities and Suburbs Program is also looking to provide a method to help kick-start and accelerate Smart City projects.



Collaborative

Smart Cities can better realise their potential when they encourage a diversity of players to participate and collaborate. Such collaboration is important right from the beginning - at the point when a city looks to develop its Smart City strategy and roadmap. A platform that enables stakeholders across government, business, universities, start-ups and community to experiment and interoperate is at the heart of a successful Smart City ecosystem.

Given the current constantly evolving and somewhat nascent Smart City environment, where no single player holds a monopoly of ideas or solutions, Councils should also be wary of vendor lock-in by building in interoperability principles and standards to their solution designs. This serves to not only de-risk the project, but also helps to more effectively unlock the value of horizontal data across the various Smart City solutions by allowing the various sources of data to be brought together and analysed for insights and action.





Data driven

Smart Cities rely on data to really be successful. Lots of it, from multiple sources. The monitoring of city infrastructure and environment - the extension of a city's digital 'nervous system' through technologies such as the Internet of Things - can show what is happening in real-time on the ground. Combined with existing data from Council and third-party systems, this rich set of data can produce insights to better manage operational efficiencies, as well as providing quality of life enhancements in areas such as safety, mobility and public amenities.

With this enormous well of data comes associated challenges around interoperability, standards, privacy, security and data usage. Councils therefore need to establish robust principles and guidelines, whilst recognising the value of agility in the context of such a nascent forum. Open data sets provide for the possibility of new service offerings and third-party insights, creating economic growth but also city-wide benefits for citizens.

Standards such as Hypercat (BSI PAS 212:2016) seek to address the interoperability challenge. Hypercat has been used in a wide variety of urban and rural use cases from precinct security, to countryside lighting, highways maintenance, city parking, and fleet management. The Federal Government have also acknowledged the importance of interoperability for the Smart City, with the Hon Angus Taylor MP, Assistant Minister for Cities and Digital Transformation, stating:

*"The Commonwealth is exploring relationships with different jurisdictions to build smart cities that improve our lives. Hypercat Australia is one such partnership which will allow a platform to facilitate cutting edge technology solutions to be applied to urban problems"*⁴

Consideration should also be given to how data is managed, operationalised and communicated. All too often the collation of data is seen as an end in itself, overlooking the importance of analysing and visualising data to extract meaningful, actionable insights.

Through an integrated Smart City digital platform, cities can create a powerful environment that aggregates, normalizes, and analyses a wealth of data from a myriad of intelligent sensors and city assets. App developers can use this data to develop new urban services applications for city agencies, citizens, and businesses, creating shared value by bringing together disparate entities and making normalised data available for consumption in new forms.

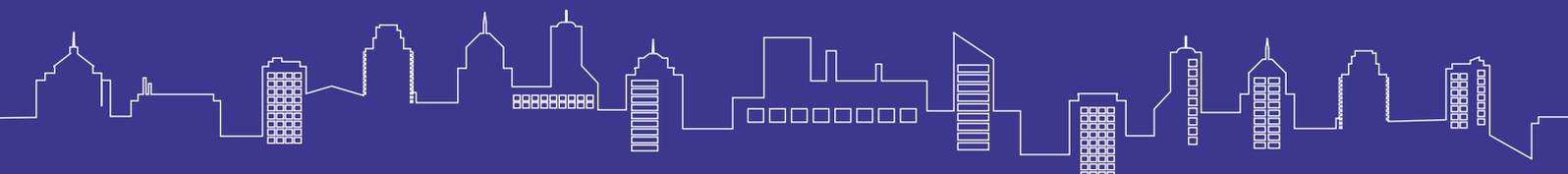


Fit for purpose

It may be necessary to examine the current systems, processes and roles in order to best support the above.

Creating and maintaining a sustainable Smart City requires careful consideration of the underlying ICT infrastructure, associated services, and the appropriate operating model. These should be tailored and shaped to best meet the current needs of the council, but flexible enough to grow and adapt over time. Coupled with this would be a clear understanding of the associated performance metrics and measurements.

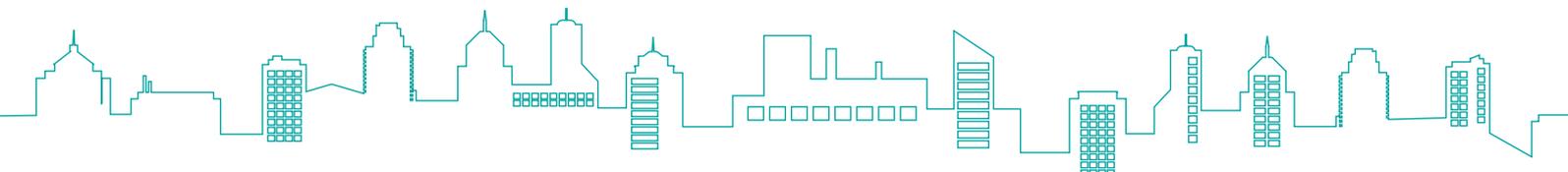
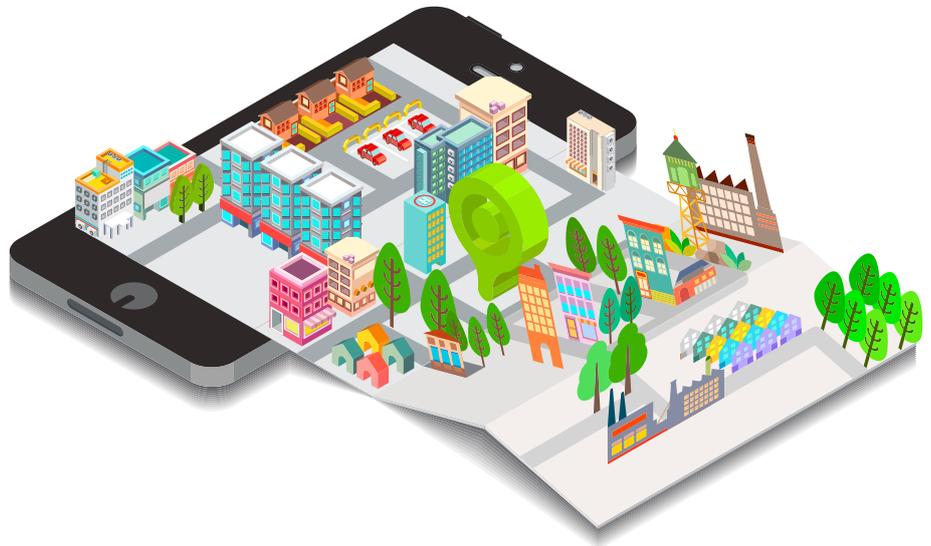
4 <https://www.iothub.com.au/news/australia-one-step-closer-to-smart-city-standard-436406>



Knowing where to start and what to measure

As Australia's Smart Cities movement gathers pace, the question many city leaders are asking today is 'Where do we begin?' Given the imminent announcement of the outcomes of the Federal Government's 'Smart Cities and Suburbs Program', cities are looking to hit the ground running if and when opportunities land. For others, planned and current investments in Smart City initiatives continue to come under scrutiny. How can cities ensure that funding is not only being spent on the right things, but that the expected benefits are being accrued?

The 'Future Ready' program from the Federal Government's Department of Prime Minister & Cabinet has helped in part with establishing a common understanding of the Smart City landscape, however, cities need to understand this within the context of their own environment.



Establishing a clear baseline maturity

A strategic first step in this process

A maturity assessment helps a city to take stock of its current state and provides a launch-pad for Smart City visions and plans. In the spirit of ‘what you can’t measure, you can’t manage’, a baseline maturity assessment helps a city to understand itself and track its progress into the future. It also helps to demystify the critical components that make up a Smart City. By its nature, a city is a complex system of systems. By deconstructing these systems into key components such as stakeholder management, technology, governance and so on (and then the various sub-components within each), a maturity assessment can clearly illustrate the key ‘moving parts’ that should be considered in the Smart City journey.

Find out more about [KPMG’s Smart City Maturity Assessment Model](#)

A smart future

Finding the signal in the noise and creating true value is a challenge facing all city leaders. However, the possibilities are tremendous and, armed with a clear understanding of the existing level of maturity, coupled with a willingness to experiment and learn, cities can turn words into action and execute their Smart City ambitions.

This is the first in a series of articles KPMG will be publishing over the course of the next 12 months, where we will move beyond the Smart City foundations and take a deeper-dive into areas such as funding, citizen engagement, big data, and more.



The KPMG Smart City Maturity Assessment Model has been designed to capture the key aspects of a city’s transformation journey to becoming a smarter city.

The benefits of the model:

- Takes an end-to-end holistic view across city agencies and departments;
- Draws from a large number of reputable sources in the urban innovation field, ranging from standards and industry organisations to policy and best practices organisations;
- Allows a city to quickly assess its strengths and weaknesses across five key dimension areas related to city ‘smartness’;
- Allows cities of any size to benchmark and compare how they are progressing against cities similar in nature to theirs; and
- Cities can then set clear and realistic goals as to how they wish to pursue a transformation to becoming a Smarter City.

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