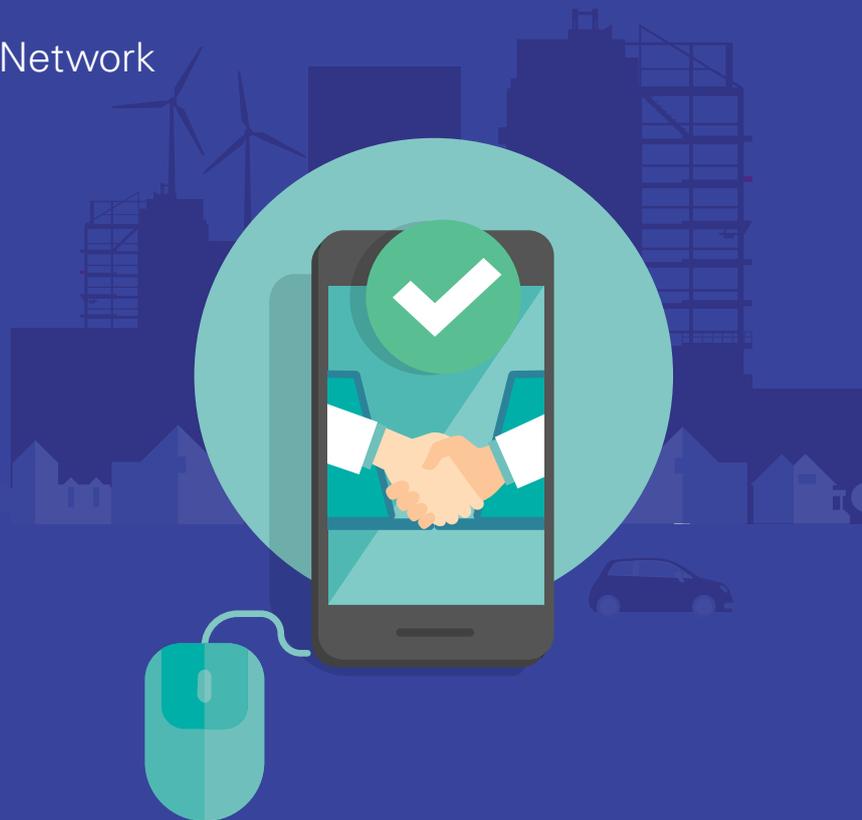




Smart Cities

A Snapshot of Australia in 2018

KPMG and Public Sector Network
Smart Cities Series 2018



2018 saw a shift from theory to practice as local government leaders use Smart Cities initiatives to transform services, not only for operational efficiency, but to meet wider citizen and strategic needs.

In this report we highlight the views, case studies and conversations captured during the Smart Cities Series 2018 by KPMG and Public Sector Network.



About the survey

Public Sector Network surveyed participants of the Public Sector Network and KPMG Smart Cities Series events held around Australia during October 2018. There were 202 responses.

Foreword



Paul Francis
Smart Cities Lead
KPMG Australia

Welcome to *Smart Cities – A Snapshot of Australia in 2018*.

Following our successful Smart Cities Series events in 2017, and subsequent [inaugural report](#), it was my pleasure to once again chair the 2018 roadshow events around Australia.

As in 2017, we visited six cities and hosted over 400 attendees. We were pleased to hear from city mayors and chief executive officers, planners and policy makers, academics, and corporate and community leaders. In addition to providing an excellent forum for information sharing across Local Government participants, we were also able to capture some fascinating insights into how the Smart City movement has progressed in the last 12 months.

In 2017, we were very much hearing local councils and the wider Smart Cities community talking about “what a Smart City” is; discussing the “why?”; and searching for ways to kick-start their strategies.

Thankfully, 2018 saw a shift towards a more action oriented use of Smart Cities initiatives to transform services, not only for operational efficiency dividends, but to meet wider citizen and strategic needs. This included managing the impacts of climate change, population growth and economic forces. This was evidenced by more proof-points and demonstrable project outcomes, although many are still at the pilot stage.

The shift was certainly towards the ‘how’. This was coupled with awareness of the need to consider the operating model of the Council, and broader digital transformation initiatives, including the back-office, in building and sustaining outcomes.

Collaboration also came to the fore, as it did in 2017. This year, however, there seemed to be a genuine desire to not only discuss collaboration, but to actually undertake it. We saw a focus on how councils can work together, and also with other tiers of government, to drive change. Round 2 of the Federal Government’s Smart Cities and Suburbs program specifically highlighted this theme, and many of the funding recipients were based on collaborations.

The relationship between technology vendors and government has also become more sophisticated, continuing the move from point solutions, ‘shiny toys’, and vertical integration, into real problem solving. There is a focus on the need to integrate across underlying platforms and networks to support innovative, horizontal, and interoperable services.

In addition to the rich discussions, case studies and lessons shared throughout the events, we undertook a more formal digital survey, in which about 200 participants told us about their Smart City journeys and plans. Key insights from the series, along with the results of this survey, are explored in this report.

Looking forward to 2019, we hope to see the pace and scale of Smart City initiatives step up once again. In the meantime, I trust you find this report useful and I look forward to hearing your own stories in this space!

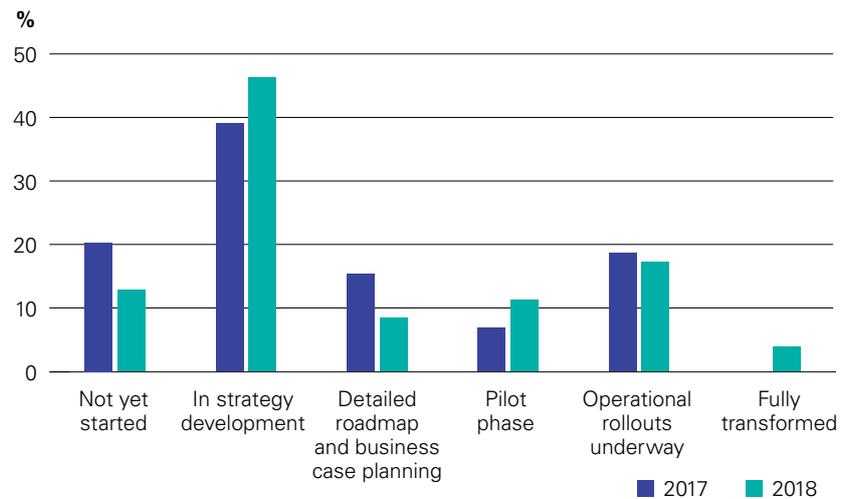
Where are we on the Smart City journey?

In 2017, 20 percent of our survey participants had 'Not yet started' on their Smart City journey, and this year that was down to 13 percent.

We also saw a lift from 39 percent to 46.5 percent of councils saying they were 'In strategy development'. And 11.5 percent are in a 'Pilot phase', up slightly from 7 percent in 2017.

Overall progress from strategy to implementation is still slower than we would ideally like to see, but is a good step forward.

Where are you on your Smart City journey?



Making the Smart City relevant



A common thread in 2018 was the need to localise Smart City initiatives, to solve a problem being faced by the local community, and to make the concept relevant for people.

Graham Quirk, Lord Mayor, Brisbane, said: "For Brisbane, a Smart City is about an efficient, personalised, insightful, inclusive and transparent system."

For Port Adelaide Enfield in South Australia, Karen Cummings, City Development Manager, said it is all about improving the visitor experience and economic benefit.

"These projects are all about people, and the benefit that the technology can bring," Cummings said.

For Glen Eira City Council in Victoria, it's about using information, communication technology, and partnerships to arrive at better operational efficiency, sharing of information, and improving services, according to Shweta Babbar, Manager of Innovation and Continuous Improvement.

And for the City of Newcastle, Smart City Coordinator Nathaniel Bavinton said it's about "people, public infrastructure, and innovation ecosystems". The Council is focusing on six pillars for Smart City transformation - governance, environment, living, mobility, people and the economy. "We are delivering our smarter city through cross-sectoral collaboration and transformative approaches including considering the city as an experimental platform and as a data commons"

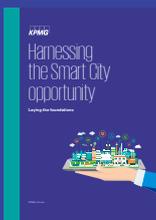
The importance of benchmarking

As the pace of Smart City initiatives increases, it's important for councils to have the right foundations in place to support strategy development and implementation.

Eamon Waterford, Director of Policy, Committee for Sydney, said one of these foundations is continual benchmarking. "It's really important to understand how your city is performing – not only against your competitors and neighbours, but against yourself over time" he said. "Having a feedback loop to know if policy changes are changing community behaviour, or impacting how people engage with your city."

Waterford said The Committee for Sydney's benchmarking compares Sydney to cities around the world. It offers meta-analysis across 70 global indices, 35,000 data points and 200,000 underlying metrics, such as liveability, ease of doing business, and affordability.

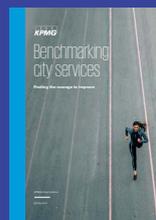
Find out more about benchmarking for Smart Cities and Municipal Services by reading:



 [Harnessing the smart city opportunity: Laying the foundations](#)



 [KPMG's Smart City Maturity Assessment](#)



 [KPMG's Municipal Reference Model](#)



What projects are being planned and implemented?



1
Communications network

Last year, WiFi was the top project being planned and rolled out, but this year it was 'Communications networks projects' (for 16 percent), followed by 'Platforms' (14.5 percent), 'Parking' (14 percent) and 'Infrastructure' (such as Smart roads and bridges, at 14 percent).

The focus on communications networks is also encouraging, as these are backbones of Smart Cities. In 2018, the launch of the [10 Gigabit Adelaide](#) project in South Australia was a major milestone in Australia. We're now seeing other examples emerge such as the Sunshine Coast Council facilitating the [International Broadband Submarine Cable](#), which aims to drive economic growth in the region and, "in time, to faster, more affordable broadband access".



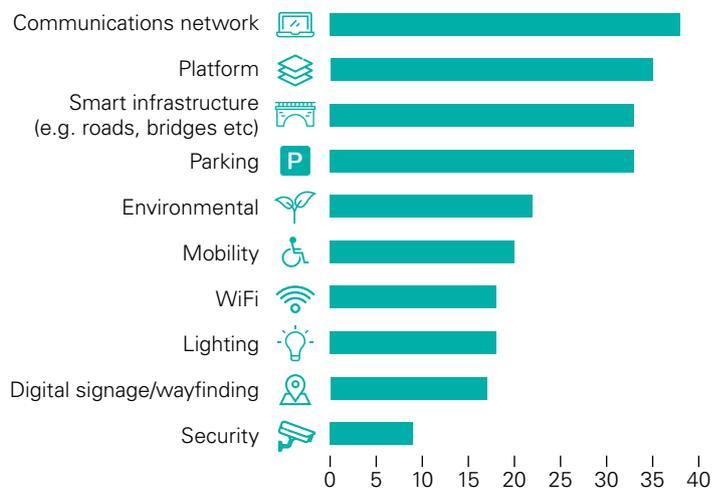
2
Platform

The focus on foundational smart platforms is encouraging, as they have the ability to pool data together from different sources (such as weather, events, parking, transport etc.) for analysis and decision making, which are at the core of operating a Smart City. We continue to see a shift away from point solutions towards more integrated and interoperable systems that can support a fast evolving technology environment.



3
Smart infrastructure

What are the top projects you are planning over the next 12–18 months?



Digital initiatives for City of Melbourne

City of Melbourne Lord Mayor Sally Capp said the Council is focusing on how electronic data collection can supply information to better manage resources and deliver optimal services.

“We’ve been developing a digital services platform so we have the ability to innovate rapidly when we need to and make life more convenient for Melburnians.

Cr Capp said the Council has invested in an integrated digital services platform, which is helping it embrace the IoT and be innovative when it comes to monitoring service needs in the city.

“For example, we’ve developed online tools for people to report graffiti for removal, to report abandoned vehicles

that need attention, along with other incidents,” she said.

The Council is also considering how 3D models, augmented reality, virtual reality, and interactive visualisations could foster greater community engagement around plans and decisions, such as where new buildings, parks or roads are located.

“In the coming years, Melbourne will face many challenges. We need to know we can engage with the community in a productive way to tackle and meet those challenges.”

“Of course, being a smart city is about more than economics and digital infrastructure, it’s about getting to the heart of what truly matters in the daily life of residents, workers and visitors.”

Smart Cities need supporting infrastructure

Smart Cities need the right ‘invisible’ infrastructure to support them. This was the message of Robert Matchett, Co-CEO, ENE.HUB, an organisation that plans, funds, delivers and manages connected networks of SMART.NODEs™.

These SMART.NODES™ are street light poles designed to discretely accommodate a number of services and devices to enable future ready Smart Cities and Communities.

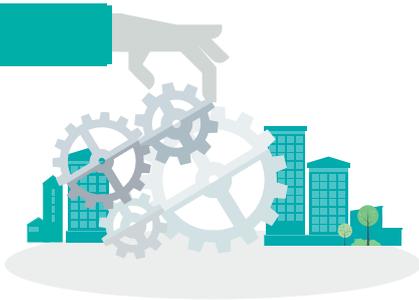
The SMART.NODE™ accommodates a broad range of services like Smart LED streetlights, Wi-Fi, CCTV, Digital Signage, 4/5G Communication,

Environmental Sensors, Parking Management Sensors, Travel Card Readers, Public Address Systems, Electric Car Charging, USB Charging, Event Power and many more all housed in the customisable modules.

“The Smart City is constantly evolving, and there are more services being developed as we speak,” he said.

“Think noise cancelling, low-latency communications, autonomous vehicles, emergency drone deliveries, and who knows what else. All of those services require devices to be delivered into the public space.”

Smart Cities and the transformation challenge



Smart City initiatives can deliver long-term impact, not just for communities but also for the internal structures and operating systems of Councils.

Rebecca McKenzie, CEO, Glen Eira City Council in Victoria, said that rather than just think about being a ‘Smart City’, councils need to think about being a ‘Smart Organisation’.

“What we’ve done over the last couple of years is an internal transformation program (Glen Eira Transforming Together) to make sure we’re fit for the future; and we need to be sustainable for the long term,” she said.

McKenzie says digitising the Council’s top 14 transactions has been key to this progress. “It’s not just about putting things online, it’s looking at the whole end-to-end process, and we’re transforming the customer end of things right through to the back office and making sure that we’re driving efficiency while enhancing the customer experience. We’ve also been working on the website; moving to open data, and looking how we can put in place good data governance.”

Building a Smart City, transforming services and the organisation, while at the same time delivering traditional services and meeting KPIs, is not easy for councils. This year, the top Smart City challenge was cited as ‘Lack of clear leadership’ at 17 percent, followed by ‘Financial’ at 16 percent, ‘Availability of resources’ at 15 percent, and ‘Adequately skilled resources’ at 11 percent.

Other notable challenges were ‘Procurement’ (at 14 percent) and ‘Collaboration’ (at 12 percent). Collaboration has been talked about for a long time when it comes to Smart Cities. In a breakout group workshop themed ‘Collaboration’, there was strong agreement that people are hoping to stop saying ‘we should collaborate’, and will finally actually do so.

“We have 21st Century technology ambitions, 20th Century thinking and approach, but with a 19th Century operating model (organisations).”

Debra Howe,

Director Strategic Growth and Development, Livingstone Shire Council

Find out more about local council transformation:



 [Key steps to local council transformation](#)

Who is leading the way to Smart Cities?



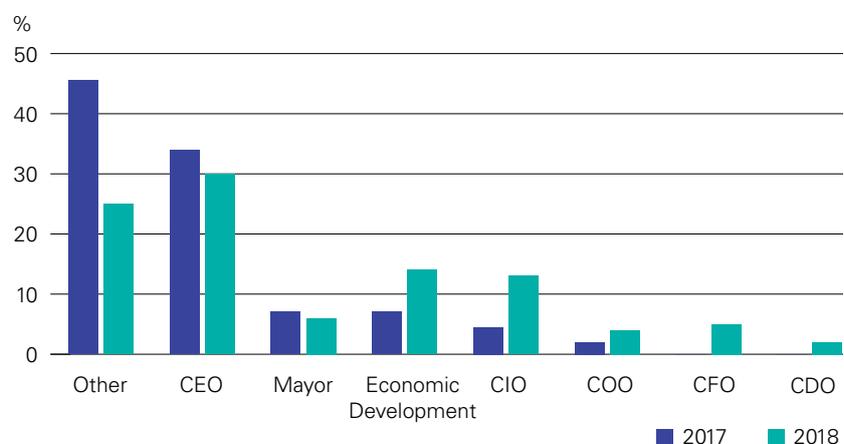
Effective change needs sound and bold leadership, and this year the CEO was named as the most prominent 'owner' of the Smart City strategy, at 30 percent (down from last year's 34 percent).

Following the CEO, there was a shift from 2017 away from 'Other' (though still high at 25 percent) towards roles such as 'Economic Development' at 14 percent, and 'Chief Information Officer' at 13 percent, and to a lesser extent 'Chief Financial Officer' at 5 percent, and 'Chief Operating Officer' at 4 percent.

This shift reflects an increasing understanding and maturity of Smart City strategies, while the diversity demonstrates that there is no 'typical' model for Smart City leadership across Australia. The approach has to work for each council.

While diverse leadership across the council is encouraging, a single point of accountability is vital to push new strategies through. Asked if there is 'Clear leadership from the top', it's encouraging that 67 percent of respondents 'Agree' and 'Partly agree'. However, there may still be issues to be addressed as 'Lack of clear leadership' was in the top three challenges faced by participants. This could indicate the complexity of multi-council and regional collaboration where a common vision is required across multiple stakeholders.

The Smart City strategy is owned by...



Collaboration: Engaging communities and connecting councils



Smart communities

As we highlighted in the 2017 report, citizens must be at the heart of Smart City initiatives, not technology.

During 2018 we continued to see that ‘bringing people along on the Smart City journey’ was a clearly accepted, and consistent message.

A good example of this was in City of Maroondah, in Melbourne’s outer east. Cr Nora Lamont, Former Mayor said consultation with community members has shown that sustainability, walkability and liveability are of vital importance. However, as the area undergoes redevelopment, a piecemeal amalgamation of lots has resulted in the underutilisation of valuable spaces, and a lot of green spaces being lost.

“This development paradigm is not meeting community expectations,” she said.

In response, the Council has developed its ‘[Greening the Greyfields](#)’ project. It is an urban development strategy that encourages a precinct-wide approach to lot amalgamation. The idea is that larger redevelopment sites will allow for greater flexibility in housing type, limit concrete coverage, promote common spaces, create walking and cycling paths, and reduce storm water runoff.

It relies on a great amount of community engagement and support.

“We want to support them to have an influence over their local community and we want to bring smart technology to bring about desired changes,” Lamont said.

Wendy Waller, Mayor, Liverpool City Council, said it is important to remember that there is no one-size-fits-all approach to community engagement. The diversity of communities – culture, age, education and digital literacy – means that a multi-channel approach should be adopted.

Connected councils

A core skill for Smart City leadership will be driving collaboration across National, State and Local governments. Matt Collins, Cities Transformation Taskforce, Queensland Government, is working on the South East Queensland City Deals initiative, and said key to the program is aligning three tiers of government which all have different priorities. Clear leadership is needed to foster agreement around infrastructure, investment, timing and funding.

“In Brisbane’s case we’re looking at it in a regional context...we’re working collectively as a group of Mayors.”

Graham Quirk,
Lord Mayor,
Brisbane

Despite collaboration remaining a challenge, there is benefit to be realised from pursuing it. When a diversity of perspectives are applied to a Smart City initiative, from government to business, universities to the community, more sustainable outcomes can be achieved.

In Round 2 of the Government's Smart Cities and Suburbs Program, a key criteria for funding was collaboration, so it is certainly on the national agenda. It makes sense, as the challenges faced by councils regarding Smart Cities are similar, such as negotiating with Smart Cities vendors, or selecting optimal technology solutions. Economies of scale, particularly for the smaller councils, could help.

Glenn Pomeroy, Innovation and Transformation Coordinator, City of Greater Bendigo, said the Councils 'Smarter Bendigo' alliance is bringing together government, the private sector, NGOs, academic institutions and the community, into a five helix model, with a view to develop a more integrated and collaborative approach to address the city's challenges.

"To support this we want to build on the UK City Deal model forming a Regionally focussed deal that encourages more long term investment for greater impact and clearer outcomes - we're looking to invest in new and innovative ways" Pomeroy said.

A good example of progress in collaboration occurred this year in NSW. Four councils – Wollongong City Council, Kiama Municipal Council, Shoalhaven City Council and Shellharbour City Council – recognised the opportunities that can be unlocked by joining forces to embark on a journey to become a 'Smart Region'.

The councils enlisted KPMG to assist in the development of a Smart Region strategy to provide an overarching vision and direction. The councils were supported in the project by the Illawarra Shoalhaven Joint Organisation, as well as the Illawarra Regional Development Authority, and the Far South Coast Regional Development Authority.

"Defining value, creating a compelling story, and gaining buy-in from senior management is still a big issue – often resulting in projects unable to get approval."

Paul Francis,
Smart Cities Lead,
KPMG Australia

ROI unclear for some

Sixty-nine percent of our survey respondents said that they 'Agree', or 'Partly agree', that they understand the investments, returns and other key benefits from Smart City initiatives. This makes a good argument to keep on the journey. However 21 percent 'Partly disagree' or 'Disagree', suggesting that a stronger focus on impact is needed.

When we compare 2017 to 2018 there is a better understanding that there is a return, and that these are better understood. Projects such as Smart street lighting are now reasonably well established use cases with clear, quantifiable returns. However, initiatives that are more experiential and provide more qualitative benefits can still prove difficult to measure and define.

Data: Delivering value and security



One of the foundations of a Smart City is effective use of data to inform decisions and solve problems. The increased use of video and sensors in physical infrastructure, along with social media and other digital tools, is driving an exponential growth in the volume of data coming in to local councils and State governments.

This is leading to many opportunities to improve services, but also risks and challenges with many councils at the initial stages of being able to effectively capture, manage and use their data.

Even councils that are more advanced on their Smart City journey are still in the very early days of leveraging new tools such as machine learning to improve services. For example, last year many councils were talking about implementing parking sensors, and this year some are looking ahead to what machine learning can do to predict when a space is likely to be free, taking into consideration traditional patterns of use, events, weather and more.

Understanding value, data and ethics

Understanding the relationship between data and public value may become a critical focus across all levels of government in the coming years. From traffic volumes to water usage, local councils and State governments are starting to gather vast amounts of information. Many are making this information freely available through open data initiatives such as the [City of Melbourne Open Data Platform](#). The aim is to encourage others such as entrepreneurs and academics to find innovative ways to use this data, by creating new services or solving complex problems.

“In order to encourage Open Data for smart cities, we need to stop putting value on data itself, and focus on downstream services or productivity gains”

Senior Professor Pascal Perez,
Director, SMART Infrastructure Facility,
University of Wollongong

A key challenge for Smart City leaders is to find a balance between revenue generation, open data, and other models to drive value from this data for the common good. Jess Scully, Councillor, City of Sydney Council, said that as part of their data journey,

governments need to consider citizen data as a ‘product’ and respect its value, even when they are in need of funding for smart initiatives. Scully said building an ethical framework for data use and sharing is key.

“We need to think about what we’re giving away as we add on to the public realm in our cities,” she said.

Security of data

Cyber security is another challenge intrinsically linked to data. As more critical infrastructure such as energy and transport systems are connected to networks, and the data becomes more valuable, their attractiveness to deliberate attack grows. Accidental cyber incidents are also one of the most common causes of data breaches.

It is notable that of the top challenges concerning Smart City initiatives, only 1 percent of respondents cited cyber security. Implementing the digital infrastructure to enable cities to become smarter requires adopting a proactive, rather than reactive, approach to cyber security. This means baking in security controls from the beginning, and consistently upgrading them to protect against the multiplying cyber threats of the data era. Prioritising security for digital infrastructure, just as cities do for physical infrastructure, is imperative to unlock the real value of Smart Cities.

Finding the money



Finance is again one of the top three challenges to Smart City initiatives faced by our participants.

The results of Round 2 of the Federal Government's Smart Cities and Suburbs Program were announced on 19 November 2018. Of the 102 applications, 32 projects across Australia were provided a share in over \$21 million of funding.

Beyond this Federal program, many local councils (44 percent) are exploring alternative funding models to procure and implement new technology and services. One approach is to consider the operational expenditure (OPEX) vs. capital expenditure (CAPEX) when procuring new Smart City infrastructure assets.

Robert Matchett, Co-CEO, ENE.HUB said that a Smart City needs the right procurement model such as 'BOOM' (Build, Own, Operate and Maintain) to be able to deliver current services and allow for future technologies and services to be incorporated when they emerge.

Darcy Byrne, Mayor, Inner West Council, NSW, said "scale is an issue" when it comes to funding Smart City initiatives. He said there was a need for councils to work together to offer the scale to attract "a Google" or other big enterprise investor. The Council has reached out to Councils in the Greater Sydney Commission Eastern Economic Growth Corridor, to talk about how they could work together on the procurement of smart infrastructure.

Thank you to all the speakers and panellists at the Smart Cities Series 2018

Andrew Hammond, Commissioner, City for Perth
Arthur Kyron, CEO, City of Canning
Bettina Konti, Chief Digital Officer, ACT Government
Brook Dixon, President, Australian Smart Communities Association
Chris Hannaford, Director of Business and Innovation, City of Prospect
Cr Jess Scully, City of Sydney Council
David Caddy, Chairman, WA Planning Commission
David Di Lollo, Data and Business Information Manager, City of Perth
Debra Howe, Director Strategic Growth and Development, Livingstone Shire Council
Dorte Ekelund, Principal Advisor - Smart Cities, SMEC (Member of the Surbana Jurong Group)
Dr Erin Brady, Deputy Director-General, Land Strategy & Environment, Environment, Planning and Sustainable Development Directorate
Dr Scott Bourke, Chief Innovation Officer, Office of the CEO, Sunshine Coast Council
Drew Stevenson, Rockhampton Regional Council
Eamon Waterford, Director of Policy, Committee for Sydney
Garry Hunt, CEO, City of Joondalup
Glenn Pomeroy, Coordinator, Innovation and Transformation, City of Greater Bendigo
Karin Mahoney, Manager of Information Services, City of Charles Sturt
Lord Mayor Graham Quirk, Brisbane City Council
Lord Mayor Sally Capp, City of Melbourne
Malcolm Middleton, Queensland Government Architect, Dept. of State Development, Manufacturing, Infrastructure and Planning
Marissa Racomelara, Director Transformation & Change, Georges River Council
Mark Dowd, CEO, Onkaparinga City Council
Mark Goodlet, CEO, Mosman Park
Martin Darcy, Queanbeyan-Palerang Regional Council
Matt Collins, Manager, Cities Transformation Taskforce, Queensland Treasury
Mayor Andrew Davenport, City of Whitehorse
Mayor Darcy Byrne, Inner West Council
Mayor Karen Redman, City of Gawler
Mayor Kris Hanna, City of Marion
Mayor Max Hipkins, City of Nedlands
Mayor Michael Regan, Northern Beaches Council
Mayor Nora Lamont, City of Maroondah
Mayor Stephen Bali, Blacktown City Council
Mayor Tracey Roberts, City of Wanneroo
Mayor Wendy Waller, Liverpool City Council
Michael Damo, Queanbeyan-Palerang Regional Council
Nathaniel Bavinton, The City of Newcastle
Nick Stabler, The City of Newcastle
Paula Kelly Paull, Manager Learning Communities, Hobsons Bay City Council
Peter Tegart, CEO/General Manager, Queanbeyan-Palerang Regional Council
Prof Marcus Foth FACS, Prof of Urban Informatics, QUT Design Lab
Prof Simon Washington, Head, School of Civil Engineering, Faculty of Engineering, Architecture, and Information Technology, UQ
Professor Pascal Perez, Director, SMART Infrastructure Facility, UOW
Rebecca McKenzie, CEO, Glen Eira City Council
Robert Matchett, Co-CEO, ENE HUB
Roger Rooney, Senior Manager, Policy and Cabinet, ACT Government
Sam Green, Deputy Chief Executive Officer, City of Playford
Sean Cullen, Manager Neighbourhood Planning and Urban Renewal, Brisbane City Council
Shweta Babbar, Manager Innovation and Continuous Improvement, Glen Eira City Council
Steven Bowman, Manager Economic Development, Bathurst Regional Council
The Hon. Stephen Knoll, Minister for Transport, Infrastructure, Local Government and Planning
Wendy Harris, Director Regional Services, Eastern Metropolitan Regional Council

About Public Sector Network

Public Sector Network is a diverse company that exists to help government break down silos, collaborate, and work together for better outcomes for citizens. We believe that public sector is forced to be one of the most innovative and resourceful industries in the world. Rather than constantly solving the same problem, government can improve citizen services whilst saving time – and money - by sharing and learning from other agencies, departments and councils.

Contact us

Paul Francis

Smart Cities Lead

KPMG Australia

+61 409 225 934

pfrancis2@kpmg.com.au

Toni Jones

Lead Partner, Local Government Sector

KPMG Australia

+61 409 200 721

tonijones@kpmg.com.au

Katherine Tobias

Senior Consultant, Internet of Things

KPMG Australia

+61 2 9335 7232

ktobias@kpmg.com.au

Find out more

Access the presentation and case studies on the Public Sector Network website:

 events.publicsectornetwork.co

Read the latest smart cities thought leadership on the KPMG Australia website:

 home.kpmg.com/au/en/home/insights/2018/04/smart-cities

KPMG.com.au

The information contained in this document is of a general nature and is not intended to address the objectives, financial situation or needs of any particular individual or entity. It is provided for information purposes only and does not constitute, nor should it be regarded in any manner whatsoever, as advice and is not intended to influence a person in making a decision, including, if applicable, in relation to any financial product or an interest in a financial product. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

To the extent permissible by law, KPMG and its associated entities shall not be liable for any errors, omissions, defects or misrepresentations in the information or for any loss or damage suffered by persons who use or rely on such information (including for reasons of negligence, negligent misstatement or otherwise).

© 2019 KPMG, an Australian partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

The KPMG name and logo and are registered trademarks or trademarks of KPMG International.

Liability limited by a scheme approved under Professional Standards Legislation.

January 2019. 272751151IGH.