



SUPPORTING PLAN

The SMART CBCity Roadmap

October 2018



7

destinations



Safe & Strong

A proud inclusive community that unites, celebrates and cares

Safe & Strong documents are guided by the Social Inclusion Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as being a child friendly City, children's services, community safety and crime prevention, inclusiveness, community services, universal access, reconciliation, ageing, community harmony and youth.



Clean & Green

A clean and sustainable city with healthy waterways and natural areas

Clean & Green documents are guided by the Environmental Sustainability Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as managing our catchments and waterways, natural resources, hazards and risks, emergency management, biodiversity and corporate sustainability.



Prosperous & Innovative

A smart and evolving city with exciting opportunities for investment and creativity

Prosperous & Innovative documents are guided by the Prosperity and Innovation Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as revitalising our centres, employment, investment, being SMART and creative, and providing opportunities for cultural and economic growth.



Moving & Integrated

An accessible city with great local destinations and many options to get there

Moving & Integrated documents are guided by the Transport Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as accessibility, pedestrian and cycling networks, pedestrian and road safety, transport hubs, and asset management.



Healthy & Active

A motivated city that nurtures healthy minds and bodies

Healthy & Active documents are guided by the Health and Recreation Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as lifelong learning, active and healthy lifestyles, and providing quality sport and recreation infrastructure.



Liveable & Distinctive

A well designed, attractive city which preserves the identity and character of local villages

Liveable & Distinctive documents are guided by the Liveable City Lead Strategy. Supporting Plans, Action Plans and Policies cover such themes as preserving the character and personality of centres, heritage, affordable housing, and well managed development.



Leading & Engaged

A well- governed city with brave and future focused leaders who listen

Leading & Engaged documents are guided by Council's Lead Resourcing Strategies. Supporting Plans, Action Plans and Policies cover such themes as open government, managing assets, improving services, long term funding, operational excellence, monitoring performance, being a good employer, civic leadership, and engaging, educating and communicating with our community.

Strategic Planning Framework Summary

The Strategic Planning Framework (SPF) maps out the role of all current and future Council strategies and plans that work to deliver the vision for the City. The framework works from the highest level of strategic direction in the Community Strategic Plan through to more detailed plans that will eventually drive works projects and programs on the ground. The framework is comprised of the following levels:

The **COMMUNITY STRATEGIC PLAN (CSP)** is our highest level plan and translates the community's desired outcomes for the city into key destinations. The CSP includes community suggested actions which can be tested in the development of all other plans.

1 LEAD STRATEGIES are Council's response to the CSP and provide high level strategic direction on key challenges facing the City. They are informed by a sound evidence base that considers key trends and an understanding of the implications of key issues and opportunities on the City.

2 SUPPORTING PLANS break down broad theme areas discussed in LEAD STRATEGIES into smaller themes providing high level actions. SUPPORTING PLANS identify broad works projects and programs required to deliver on these actions. Supporting plans include indicative costing and resourcing requirements and delivery timeframes.

3 DETAILED ACTION PLANS take actions from SUPPORTING PLANS and identify specific works projects and programs required to deliver on these actions. Supporting plans include detailed costing and resourcing requirements and delivery timeframes.

4 GUIDELINES, POLICIES AND CODES provide detailed information, rules for activities or guidance for specific works on Council or other lands.

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Mayor's message

The City of Canterbury Bankstown is set to grow at a rapid rate. This unprecedented level of growth will bring many challenges for our City, but it will also present a great opportunity to find smart ways to address these challenges. The use of Wi-Fi, big data, 5G+, autonomous vehicles and the Internet of Things will all be helpful ways our City will be able to face these challenges and, in turn, create a thriving and dynamic City we are proud of.

I have had the opportunity to explore what some of the leading cities around the world are doing on their journey to become a Smart City and help enhance their community in the process. But what is the secret of their success?

I believe there are four key components each city has leveraged, to be successful:

- 1. Leadership** – an innovation-led revolution is guided by strong political leadership. For this reason I feel it is mine and this Council's obligation, to lead this City through its own Smart City journey.
- 2. Partnerships** – it is important to recognise that councils cannot do everything. That is why it is important to have strong and effective partnerships. By breaking down silos and building up partnerships, we can make a far greater impact than working in isolation.

- 3. Resources** – leading cities have introduced necessary resources, responsibilities and accountability to drive their Smart City agenda. Our Council will be reviewing its budget to determine the necessary resources it needs to have a successful Smart City.
- 4. Vision** – Finally, a shared and clear vision identifying how innovation and technology will underpin the City's future. With a clear vision, Council and the community can work together to build an emerging Smart City.

Like all journeys, we need a clear direction to start with, and that is what this Smart CBCity Roadmap is. It is not intended to be a comprehensive plan with fixed solutions. Instead, it focuses on some underlying principles outlining what is important, our motives and the outcomes technology and data needs to deliver to our community. It is not a fixed plan and will evolve and change as quickly as technology does based on feedback.

I welcome everyone to contribute to creating this exciting future. It will be one thrilling ride and I encourage you all to take the first step with me in building a brighter future.

Khal Asfour

Mayor
City of Canterbury Bankstown

“Like all journeys, we need a clear direction to start with, and that is what this Smart CBCity Roadmap is.”

Khal Asfour, Mayor.



Purpose of the Smart CBCity Roadmap

The Smart CBCity Roadmap is not a plan, but a conversation starting point.

The purpose of this roadmap is to:

- Provide a public declaration of what is important and will remain at the heart of all of our decision making;
- Identify how we use 'smart thinking' to deliver our community vision;
- Set out the actions that Council needs to do now and do next to take us on this journey; and
- To guide us when we reach a fork in the road.

With the changing pace of technology, we can't predict the future. It is unclear what kinds of technology will become available or how data could be standardised and stored in the future. Changes in technology drive changes in behaviours and social norms, meaning we need to be flexible and adaptable enough in our journey to navigate the unknown, whilst still being responsible and curious enough, learning to walk before we can run.

This roadmap acts as a guide for Council, businesses, non-government organisations (NGOs), and the community to come together to discuss:

- The City's challenges today;
- How a Smart City can contribute to a more sustainable and liveable future; and
- How Council can best facilitate this.

This roadmap is not:

- Applicable to everything we do with data and technology;
- An implementation plan with a long list of detailed actions for the future;
- An engagement plan designed for stakeholder adoption; or
- Marketing of technology.

This roadmap is our way of exploring how data and technology can be used to improve the lives of residents, workers and visitors to Canterbury-Bankstown and identify what is required to create a thriving, dynamic and real City of the future.

What will the future Canterbury-Bankstown look like?

Cities around the world are under enormous pressures, including:

- Growing populations;
- Changing demographics;
- Geo-political shifts in power;
- Scarcity of resources;
- Climate disruption; and
- Greater environmental pressures.

Canterbury-Bankstown is not immune to these pressures. We cannot escape the fact that there is a new wave of change, where technology and innovation is reshaping our City and much of it is outside our control.

These megatrends are driving major disruptions, most of which are being fuelled by new and emerging technologies not exclusive to Canterbury-Bankstown. These result in:

- Disruption to the way we live (for example, mobile, social media, cloud, crowd-sourcing);
- Disruption of business models (for example, sharing economy, gamification, crowd funding, online retail shopping);
- Disruption to employment (for example, artificial intelligence, robotics, 3D printing); and
- Disruptions to our city (for example, Internet of Things (IoT), autonomous vehicles).



While we cannot predict what future these disruptions will have in our City, we do know that we need to find new and improved ways of thinking about the City.

A day in the life of a Smart City resident

Jane wakes up and checks her SoundSLEEP app. It just finished downloading data from her smart mattress, which has used internal sensors to track her heart rate, breathing and movement. A restless night unfortunately. She asks the digital assistant ‘Lixy’ what the air quality and weather is going to be like, as she is deciding whether to ride her e-bike to work, order a POD or order an autonomous Uber.

With storms and poor air quality predicted, Jane decides to order an Uber. Based on the time she needs to be at work and the traffic, the Uber has informed her it will arrive at 7.45am. Jumping in the car, it selects the quickest route while also picking up a colleague to reduce congestion.

Upon arrival at work, the coffee is already warm and on her desk. It was delivered at the perfect time by the local barista, who was informed by the Uber car of her arrival time.

The day is spent analysing the latest data that has been collected from the city smart poles, providing information about how people have been using the parks, footpaths, roads and sporting fields over the weekend. Trip data from the electronic vehicles (EVs) charged at the poles has been downloaded, bundled and sent to the traffic team for analysis. Data has already been analysed using artificial intelligence and a report has identified opportunities for improvement via a dashboard.

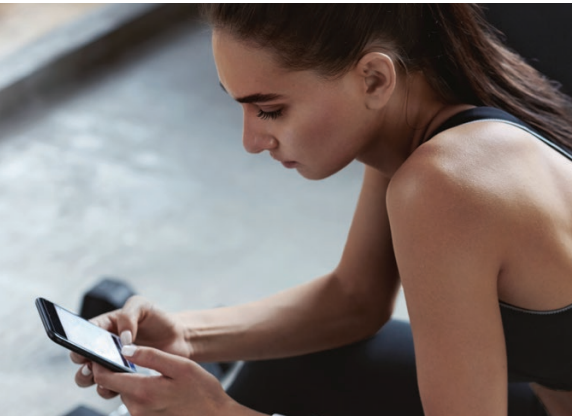
The irrigation system has automatically registered that a storm is on its way, so has been turned off, and the turf sensors have informed maintenance crew where they should be focusing their efforts.

Jane then spends an hour walking through a building that has not been built yet, using smart glasses which use virtual reality to show how it will look. It’s so lifelike she picks up some changes that are needed.

Eventually her watch vibrates to remind her she needs to get up and move, so Jane heads to the gym. It automatically recognises her membership through her watch so it develops a workout based on her goals and what equipment is not being used.

After the gym, Jane drops into the Amazon Go store to pick up a book for the weekend and walks out, without even going through a checkout. The store has used sensors to recognise who she is and what she has picked up, and automatically charged it to her registered account.

A text comes through from Jane’s local council, explaining the roadworks scheduled for her street will commence on Monday, what actions she’ll need to carry out and that she will be notified immediately once it has been completed. Traffic lights and digital street signs are programed from Cloud-based software to encourage vehicles away from the area.



After attending the global Smart Communities Virtual Conference from her desk, Jane packs up and heads down the road to her volunteer job (many councils now allow one day per week to work for a community organisation). Jane works at the DiscoveryHub, where socially and financially vulnerable community members meet with local businesses to explore new ideas and solutions.

At the end of the day, it is time to jump on the shared on-demand clean energy bus. From the interactive bus shelter to her door, street lights sense Jane’s approach and the LED lighting brightens as she approaches her front door. Sensing her imminent entrance through the door at home, the robotic vacuum cleaner disappears to its base station. The heating started 20 minutes before she got home and the lights came on automatically on her arrival.

Previously, Jane had programed a list of 20 items for her smart fridge and smart cupboard to auto-replenish – the things you just cannot run out of. A delivery arrives, as the drone knows she is now at home, with milk, washing powder, toilet paper and a cold bottle of wine.

Jane makes a hologram call to her elderly mother, safe in the knowledge that her smart home has been constantly monitoring her movements and health.

She does one last check of her crypto-currency based smart contract, which has automatically used block-chain technology to allow the selling of the renewable energy generated by her solar panel.

Luckily, tomorrow is the weekend so Jane is looking forward to a good sleep in.

Welcome to the future.....or is it?

Epilogue

While this picture of the future may sound interesting, it is important to ask the following questions:

- Is the outcome we are seeking a hyper-connected future for the fortunate few, or should there be a bigger goal?
- What are the social problems we want technology to solve and how can this have a meaningful impact on the lives of those most in need and most disadvantaged?
- How can it address our global and local environmental challenges to leave a lasting legacy?
- How will Council and the community work together to design, build and maintain a Smart City?





Our smart thinking

While it is impossible to predict if this will be our future, it is important we use technology to, not only address today's issues, but also drive our response to emerging challenges and pressures to deliver more sustainable, liveable, healthy and happy communities.

This concept has been termed a 'Smart City'. A quick search of the internet will bring up more than 1,710,000 definitions of a Smart City, and that's not including other variants including 'intelligent community', 'connected city', 'resilient city' or 'digital city'.

Smart cities are becoming a key focus area in Australia and all over the world, with rapid development in this space. We must be cautious not to get sucked into the vortex of the 'new kid on the block', new fad, new label or technology for the sake of technology. There are few cities that would wish to emulate all aspects of those cities that are 'smart', like the car-dominated Los Angeles, for example, and the high-rise of Singapore.

As a result, it is not intended that a congruent Smart City is our end goal or vision – rather, that we will use smart thinking to help us shape our City's future.

What does a Smart City mean for CBCity?

The following working definition is proposed to guide our thinking:

Using technology infrastructure, community engagement and connectivity to evolve our City and make real improvements.

Mission statement:

"Canterbury-Bankstown will create a thriving, dynamic and real City addressing the big challenges that matter to our community. We will achieve this by using technology and data to deliver more responsive and effective services and facilitate resilient and informed decision making."

The Smart CBCity Strategy

While technological solutions will change and community concerns will alter, it is important we follow a clear set of underlying principles to guide all of our decision making to use smart thinking to deliver real improvements.



12 CBCity Smart Principles

The following 12 CBCity Smart Principles have been developed as a public declaration of what is important to us, our motives and beliefs. It is the platform upon which our future priorities and projects will be developed.

- 1. Vision-led – we must create a more sustainable and socially just Canterbury-Bankstown.** We must work towards a broader vision, with a focus on creating a cleaner and more equal City for our community. A smart Canterbury-Bankstown must start with the vision first, not technology for the sake of it.
- 2. People matter – we must focus on the people.** It's all about the people – we don't do improvements for buildings, cars or roads, but to enhance the lives and wellbeing of our residents, workers and visitors.
- 3. Problems matter – we must solve real problems.** Any solution must address the real needs of our community in a meaningful and appropriate way. Technology that creates better coffee is good, but how will it benefit everyone? Climate change, dwindling resources, water quality, energy costs, social cohesion – these are the significant challenges that a smart Canterbury-Bankstown must direct its efforts to.
- 4. Personal – we must look through the eyes of our community.** The focus will involve understanding change from a community point-of-view first, not through the eyes of government or service providers. The customer or citizen is at the heart of any new Smart City solution and our goal is to meet their personal needs in a personal and human way. Even better, to allow our people to do things simply.
- 5. Collaborate – we must do this together.** A smart Canterbury-Bankstown will only be achieved if government, business and the community connect and work together. We will co-design our solutions with the people who matter the most, our community, where all critical stakeholders are encouraged to participate and are respected as equal partners sharing expertise in the design.
- 6. Inclusive – we must not create a digital divide.** We need to understand not everyone has a smartphone or can easily access technology. We must ensure our approach is accessible, complementary and benefits every member of the community.

7. Experimental – We must experiment, learn, apply and scale. We recognise in this rapidly changing environment we will not get it perfect the first time – we may even fail. But, we will dust ourselves off, learn and try again.

8. Doable – we must be realistic. Every project must consider if it is achievable within the current resources and technical ability of those implementing it. It must be affordable, both to implement and for the end user. Short-term wins can lead to lasting victories and it allows some celebration along the way.

9. Open – we must deliver open government, not just open data. We must provide information while also protecting privacy. The end game is not dumping data in the web, but delivering both transparency and opportunity.

10. Meaningful – we must create knowledge not just data. We must translate data into meaningful information to assist both government and the community to make more informed decisions.

11. Business – it's not all tech start-ups. Innovation and technological improvements are also occurring in our more traditional sectors such as manufacturing and retail. We must take a broader view, understanding the businesses in Canterbury-Bankstown and where the potential lies. Open innovation is not a city of many clever ideas, but one that can accommodate any idea.

12. Culture – we must develop a culture of innovation and adaptability. Technology will not transform our City, people will. We must develop the skills and competencies of our community, including Council staff, community members, workers and students, to transition to the fourth Industrial Revolution.

“The problem of the Smart City has been that when you start with technology without a strong idea of why you are deploying the technology and for what kind of needs, then you only end up solving technology problems.”

**Francesca Bria,
Chief Technology Officer
Barcelona.**



Smart Community Strategic Plan

Starting with the vision

In 2017-18, Council undertook extensive engagement, having conversations with more than 10,000 residents, businesses, government agencies and community organisations to find out what they would like to see for the future of their City. The results of this engagement contributed to the development of our Community Strategic Plan, *CBCity2028 – a 10-year plan for the City*.

The engagement identified the community:

- Wanted a thriving, dynamic and livable city; and
- Identified key city challenges Council should prioritise.

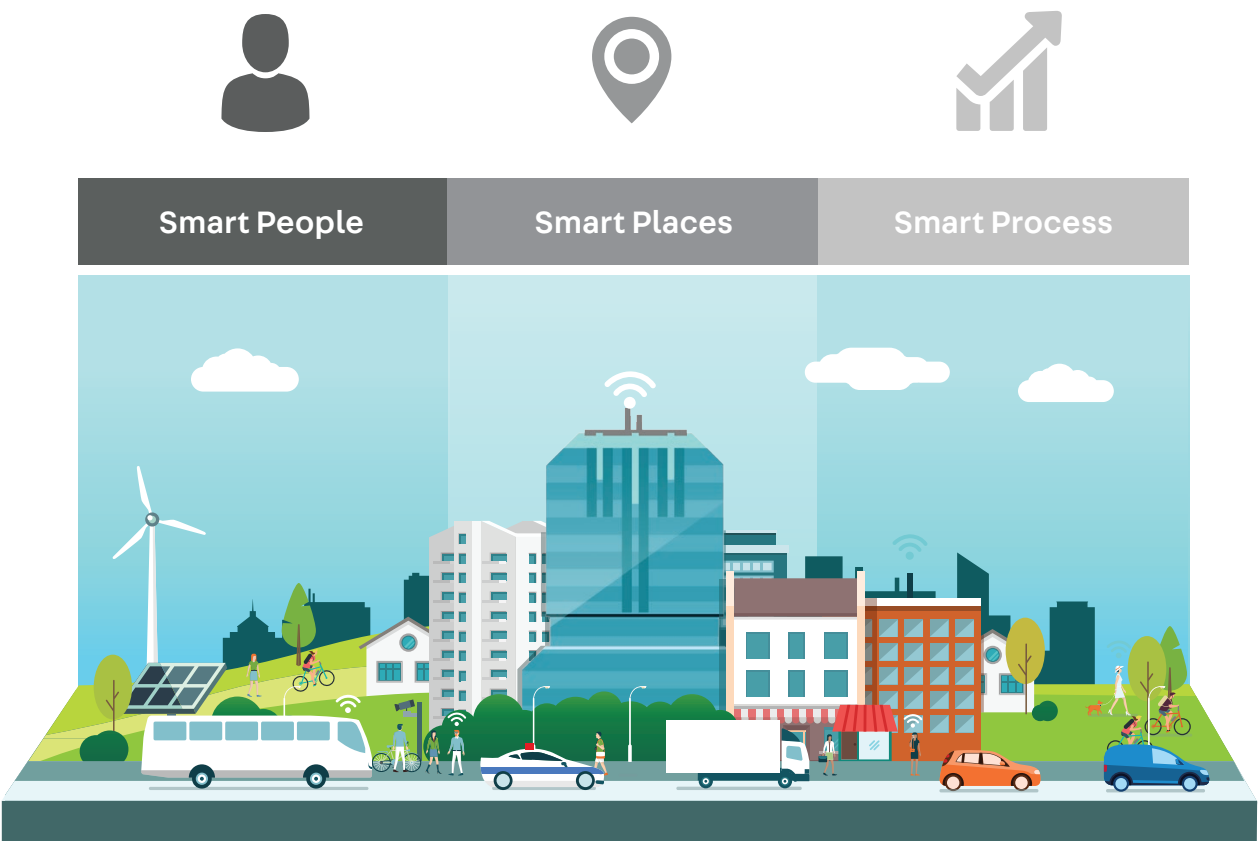
Smart solutions provide an opportunity to, not only solve some of these key challenges, but also create long-lasting benefits and efficiencies. By using smart solutions to tackle key challenges, we are setting ourselves up to be a resilient, thriving and dynamic Canterbury-Bankstown.

CBCity2028 sets out our vision, key challenges and seven destinations. The *Smart City Roadmap* sets out our three smart pillars, which will assist Council to deliver the outcomes identified in the Community Strategic Plan in a smart way.

In 2036, Canterbury-Bankstown will be thriving, dynamic and real.

Destinations	Key challenges
Safe and Strong	<ul style="list-style-type: none">• Community cohesion.• Safety in our streets.
Clean and Green	<ul style="list-style-type: none">• City cleanliness and waste management.• Rising cost of energy.• Biodiversity and waterway health.
Prosperous and Innovative	<ul style="list-style-type: none">• Job transition.
Moving and Integrated	<ul style="list-style-type: none">• Congestion.• Being able to easily access what you need.
Healthy and Active	<ul style="list-style-type: none">• Need for more/better utilised open space.• Obesity.
Liveable and Distinctive	<ul style="list-style-type: none">• Housing growth and affordability.• Infrastructure to meet changing needs.
Leading and Engaged	<ul style="list-style-type: none">• Difficulty in engaging with the community.• Fiscal gap.

While CBCity 2028 identifies the aspirations, it also provides a framework for our Smart CBCity Roadmap and how technology and data can better assist us in addressing some of the key challenges:



“The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.”

Mark Weise, the father of ubiquitous computing.

Smart People



Informed and engaged community

In a dynamic and multicultural society, councils need to be inclusive, ensuring their community members are informed, engaged and connected. Council needs to connect, inform and collaborate with community members, dispelling mistrust and fear by conveying a feeling of inclusion using reassuring and easy to navigate information.

An informed and engaged community will:

- Deliver enhanced online customer experience and access to services;
- Provide new and expanding ways to communicate with our community;
- Enhance our engagement with the community in meaningful decision making;
- Enable and empower citizens supporting their individual and communal well-being;
- Provide information to assist people choosing the most appropriate transport options;
- Support community involvement in the planning of our City; and
- Provide greater transparency in decision making.



A culture of innovation

By building a culture of innovation within Council, the community and our local economy, Canterbury-Bankstown can propel forward, develop smart solutions and reach new heights to solve urban challenges. Council will work with internal stakeholders, local businesses and the community to champion the Smart CBCity Roadmap and encourage continuous innovation to deliver real results.

A culture of innovation will:

- Focus on inclusion and target the digital divide;
- Enhance digital literacy of our community;
- Enable new products and services to be tested in the City with an initial focus on the Bankstown CBD as a Living Lab;
- Enable future modes of transport such as driverless and electric vehicles;
- Reinforce Where Interesting Happens to promote the city and what it has to offer; and
- Foster holistic development of our community.



Partnerships and stakeholders

Strategic partnerships provide an invaluable opportunity to learn, reduce risk and collaborate. We must leverage the talent housed within CBCity to ensure we are working together to achieve our smart outcomes.

Smart partnerships and stakeholder arrangements will:

- Enable startups of all kind to flourish in the City;
- Create and enable opportunities for Council to collaborate and partner with other organisations, businesses, institutions;
- Encourage the collaboration across broader metropolitan Sydney to develop a unified approach to Smart Sydney;
- Develop opportunities to collaborate with other cities both Nationally and Internationally;
- Support our cultural creatives;
- Strengthen and support our existing employment base in sectors including, but not limited to, retail, health and education, while modernising changing sectors such as manufacturing; and
- Provide the necessary education pathways to create the future digitally enabled workforce.





Smart Places



Infrastructure usage

New technologies and smart service upgrades provide an opportunity to innovate the infrastructure we offer our community and unlock efficiencies in monitoring its usage. There are endless ways to better understand our community and how they interact with our infrastructure (physical or digital) by unlocking the data potential of Council's infrastructure.

Smart infrastructure usage monitoring will:

- Support the community's use of town centres connecting them to the digital world;
- Provide our residents with sustainable housing;
- Collate data on the use of open space to inform future planning;
- Provide improved planning, design and construction of buildings; and
- Collate data on transport movement to inform future planning.



Maintaining places

From monitoring how our assets are used to proactively deploying maintenance activities, there are innovative opportunities which allow us to better maintain our places, providing insights to help us manage our assets' lifecycles. A real-time knowledge catalog with consistently rich and accurate data has the potential to solve challenges Council faces around asset management, workload distribution and efficiency.

Smart maintenance of places will:

- Provide safe places for people;
- Address the most critical public health issues facing our community, in particular obesity;
- Improve the comfort, function and amenity of our public spaces for our community to enjoy; and
- Create interactive and dynamic spaces and places people want to be.

Smart Process



Platforms, plans, policies and procedures

Old ways won't open new doors. With technology moving at such a rapid pace, our platforms, plans, policies and procedures need to be flexible enough to grow in the best interests of the community.

A smart approach to platforms, plans, policies and procedures will:

- Provide the standards and protocols for data management, reporting, sharing, security and privacy; and
- Provide flexible and creative procurement solutions to the rapidly changing technology environment.



Using data for continuous improvement

Council has an obligation to understand the challenges facing our community. A strong focus on qualitative and quantitative data allows Council employees and elected representatives to make informed and resilient decisions, develop smart service upgrades and build on the success of innovative solutions. We will engage with our community to shape the role data plays and Council takes meaning from it.

Using data for continuous improvement will:

- Improve our environmental conditions, such as heat island, water and air quality;
- Reduce Council's environmental footprint in energy and water use;
- Provide appropriate reporting and management arrangements to oversee the implementation of the *Smart CBCity Roadmap*;
- Provide open access to Council's city data within the appropriate governance framework; and
- Address the reduction of domestic waste and waste in public spaces.





Things to do

We are not starting this journey from the beginning. It could be argued that we’ve been thinking smart for years, with numerous IT projects, technology hardware and software deployed across Canterbury-Bankstown. However the difference is the pace and type of change is exponentially growing. As a result there is a need to guide this in a more coordinated way.

The following things to do will provide a solid foundation on which future smart thinking can be applied to our projects and services:



To do now

Learn and listen

The first step on our journey is to learn and listen from those that have already taken the leap into the Smart City future. This will require discussions with other councils, government agencies, organisations, start-ups, user groups and vendors to determine the pitfalls and success stories.

Build a governance structure

A governance structure will be established to promote the guiding principles, build cross-sector commitment and establish ownership for the delivery of the program.

Proposed structures include:

1. FutureCITY Panel – technical specialists meeting to assist Council and guide the development and deployment of the roadmap;
2. Community and Stakeholder Forum – meeting as required to ensure the roadmap remains focused on addressing community issues;
3. CityDATA Taskforce – an internal team of staff from across Council who deal with organisational and community data and organise how Council takes meaning from the data we collect; and
4. Internal CitySMART Team meeting (see below).



Build a CitySMART Team

Key to the development of Smart CBCity is the formation of a strong cross-organisational Council team, to guide and deliver projects. The new CitySMART Team will include:

1. A senior executive leader to drive the agenda – Director, City Future;
2. A senior executive leader to remove barriers and roadblocks – a sponsor; Director City Assets
3. A manager to develop, guide and facilitate the program both internally and externally – Digital Innovation (Smart Cities) Program Manager;
4. Senior leaders and technical experts to manage City-wide projects – project managers;
5. Staff from all relevant parts of Council to champion progress towards Council's Smart City goals – unit champions;
6. A communicator and engager, who's role is to ensure we are communicating and engaging broadly – Coordinator, Communications & Coordinator, Community Engagement;
7. A group of technical specialists and subject matter experts with expertise in acquiring, analyzing and supporting data – CityDATA Taskforce; and
8. A technology specialist to manage all phases of supporting technology implementation, including, but not limited to, IoT, data management systems, software, platforms and more – Technical Lead, Smart Cities.

It is important there are early demonstration projects that show how the different teams benefit from new ways of solving problems and virtual project teams where it is not possible to meet across the organisation.

Engage locally and globally with others and promote the roadmap

The development of this roadmap has not been done in isolation, just as our future work will not be done in isolation. Government, business and community need to be involved in the solutions and, to determine how we get there, we need to work together. This collaboration is not just across the different sectors within Canterbury-Bankstown, but with other cities and stakeholders in Australia and across the world.

Identify the priority projects

Projects can't be determined by the latest widget or the loudest vendor. We need to firstly consider our community's aspirations for the City (outlined in the CBCity2028) and the challenges in getting there. From here, we can identify possible projects, their impact and feasibility.

There is also an opportunity to review existing Council services and activities to determine where smart technology and data can provide the biggest benefit. A prioritisation process that considers impact versus effort will be undertaken to guide future projects. This will not only highlight priorities, but encourage all managers to consider how technology and data can improve the delivery of services.

Develop smart partnership with universities

At the heart of many smart cities are smart institutions of higher education. These institutions not only provide knowledge and research but they are key to the development of a future creative and highly skilled workforce. Canterbury-Bankstown has a unique opportunity to develop an ongoing partnership with Western Sydney University (WSU) as part of their campus development in the heart of Bankstown. But this does not need to be restricted to one institution. Council will continue to explore opportunities to work with a range of educational establishments, including other universities, TAFE, colleges and schools.

Build a network of government and private partners

The very ethos behind the CitySMART function at Council is breaking down silos and building partnerships. Through partnerships with government and private partners, we will have the ability to leverage existing work across the sector where possible and identify potential opportunities for the future. It is important to remember that, as Council, we cannot do everything – and if government and private partnerships are leveraged, we do not need to. Everyone has a role to play in building a Smart City and we recognise the importance of working together to achieve a common goal.





To do next

Make the most of the data we have – data audit

Data is key to becoming a Smart City and Council already produces a huge amount. Currently, little of this data is accessible or shared, which presents a huge opportunity to make better use of what we have so it can improve the way we deliver services and plan the City.

To start with, a data audit is required across the organisation, so we can prioritise which data should be made open and accessible.

Build a data lake and IoT platform

For Council to make true meaning out of its data, we must develop an appropriate data platform to manage both current and future data. This includes a clear understanding of the end-to-end connections between:

- Data generation through IoT devices;
- Transfer of data through appropriate network infrastructure;
- Automated collection of data via network servers;
- Anonymising data in accordance with our privacy policy;
- Management of data through appropriate applications; and
- Intelligent search and discovery functions to give Council easy access to impactful data.

This will be our first step toward harnessing the opportunities and power data provides in creating more efficient services, developing improved products and services, transparency and decision making.

Develop appropriate cyber security and data management protocol

Unfortunately, connectivity and a move towards open data also bring risks, including breaches of personal information, disruption to critical infrastructure and damaged public trust. As a result it is essential the organisation develop appropriate policies to deal with:

- Data management – what data is generated and how do we collect it?
- Data platforms – how and where we store the data that is collected?
- Data privacy – who has access and how do we anonymise the source where appropriate?
- Data access – how does Council access the data and make meaning from it in an efficient way?
- Data security – what is required to safeguard our data management systems to ensure they are impenetrable to threats?
- Data sharing – how do we adopt an open data framework to improve the sector, while ensuring we operate within the data sovereignty and data commercialisation regulations?
- Interoperability requirements – how do we ensure that our systems work cohesively together and support our ongoing and growing data requirements?

These do not need to be developed in isolation. It is important Council works with the State Government, Standards Australia, Smart Cities Council and other relevant stakeholders to develop an agile and safe data management protocol.

There will also be a need to conduct regular risk assessments and penetration tests to identify areas where the organisation's risk profile may have changed.

Build a communication and engagement platform – CitizenLab

Three of our CBCity Smart Principles are:

- We must focus on the people;
- We must solve real problems; and
- We must do this together.

For this to occur, engagement is required at all stages of the process, beginning with the development of this roadmap. It will involve a range of touch-points, including the creation of a CitizenLab where the community can participate in online and face-to-face innovation centric activities. There is the potential to explore free tools to engage citizens in decision-making, such as DecideMadrid.

Online communication will also be critical. As projects are developed and others are introduced, their status will be updated online so the community and stakeholders can see progress. This will eventually extend to all projects and activities of Council.

Develop a pilot public dashboard with key performance indicators (KPIs)

Opening up our data has the ability to deliver greater transparency and empower people to make more informed decisions. A starting point is the development of a public dashboard presenting key information on the organisation and City. This cannot be all done at once, so we will need to determine which data we wish to focus on and who the audience is.

The following is a possible cascade of data:

- Transactional data (for example, the kilometre of roads constructed in year);
- Performance data (for example, condition of roads rated good);
- Citizen satisfaction with services (for example, satisfaction with condition of roads);
- City outcomes data (for example, travel times); and
- Quality of life data (for example, how do people feel about where they live).

The concept of developing a dashboard is quite simple – displaying real-time data in a highly accessible manner. However, there are many challenges to overcome, including:

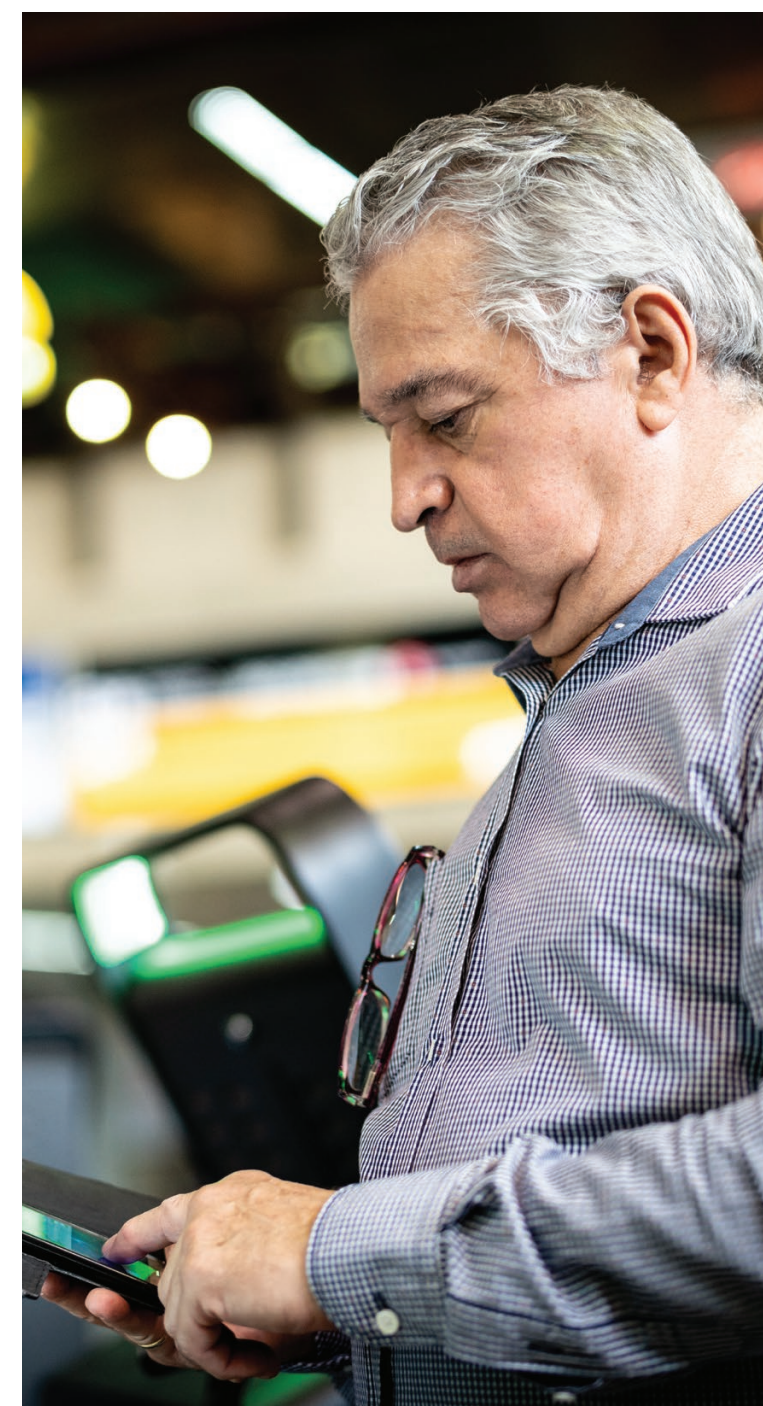
- Insufficient data quality;
- Limited understanding of data;
- Poor analysis;
- Wrong interpretation;
- Confusion about the outcomes; and
- Imposing a pre-defined view or implicit bias.

Develop a range of seamless and convenient customer self-service opportunities

Online self-services are becoming one of the most popular ways by which customers are looking to:

- Complete a transaction;
- Resolve problems;
- Access information;
- Book services; and
- Learn more about the organisation.

Today's digital customers are happier when they can manage and complete these tasks at any time they want. An audit will be undertaken to determine the most common requests for services or information that could be automated, giving more control back to the community on their terms. This automation will create operational efficiencies within the Council to be reinvested back into smart projects and process.





Things we will get to

There are numerous other steps we want to explore and deliver under the Smart City roadmap. However, Council also recognises the journey to becoming a Smart City is an iterative process and we need to crawl before we walk, then walk before we can run. Rather than committing to all of our future actions, the projects below are a growing list of initiatives we recognise may, at some point become a high priority, requiring more attention:

- Our own Living Lab, a system successful in other leading cities, providing the experimental platform for other companies and organisations to test and trial;
- Digital capacity building for local businesses;
- Collaborative business engagement events and meet ups;
- Opportunities for an innovation hub;
- Targeted youth awareness and training in entrepreneurship, innovation and information technology to support the jobs of the future;
- A Community Portal, where community organisations can list services, number of members and contact information so they can recruit members;
- Work with technology and start-up accelerators (for example, Energy Hub) to support and trial new technologies for a Smart City and advancement of the sector;
- Work with specialists in the areas of precinct scale planning and IoT to investigate and improve how the City works as a whole; and
- Work with core stakeholders and use available data to inform risk management processes, such as climate risk, emergency planning and more. This can be done through relevant API integrations with key partners.

Smart City Project Management

While our to-do list focuses on ‘digital on the inside’ of the organisation, we also need to progress the development and deployment of various projects on the outside to commence our smart thinking and deliver real improvement.

To ensure we are working within our guiding principles, specifically our broader vision, it’s important to recognise that as Council, we cannot and should not do everything.

To help us assess Council’s multiple and often competing projects, and focus on our goals whilst being thoughtful about how we use our limited resources, the below criteria will be applied to all proposed Smart City projects for CBCity. This criteria and methodology process will assist us to:

- Better allocate resources;
- Coordinate and standardise our values into the decision making process; and
- Filter through the emerging opportunities.

“Citizens are speaking to their governments using 21st century technologies, governments are listening on 20th century technology and providing 19th century solutions.”

Madeleine K. Albright.

Picking a project

Choosing projects will be based on a three-phased criteria, with only approved project progressing to the next phase.

**Criteria Phase One:
managed by CitySmart Team**

1

1. Does it consider the 12 CBCity Smart Principles?
2. Does it contribute to Canterbury-Bankstown’s Community Strategic Plan and the three matching smart pillars?

**Criteria Phase Two:
managed by CitySmart Team**

2

3. How does it affect our impact, effort and risk matrix?
4. Does it involve work and collaboration with other organisations or groups?

**Criteria Phase Three:
managed by Information Services team**

3

5. Can it be tested fast?
6. Can be scaled?
7. Has it considered potential impacts and costs?

Smart City project management methodology

Address a problem or inefficiency without bias.

Acknowledge that one-size-fits-all does not always work and there are multiple solutions.

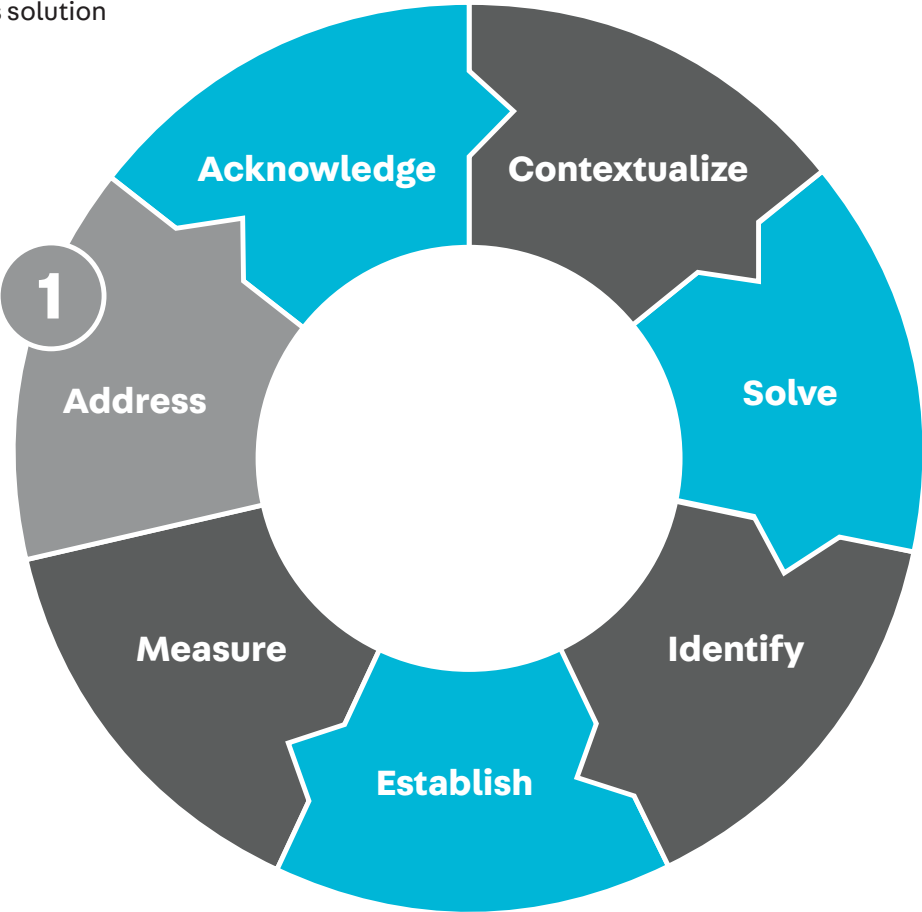
Contextualize any existing useful metrics and data about efficiency, service delivery, needs identification and key learnings to better understand the problem.

Solve a problem without specific technology vendors, platforms or programs. Identify who may be burdened by this solution and engage them early on.

Identify indicators and metrics for success based on input from the community and impacted stakeholders.

Establish tools and technologies that allow for iterative and ongoing improvement.

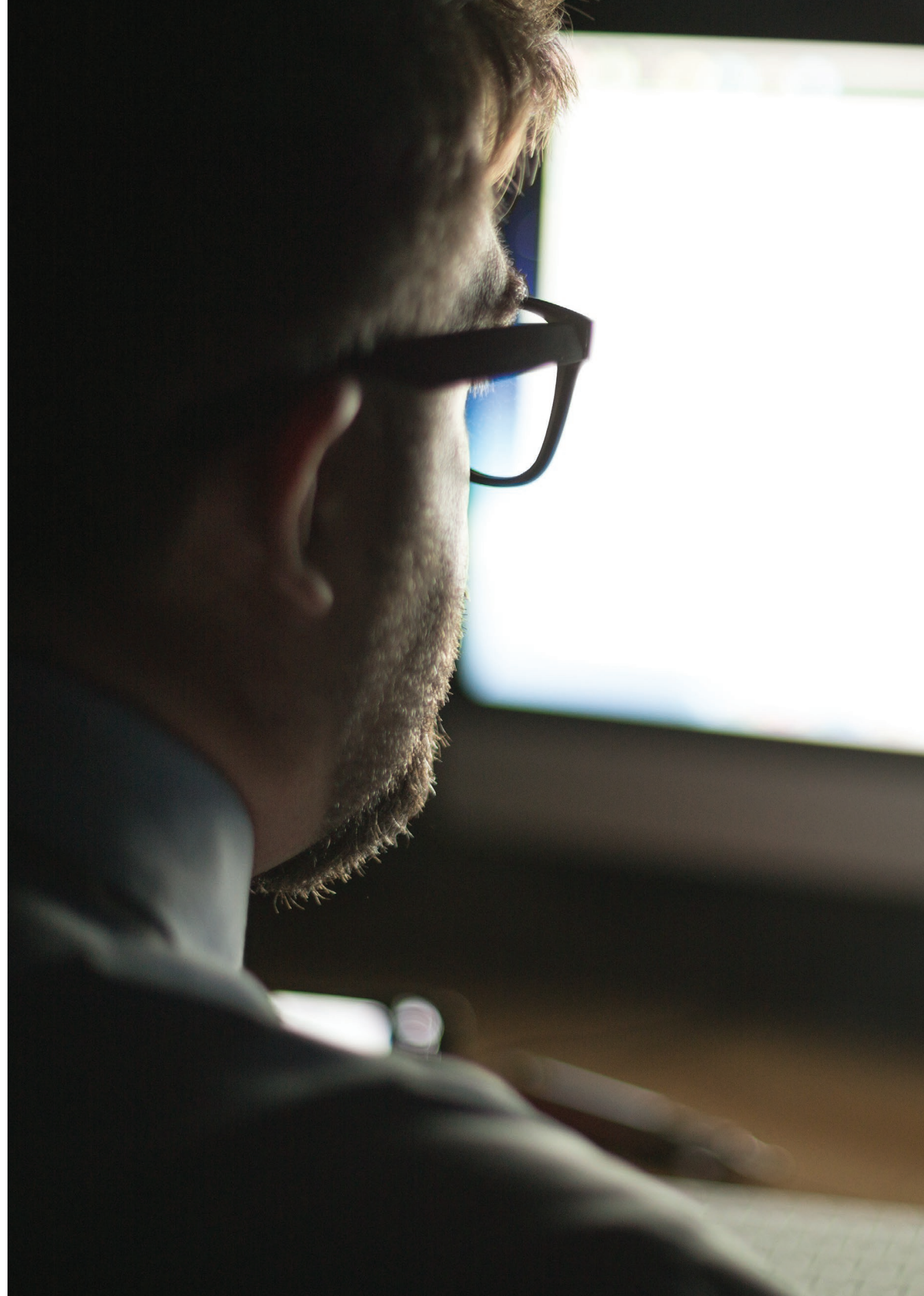
Measure return on investment and investigate opportunities for scalability.



A cautionary note

While there are immense opportunities and solutions waiting to be implemented, we must not be blinded by the shiny toys or technology for the sake of technology. There are many potholes in this Smart City Roadmap that must be navigated, including:

- **Digital isn't the only answer.** Technology can't solve all issues facing a city. We must recognise there are a range of other interventions required to complement our Smart City if we are to have a truly sustainable and liveable city;
- **The answer is made with multiple parts.** Behaviour, policy and regulatory change is often associated with the introduction of any new technology or application. There is also a need to consider both physical planning and social policy;
- **Take a dose of realism.** We need to be realistic about what new technology can achieve. We will need to critically examine Smart City technologies, the rhetoric and the 'over-promises' that surround them;
- **Capacity of data to solve problems is often overstated.** The focus on data often oversimplifies the complexity of an issue or problem. Many fail to interrogate what lies behind the outputs;
- **Technology can improve or exacerbate city outcomes.** The introduction of technology has the potential to exacerbate the issue it has been introduced to solve. For example, the future of autonomous vehicles may either improve or worsen our cities congestion depending on how we implement it;
- **Big brother syndrome.** We're not blind to the unease over the expansion of technology in our lives, more specifically the need to protect privacy. We need to ensure appropriate mechanisms are put in place to only collect the data we need, we anonymise it where possible and manage this information in a transparent and ethical way;
- **The monopoly.** Smart cities have been criticised for turning cities into digital marketplaces for large multinational firms. We need to be cautious of locking the City in to a particular proprietary product, technology or service. We don't want to be tied to maintenance contracts or systems which cannot be scaled, open or allow others to build and innovate of it. Succumbing to a digital monopoly will severely limit our flexibility, functionality and success;
- **Beware of obsolescence.** Where a giant company's software, in industry parlance, 'moulds like putty, sets like concrete' around existing systems, preventing further innovation;
- **Resourcing.** These projects need financial investment and expert support. All the good ideas will not come to fruition unless a commitment and investment is made for the long ride; and
- **It costs money to make money (or efficiencies).** While the outlying cost might be more expensive than sticking with the status quo, we must keep our eye on the prize and persist with the best outcome for our community rather than the cheapest cost upfront. Some of these Smart City solutions may be expensive at first, and take a few years to see the benefit, but will generate meaningful efficiencies in the long run that will allow us to provide a better service to our community.





The Smart Conductor

A good band requires more than one instrument to make music. Likewise, a Smart City requires all players to come together to listen, learn from each other and connect if we are to create our own unique future.

Our players in the band include:

- Residents, visitors and workers;
- Public sector, including State and Federal Government agencies, global cities, schools, universities and other education establishments;
- Social sector, including not-for-profits, social enterprises, charities, cultural and religious; and
- Private sector, including commercial, retail, small business and industry.

The role of local government in creating a Smart City is important and we have a unique opportunity to lead the band. Council has chosen to take the baton and provide the following roles:



Strategist – to be the tactician, the planner, the plotter, the schemer;



Facilitator – to initiate and guide the exchanges, conversations, debates and arguments;



Connector – to bring together, link and join like-minded organisations, institutions and businesses; and



Tester – to provide the physical spaces to test, trial and experiment technology for the benefit of the community.

Creating a metropolitan Smart Sydney

The City of Canterbury Bankstown is the largest council in NSW, in terms of population. We have the second largest businesses community, the fifth largest volume of jobs housed and the eighth largest economy. Canterbury-Bankstown is a crucial stakeholder in the success of Sydney and one of the most important stakeholders in creating a metropolitan Smart Sydney. If Canterbury-Bankstown is to be truly smart, and for many technologies to have real benefit to the community, there needs to be a seamless connection across local government boundaries. This also has the benefit of lowering the risks and being more cost effective.

Therefore, we must work with other groups such as the Committee for Sydney, Smart Cities Council, the Greater Sydney Commission, the Australian Smart Communities Association, surrounding councils and other layers of government. This is not about competing with other areas, rather working collaboratively to deliver a world class smart Sydney.

Glossary

For the majority of us, a smart phone is a box with magic inside. But, if you take the time to discover this thing called technology and its unique techno babble language, a whole new world opens up.

The following terms have been provided to help you on this awakening:

- **2G, 3G, 4G and, now, 5G** – the “G” stands for generation. Each one is the next generation of wireless technologies. With each generation it is faster, more secure and more reliable. 1G was introduced in the 1980s and we haven’t quite reached 5G yet.
- **4th industrial revolution** – the First Industrial Revolution was in the 18th and 19th centuries, where water and steam power was used to mechanize production. The second generation used electric power to create mass production. The third used electronics, computers and information technology. We are now entering the ‘Fourth Industrial Revolution’ which is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
- **Augmented reality** – where content, information or data is overlaid on the real world. It does not take you out of your current reality, but adds something to it. It simply augments our current state of presence, often with clear visors or using your smartphone. Where virtual reality allows you to feel as though you are driving a bus, augmented reality can tell you where the real bus is going to.
- **Big data** – with each click, swipe or like we are producing data. This on top of shopping, entertainment and business the world is bursting at the seams with data. Our current output of data is roughly 2.5 quintillion bytes a day. It is estimated that 90 percent of the data in the world today has been created in the last two years alone. As the world of IoT expands, this is set to exponentially grow. The future challenge is how we will manage and store all this data, then how we make meaning out of it.
- **Blockchain** – an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value. Information held on a blockchain isn’t stored in any single location. The blockchain database is hosted by millions of computers simultaneously and continually reconciled. This way, no centralised version of this information exists for a hacker to corrupt. The records are truly public and easily verifiable. Originally devised for the digital currency, Bitcoin, the technology is now being used for other management of data.
- **Cyber-attack** – an attack launched from one computer or more computers against another computer, multiple computers or networks. For a larger organisation, a Cyber Attack can disrupt and cause considerable financial and reputational damage. With greater reliance on technology a Smart City needs to put in place Cyber Security technologies, processes and controls designed to protect systems, networks and data from cyber-attacks.
- **Cyber security** – we’ve all likely experienced some type of computer virus or email whilst trying to obtain information or access to your computer. These are often designed to be annoying, but can actually access to your private details or bank accounts. Cyber security is the process or plan in place to protect programs, networks, computers and data from unauthorised access or cyber-attacks. This crucial security practice avoids identity theft, protects privacy, reduces risk for businesses and avoids costly disruption.
- **Internet of Things (IoT)** – connecting things to the internet and to each other, so they can then share information. These ‘things’ include everything from cellphones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of. It is estimated 8.4 billion connected things are in use worldwide in 2017 and will reach 20.4 billion by 2020.
- **Open data** – data can be managed on a continuum from being closed (internal access only by specific people or groups), shared (others can use the data but with restrictions) and open (can be freely used, reused and redistributed by anyone). Open data is based on the philosophy that there are to be no restrictions, for example preventing ‘commercial’ use. Having government provide more open data can facilitate greater transparency and accountability. It can also provide economic development to the city through supporting new businesses and technological innovation.
- **Virtual reality** – you’ve likely seen someone wearing goggles or headsets, often appearing as if they feel like they are experiencing and seeing something first hand. This is virtual reality (VR), where a computer creates an artificial simulation or recreation of a real life environment or situation and projects it on to a screen in the goggles or headset. It allows the user to walk around as though they are in the real world or an imagined world, allowing the user to interact in that world.

**Smart City –
Using technology
infrastructure,
community
engagement and
connectivity to
evolve our City
and make real
improvements.**

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**WHERE
INTERESTING
HAPPENS**