

# CODE FOR SMART COMMUNITIES

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OCTOBER 2018



In partnership with

**SmartCitiesCouncil**<sup>®</sup> Liveability  
Australia New Zealand Workability  
Sustainability

 green building council australia

## Acknowledgments

Smart Cities Council Australian New Zealand (SCCANZ) would like to acknowledge its strategic partner, the Green Building Council of Australia (GBCA), its lead partner Lendlease and technical partner Place Design Group.

SCCANZ also thanks the support of its Built Environment Task Force, and the numerous stakeholders who participated in the workshop sessions it facilitated across Australia, New Zealand and the United States.

Several partner organisations and friends of SCCANZ hosted the workshops that created much of the input into the Code, and we thank them for their support. They include:

- » Aurecon
- » City of Melbourne
- » Lendlease
- » Panuku Development Auckland
- » Place Design Group

This Code has been inspired by global best practice frameworks for sustainable urban development, such as Green Star – Communities, the EcoDistricts Protocol and the United Nations Sustainable Development Goals.

The Code, in isolation, can only have a certain level of impact. Embracing other supporting frameworks and guidance is necessary. Users of the Code should also consult the following:

- » Smart Cities Readiness Guide
- » Smart Cities Standards Guidance Note
- » Collaborative Governance Guidance Note
- » Social Impact Guidance Note
- » Civic Innovation Guidance Note.

All of these SCC resources are available at [www.smartcitiescouncil.com](http://www.smartcitiescouncil.com).

## Lead Partner:



Lendlease is a leading global property and infrastructure group specialising in development, construction and investment.

## Technical Partner:



Place Design Group is a leading international planning and design consultancy with a reputation for creative and commercial solutions.

## Purpose

The Code for Smart Communities (referred to in this document as the Code) was created to help guide urban development practices in Australia and New Zealand by embracing technology, data and intelligent design as a catalyst for positive change.

As urbanisation within our region gathers apace, it places pressure on our cities to maintain a high level of liveability, productivity and sustainability.

While much of the smart cities discussion and investment has been largely led by local government, the Smart Cities Council acknowledges that cities are built upon the foundations of smaller components: precincts, neighbourhoods, town centres, campuses and business parks. This scale of development is what we loosely describe as 'communities' in this document.

The Code is solely focused on transforming these development types by providing a clear smart communities framework. We believe community-scale transformation is the most effective way to influence whole cities and regions.

As a voluntary tool, the Code represents best practice and encourages more sustainable urban development outcomes. The Code draws upon international best practice and standards and has been informed by extensive stakeholder engagement with those advancing the principles contained within it.

Without tools such as this Code, the market – both government and industry – often takes longer to act and improve its performance. This is one key outcome the Code strives to achieve, which is to shorten the transformation cycle.

Over time, as smart urban development practices improve, this Code can be refined and updated to provide more granular, specific and performance-based outcomes. We also acknowledge that the Code will not encompass everything needed to effect this urban development transformation, but is just one part.

## Outcomes

The Code aims to influence outcomes across a broad spectrum of issues. The Smart Cities Council uses the following three outcome areas to guide smart cities investment:



### PRODUCTIVITY

providing enabling infrastructure to support the jobs of the new economy – energy, connectivity, computing, essential services and more – and to compete globally for high quality jobs.



### SUSTAINABILITY

providing services which help us tread lightly and enhance our relationship with the environment while recognising different cultural relationships without stealing from future generations.



### LIVEABILITY

creating environments which support people to be healthy, wealthy and happy. These environments encourage universal access, equitable participation and are supported by ubiquitous digital infrastructure which make services instantly and conveniently available anytime, anywhere.

# 3.0

## Who should use the Code?

The Code has been designed for use by local and state governments with the responsibility for planning, funding, constructing and managing land development projects.

Other key audiences for the Code are the private development sector and similar organisations that influence or shape the development of land.

By association, the supply chain servicing the development industry will also find value in applying the Code. Whether professional services firms, product suppliers or maintenance contractors, this group of stakeholders is critical to achieving the outcomes framed within the Code.

Finally, Strong leadership, long-term thinking and ongoing community governance are required if we are to tackle larger and more systemic issues beyond an individual development project.

Therefore, this code should be used by city and region-wide policy makers to help shape future growth plans.

# What type of development can the Code influence?

While the Code seeks to influence the maximum number of possible land development types, it targets four core development typologies.

## GREYFIELD

Most Australians and New Zealanders live in existing neighbourhoods and suburbs, often dominated by residential development, and detached from mixed use areas. This is an important land use type to transform. However, the ability to influence it can be highly constrained.

While the Code contains principles and metrics that could apply to all land use types, including existing suburban residential development, it may not be as easy to derive smart communities' outcomes to the same extent as in other development types.

## BROWNFIELD

Brownfield regeneration is a significant priority for development agencies across the Australia and New Zealand region, given its potential to create more productive uses of land, and its close proximity to public transport, employment areas and other amenities.

Brownfield regeneration can take many forms, with many uses, including residential precincts, town centres, entertainment precincts and mixed-use urban villages.





## CAMPUS

Campus development tends to include multiple buildings often serving a common purpose, with single ownership. Examples include schools, universities, hospitals and port development areas. These development types can be located in greenfield, brownfield and greyfield settings, but have been identified separately given their often-unique ability to deliver capital works and maintain community infrastructure.

## GREENFIELD

The Code aims to influence the substantial greenfield development across the region. Greenfield master planned communities which embrace a mix of uses, provide good public transport and access to employment will benefit from the use of this Code.

Single-use greenfield development, whether for residential, industrial or other purposes, may not be able to deliver broader sustainability outcomes and, therefore, may not benefit from applying technology and data to its fullest extent.

These development types can be delivered in a range of geographic settings, whether in highly urbanised cities and regions or rural and coastal towns. Therefore, the Code can be used in most localities.

Airports and other transportation and logistics developments can embrace the principles within this document. These development types can often fit within several of the above descriptions.

While the Code has not been created specifically for individual buildings, several principles can be applied and adapted to influence building design and operation.

# Pathway to a Smart Community

The Code promotes best practice technology and data standards that support a digitally-enabled community. To achieve this, the smart communities pathway involves two critical steps:

## 1. Implement an enabling digital strategy that includes:

- » Governance – a smart city architecture with common and open standards that unifies all participants and actors to ‘plug and play’ technology and share data
- » Design thinking – a focus on the key benefits for people and place including enhanced customer/citizen engagement, communication and satisfaction
- » Digital mindset – a culture that supports digital connectivity, transformation and collaboration
- » Performance focused – leverages technology to provide process improvement, automation and data insights
- » Decision support – data is understood as the foundation of decision support and optimisation
- » Continual improvement – realises the benefits of actively delivering improvements in liveability, productivity and sustainability.

## 2. Evolve capabilities through more sophisticated uses of data as follows:

- » Aware – monitors existing conditions – What’s happening?
- » Semi-intelligent – acquires data, but with no decision making – Why did that happen?
- » Intelligent – analyses (computes) data, creating real-time actionable intelligence to allow control – What should we do?
- » Smart – collects data, processes and, with knowledge, autonomously makes decisions, maintaining a feedback loop — provides for optimisation.

Therefore, a smart community does both – provides the conditions for success, and then evolves the use of data to become a sophisticated decision maker that optimises urban systems and services to deliver better liveability, productivity and sustainability.

With this pathway in mind, and acknowledging that it is not always a logical linear process as described, the Code has been structured to provide guidance in three key ‘layers’:

1. A set of imperatives which serve as the essential conditions for successfully delivering a smart community
2. A set of principles which define a smart community
3. A suite of metrics and indicators to help measure a smart community.

# The Imperatives

Smart communities start by establishing the conditions for success, and by ensuring that any investments in smart communities strategies contribute to greater liveability, productivity and sustainability.

These imperatives are a foundational requirement for all smart communities, as they are lasting, and can withstand the pace of change and disruption our communities and cities may face. They are also a central tenet of the innovation process.

It is a requirement that those implementing this Code demonstrate alignment with the following:

1. **Collaboration** – Promoting a culture where trust is at the heart of stakeholder dealings, relinquishing individual preferences for the benefit of the project, sharing power and embracing diversity
2. **Open governance** – Promoting open and inclusive decision-making that embodies clear accountability and transparency and seeks maximum public benefits
3. **Sustainability** – Committing to a minimum 4 Star Green Star – Communities rating
4. **Place** – Demonstrating alignment with the principles and attributes contained in the Australian Urban Design Protocol and the New Zealand Urban Design Protocol, where relevant
5. **Connectivity** – Linking people to services, resources, amenities and each other through open interoperable systems and assets
6. **Technology and data** – Applying outcomes-focused technology and data solutions that align with clear community goals.



## The Principles and Metrics

This section of the Code uses a suite of principles and metrics to describe what smart communities should aspire to achieve. We acknowledge that some metrics are listed more as indicators, where clear metrics have yet to be agreed. This will of course change over time as the Code is applied.

Within the Code, the principles are presented as the underpinning concept, while the metrics and indicators are quantifiable measures that assess performance and provide a framework to identify gaps and opportunities.

The Code does not specify a level of performance (against the metrics/indicators), however future versions of this Code may specify performance criteria, should there be demand from government and industry.

To support users with an indication of the level of voluntary 'compliance' with the Code, a list of 'acceptable evidence' is provided. These supporting notes outline the types of evidence that would be typically documented. These notes provide project teams with a 'conversation starter' with the community, businesses and the local approval authority.

STRATEGIC



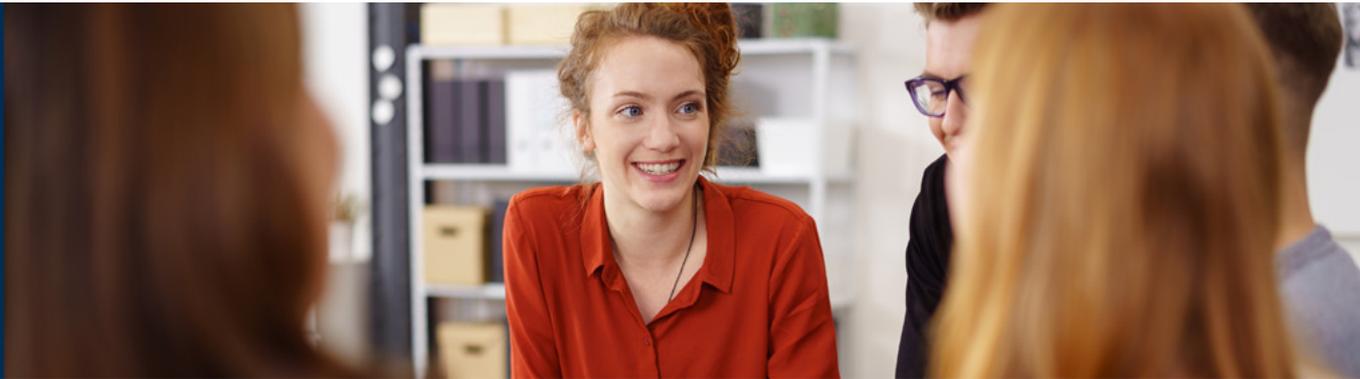
CONNECTED



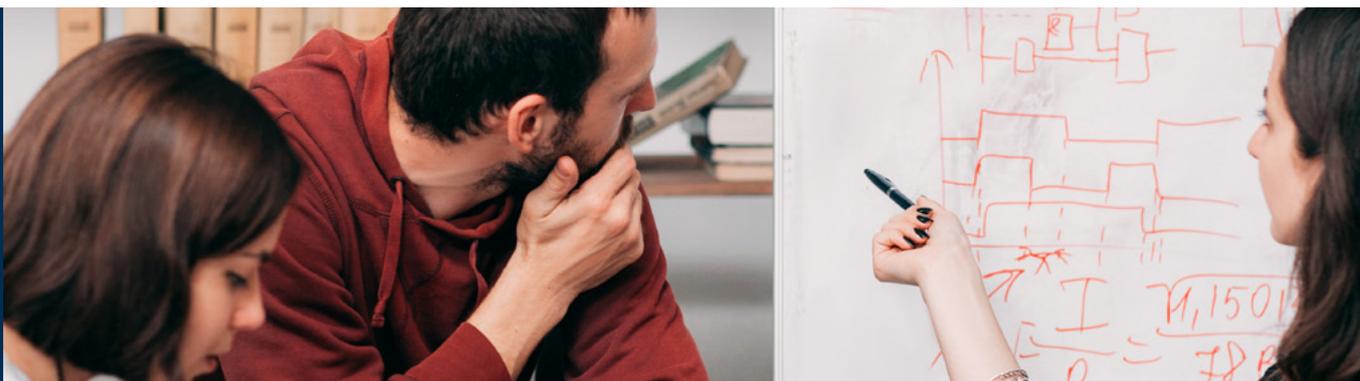
AWARE



RESPONSIVE



INNOVATIVE



# Strategic

## Principle

Smart urban development is guided by a strategy that clearly identifies how investments in technology and data solutions will be made to accelerate liveability, productivity and sustainability outcomes.

## OUTCOME

The creation of a smart precinct or community strategy that provides decision-makers and the community with clear guidance on how to develop, agree and deliver smart technology and data solutions. These solutions must contribute directly to the development's vision and targets and be fully interoperable with any city or region-wide networks and platforms.

This means that the project:

- » Is guided by a set of values and outcomes that drive decision-making and investment focused on sustainability outcomes
- » Is deeply connected across systems, stakeholders and processes for delivery of services

- » Views technology and data solutions as a key enabler and accelerator for the project's vision
- » Embraces actions that can be articulated, delivered, managed, measured, reported and evaluated
- » Can be seamlessly absorbed into any city or region-wide networks and platforms.

## GUIDANCE

Further guidance in applying this principle and demonstrating compliance can be found in:

- » British Standards Institution: (BSI) PAS 181 – Guide to establishing strategies for smart cities and communities
- » British Standards Institution: (BSI) PAS 185 – Smart Cities – Specification for establishing and implementing a security-minded approach
- » British Standards Institution: (BSI) PD 8101 – Smart Cities – Guide to the role of the planning and development process-
- » EcoDistricts: The EcoDistricts Protocol
- » Green Building Council of Australia: Green Star – Communities rating tool
- » Internet of Things Alliance Australia (IOTAA): Internet of Things Platform Selection Guideline V1.1 July 2018
- » Internet of Things Alliance Australia (IOTAA): Security Guideline V1.2
- » Internet of Things Alliance Australia (IOTAA): Good Data Practice: A Guide for Business to Consumer Internet of Things Services for Australia
- » ISO 16739:2013 - Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries
- » ISO 37106:2018(E) - Sustainable cities and communities – Guidance on establishing smart city operating models for sustainable communities
- » Smart Cities Council: Smart Cities Readiness Guide
- » Smart Cities Council: Smart Cities Data Guide
- » Smart Cities Council: Guidance Note on Smart Cities Standards
- » Upcoming ISO/IEC 30141 ED1 Information technology – Internet of Things Reference Architecture (IoT RA)
- » United Nations: Sustainable Development Goals
- » Upcoming ISO / IEC JTC1-SC41-52: Internet of Things (IoT) – Requirements of IoT data exchange platform for various IoT services.



## METRICS

For a project to claim alignment with the Code for Smart Communities it must provide evidence demonstrating implementation of the metrics below:

Metric	Acceptable Evidence
Smart Cities/ Communities Strategy.	<p>Evidence of a smart cities/communities strategy that includes as a minimum the following elements:</p> <ul style="list-style-type: none"> <li>» Purpose</li> <li>» Principles and vision</li> <li>» Goals and targets</li> <li>» Leadership and governance arrangements</li> <li>» Engagement program</li> <li>» Applicable technology and data enablers</li> <li>» Procurement management</li> <li>» Investment roadmap</li> <li>» Performance reporting requirements and metrics</li> <li>» Alignment with the organisational or project innovation agenda</li> </ul> <p>Or alignment to an existing city or region-wide smart city strategy that encompasses the above elements.</p>
Enhanced Smart Community Structure Plan.	<p>Evidence of a planning instrument that includes provisions for:</p> <ul style="list-style-type: none"> <li>» Physical pathways for connectivity</li> <li>» Provisions for macro and micro cell infrastructure for 4G, 5G, NB-IOT and Cat1M</li> <li>» Open access to relevant community assets for small cells, LP-WAN, sensors and other low impact infrastructure</li> <li>» Fog computing interface into public/private cloud infrastructure</li> </ul>
Published smart cities policies.	<p>Evidence of a public commitment to implement best practices in:</p> <ul style="list-style-type: none"> <li>» Digital inclusion</li> <li>» Data use, availability and privacy management</li> <li>» Cybersecurity and network resilience</li> <li>» Interoperability and open standards</li> <li>» An open/shared data policy</li> </ul>
Digitalisation of planning, design, construction and operational practices.	<p>Evidence that the project will exploit new and emerging technologies, data and analytics in the:</p> <ul style="list-style-type: none"> <li>» Planning and design of all built assets</li> <li>» Construction of all built assets</li> <li>» Digital submission and engagement of local government development processes</li> <li>» Operational management of all built assets and the use of them by people, vehicles and other systems/objects</li> <li>» Interoperability of each built asset with each other provided by bi-directional connectivity</li> <li>» Provision of digital data of all non-sensitive built assets (including BIM) in an open 3D data format</li> <li>» The development of a digital twin of a development/city with lifecycle data management policies</li> </ul> <p>Evidence of, or a commitment to develop, an enhanced 'Smart' Developer Infrastructure Agreement with the City/ Regional Council.</p> <p>Evidence of, or a commitment to ensure that any new capital delivery works has graphical and non-graphical data requirements defined in the contract.</p>

# Connected

## Principle

A smart community has access to best-in-class and ubiquitous connectivity while ensuring the interoperability of connected devices.

## OUTCOMES

The community has a level of digital connectivity and open interoperability where technologies work together to gather relevant data with the highest level of privacy and security. Digital connectivity can be treated as a community and city-wide asset that helps build actionable intelligence.

This means that the project:

- » Has a precinct-wide (public domain) area infrastructure services network, including as a minimum telecommunications, lighting, clean energy, water and security system
- » Uses sensors (fixed, portable and mobile) to gather data on the conditions within and around the community

- » Embeds interoperability standards from the early design phase, to support multiple integrated types of technologies
- » Maintains the highest level of data security for connected devices and collected data
- » Has dedicated resources to effectively analyse data gathered and act upon results.

## GUIDANCE

Further guidance in applying this principle and demonstrating compliance can be found in:

- » British Standards Institution: (BSI) PAS 212:2016 Automatic resource discovery for the Internet of Things. Specification
- » British Standards Institution: (BSI) PAS 1192-2:2013: Specification for information management for the capital/delivery phase of construction projects using building information modelling
- » British Standards Institution: (BSI) PAS-1192-3:2014: Specification for information management for the operational phase of assets using building information modelling
- » British Standards Institution: (BSI) PAS 1192-5:2015: Specification for security-minded building information modelling, digital built environments and smart asset management.
- » FIWARE Data Models
- » Internet of Things Alliance Australia (IOTAA) Smart City Platform and Interoperability Guideline
- » Internet of Things Alliance Australia (IOTAA): Security Guideline V1.2
- » ISO/IEC 27032:2012 – Information technology – Security techniques – Guidelines for cybersecurity
- » ISO/IEC 27033-1 – 6 (2010-2016) Information technology: Security techniques
- » ISO/IEC – 14763-2 Information technology implementation and operation of customers premises cabling. Part 2: Planning and installation
- » Upcoming ISO/IEC 30141 ED1 Information technology – Internet of Things Reference Architecture (IoT RA)
- » Upcoming ISO / IEC JTC1-SC41-52: Internet of Things (IoT) – Requirements of IoT data exchange platform for various IoT services.



## METRICS

For a project to claim alignment with the Code for Smart Communities it must provide evidence demonstrating implementation of the metrics below:

Metric	Acceptable Evidence
Number of premises (dwellings and places and spaces) with access to best-in class broadband infrastructure.	Evidence that all property parcels could access internet that provides a minimum download speed of 1 gigabyte per second or minimum symmetric speed of 100 megabytes per second.
Percent of outdoor coverage across the community of a publicly accessible LPWAN network(s).	Evidence that the community could access a LPWAN network enabling low power devices to connect.
Percent coverage across the community of 4G/5G mobile infrastructure.	Evidence (by way of coverage maps) that the community could access multiple 4G/5G mobile networks.
Percent coverage across the community of free publicly accessible Wi-Fi.	Evidence (by way of hotspot location and coverage maps) that the community could access free public Wi-Fi networks.
Use of open integration architecture.	<p>Evidence that the following attributes, as a minimum, have been embedded into relevant briefing documents and performance specifications:</p> <ul style="list-style-type: none"> <li>» Use of public, consensus-based standards.</li> <li>» Adoption of standard interfaces</li> <li>» Interoperability with minimum integration requirements</li> <li>» Adoption of standard services</li> <li>» Use of product types supported by multiple vendors</li> <li>» Bi-directional connectivity to assets, including discrete classes of assets</li> <li>» Ease of scalability and upgradability</li> </ul>
Mandating of interoperability standards.	Evidence that interoperability standards, such as British Standards Institution “PAS 212:2016 - Automatic resource discovery for the Internet of Things – Specification” and the Internet of Things Alliance Australia (IOTA) “Smart City Platform and Interoperability Guideline”, are mandated in all relevant briefing documents and performance specifications.
Adoption of common data models.	Evidence that common data models, such as the FIWARE Data Models international de-facto standards, have been assigned as a common data structure for open output of relevant smart city infrastructure as either static data or APIs.
Mandating of a Security Framework.	Evidence that security standards, such as ISO/IEC 27033-1 – 6 (2010-2016) “Information technology: Security techniques”, are mandated in all relevant briefing documents and performance specifications.
Availability of an uninterrupted power supply for maintaining network functionality.	Evidence that the community’s communications infrastructure can maintain functionality during vulnerable times (eg. Natural disasters and other threats).

# Aware

## ***Principle***

Smart urban development invests in the collection, integration, analytics and communication of data as a basis for building awareness, insights and optimisation of its services and performance.

## **OUTCOMES**

This means that the project:

- » Builds a 'data culture' among the various stakeholder groups and sectors, including the community and the wider city or region
- » Has an (or integrates to) open data platform, with supporting data governance framework
- » Has provision for the design of and access to adequate data storage
- » Makes data privacy a core priority
- » Has a demand-driven approach to data facilitation by the local authority, and other key community stakeholders.

## **GUIDANCE**

Further guidance in applying this principle and demonstrating compliance can be found in:

- » ISO/IEC 30182:2017 – Smart city concept model – Guidance for establishing a model for data interoperability
- » ISO 27001:2013 – Information security management systems. Requirements
- » Smart Cities Council: Open Data Guide.



## METRICS

For a project to claim alignment with the Code for Smart Communities it must provide evidence demonstrating implementation of the metrics below:

Metric	Acceptable Evidence
Data management and integration agreement.	<p>Evidence that a policy or an agreement with the City/Regional Council exists for data management and integration, which has included the following elements as a minimum:</p> <ul style="list-style-type: none"> <li>» Privacy and confidentiality</li> <li>» Data governance</li> <li>» Security</li> <li>» Application of open standards</li> <li>» Open access to community generated data</li> <li>» Continuity between vendors or data collection systems</li> </ul> <p>Evidence that Privacy has been used as a design principle and consciously managed through a governance process such as a Privacy Impact Assessment</p>
Availability of a city platform (or data integration framework) for the development to connect in to.	<p>Evidence of a commitment that the project will connect to a citywide, open data-sharing process and platform.</p> <p>Evidence that integration with regional or national data exchanges and analytics capability can be facilitated to enable secure and private sharing of data between community stakeholders and beyond.</p> <p>Evidence that breaking down silos across core data sets such as energy, water, waste and mobility is achieved.</p> <p>Evidence that IoT data has been designed to prevent contamination with private or identifying information and is designed to be opened or shared.</p>
Visualisation of key performance indicators for community performance.	<p>Evidence of a community or access to a city / region provided dashboard that is publicly accessible and measures progress toward stated key performance indicators or similar.</p>
Availability of an open data portal.	<p>Evidence of integration to a website where relevant data can be published for public consumption and analysis by citizens, businesses and software developers.</p>
Data communications plan.	<p>Evidence of a communications plan to set expectations and cultivate an open data environment within the community.</p>
Cultural awareness of data.	<p>Evidence of engagement with first peoples to understand metrics which are important to their perspectives, priorities and further engagement in planning processes.</p>

# Responsive

## ***Principle***

Smart urban development supports a culture of ongoing positive change afforded through the insights and intelligence gathered from data.

## **OUTCOMES**

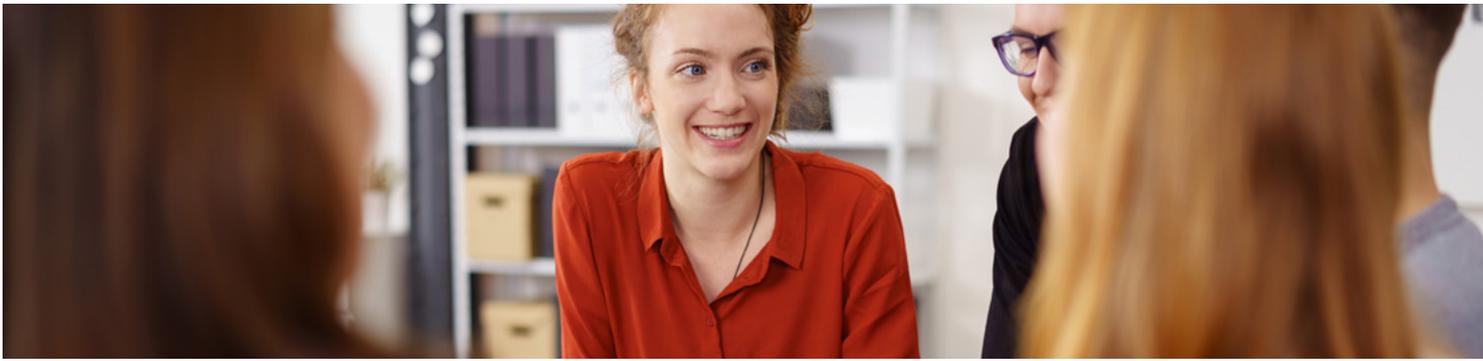
This means that the project:

- » Embraces collaborative governance models which build shared ownership and responsibility across decision-making processes
- » Applies values and ethics when it comes to using data for decision-making
- » Can use integrated and automated responses
- » Can be flexible, proactive and preventative in its approach to decision making
- » Embraces a continual improvement culture by using feedback loops
- » Is performance-driven, using community performance dashboards that display smart community insights.

## **GUIDANCE**

Further guidance in applying this principle and demonstrating compliance can be found in:

- » Accenture: Universal principles of data ethics 12 guidelines for developing ethics codes
- » Green Building Council of Australia: Green Star – Communities rating tool
- » Smart Cities Council: Open Data Guide.



## METRICS

For a project to claim alignment with the Code for Smart Communities it must provide evidence demonstrating implementation of the metrics below:

Metric	Acceptable Evidence
Percentage of population engaged through digital channels.	Evidence that the community is engaged in the use of digital channels, such as the use of API's, kiosks, Wi-Fi, and registered user hits.
Number of or potential realised value of improvement initiatives driven by data.	Evidence that data-driven outcomes are being realised within the community, across areas such as: <ul style="list-style-type: none"> <li>» Mobility</li> <li>» Digital inclusion</li> <li>» Greenhouse gas emissions</li> <li>» Cost of utility bills</li> <li>» Health and wellness</li> </ul>
Decrease in spend on maintenance and operational costs.	Evidence that local government/asset owner spend on maintaining and operating assets (eg. built form, public places and spaces) are decreasing.
Inclusive reporting processes are in place.	Evidence that the reporting of performance of the community, using frameworks such as the Green Star – Communities rating system, is being undertaken in a collaborative way with key stakeholders, is data-driven and is published.
Publishing of shared lessons and best practices.	Evidence that lessons learned, and best practices, are being documented and published publicly in a dynamic way (via a platform) that allows citizens, visitors and businesses to connect and engage on progress.
Shared data and problem solving.	Evidence of a multi-organisational response oriented around issues (eg reducing alcohol harm) that might involve health, police, liquor licencing and urban design authorities.

# Innovative

## ***Principle***

Smart urban development builds a culture of creativity, equity and agility to help advance opportunities for innovation.

## **OUTCOMES**

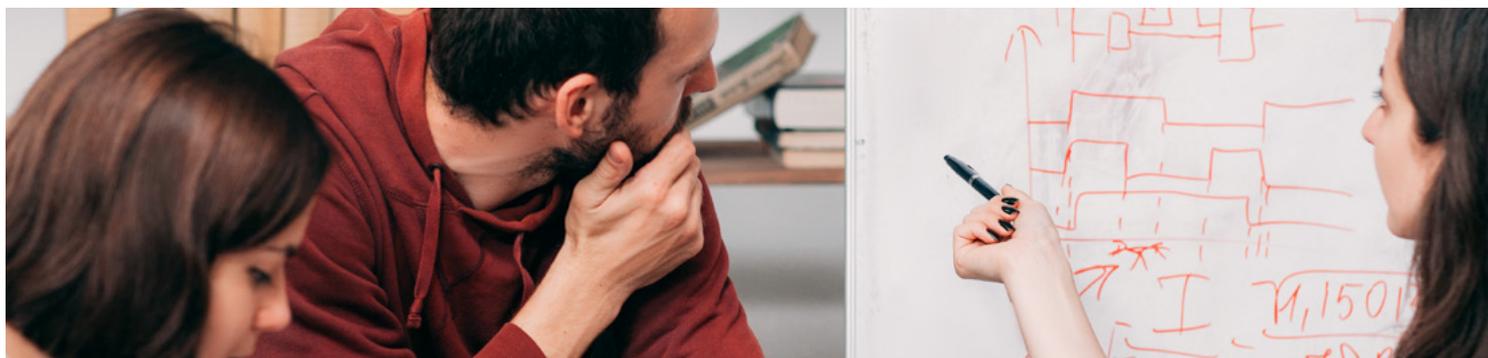
This means that the project:

- » Embraces disruption and thrives on the excitement of solving challenges
- » Expresses the behaviour and practice of deep collaboration among diverse stakeholders including universities, research institutes and schools
- » Is underpinned by open and sharing platforms and practices
- » Addresses integration and adoption of exponential technologies (5G, fog computing, blockchain, Internet of Things, artificial intelligence, machine learning, unmanned aerial vehicles, and the like)
- » Builds a knowledge workforce
- » Nurtures the start-up economy by providing opportunities to bring people together through co-working spaces, incubators and accelerators
- » Has a clear goal to scale its impact for the benefit of people and the planet.

## **GUIDANCE**

Further guidance in applying these metrics and demonstrating compliance can be found in:

- » [EcoDistricts: The EcoDistricts Protocol](#)
- » [The Brookings Institution: 12 Principles guiding innovation districts](#)
- » [The Brookings Institution and Project for Public Places: Innovation District Assessment Guide.](#)



## METRICS

For a project to claim alignment with the Code for Smart Communities it must provide evidence demonstrating implementation of the metrics below:

Metric	Acceptable Evidence
Number of innovation assets.	<p>Evidence of the following types of activity/assets:</p> <ul style="list-style-type: none"> <li>» Availability of investment creation pathways for innovation</li> <li>» Availability of an open innovation platform</li> <li>» Number of employment clusters by proportion of population</li> <li>» Number of start-up clusters</li> <li>» Number of collaborative research projects with universities</li> <li>» Availability of innovation intermediaries (eg. Incubators, coworking spaces etc)</li> <li>» Concentration of underutilised assets/areas that can be adapted for higher economic value</li> <li>» Concentration of universities, healthcare campuses and other anchor companies</li> <li>» Other potential innovation anchors</li> </ul>
Distance of jobs from where people live.	Evidence of placing jobs where people live.
Number of start-ups who have scaled.	Evidence of start-up companies that have scaled, whilst continuing to contribute to the local economy of origin.
Concentration of talent workers.	Evidence of the percentage of workers with a bachelor's degree or higher and their location.
Diversity of the community.	Evidence of the diversity (race, ethnicity, gender, age, skills, knowledge, discipline and experience) of the business owners, workers, researchers and students within the local community, and its contribution to the broader innovation ecosystem.
The level of quality of place.	Evidence of alignment with the Australian Urban Design Protocol and the New Zealand Urban Design Protocol.
The level of innovation-led leadership.	<p>Evidence of institutional, private sector and non-profit leaders within the community who are committed to an innovation agenda within their organisations, as expressed by actions such as:</p> <ul style="list-style-type: none"> <li>» Corporate policies, targets and programs around investing in innovation</li> <li>» Willingness to embrace the start-up and entrepreneur community</li> <li>» Support for capacity building in innovation processes such as design thinking and agile working</li> </ul>

# Your next three steps

1

## FIND A CHAMPION

The best smart communities approach involves all relevant stakeholder groups. Even so, the effort is unlikely to succeed without a champion. Typically, this is a senior representative with leadership skills and influence over process with good networking and advocacy skills and, preferably, connections to various stakeholder groups.

The champion's job is to communicate the overall smart communities vision for the project to the team, collaborating stakeholders and the broader community. The job requires energy and focus throughout the life of the project.

Most successful smart urban development projects also include a strong external leader – typically an elected official in the case of government projects – teamed with a strong internal advocate – typically someone in the project team who can lead the day-to-day activities.

2

## SEE OUT QUICK PAYBACKS

Although every development is different, here are seven areas that have proved to be excellent places to look for quick payback when advancing smart urban development.

Such payback may be financial but can also take on other forms, such as job creation, business start-up opportunities or civic enthusiasm.

Seven common areas for quick payback include:

- » **Smart street lights** – are an excellent first project, as they embrace the latest generation LED lighting to save costs and maintenance requirements and can be fitted with controllers and communications to enable remote diagnosis, provision of public wi-fi and serve to capture a vast array of data for smarter decision making.
- » **Public safety** – can be enhanced through a range of applications and platforms operated by cameras, laptops, tablets and smart phones.
- » **Digital services** – can be a quick win by converting from manual operation to a more convenient online or smart phone version that saves money for government and improves community satisfaction.
- » **Smart transportation** – is often one of the most common starting points for smart cities investment, as there are multiple smart cities approaches to reducing congestion, providing active transportation options, reducing travel time and enhancing payment systems.
- » **Energy efficiency** – is an area of investment that does not require large expenditure to get underway, and produce significant gains through simple behaviour change, enhancing lighting efficiency, and tuning building management systems.
- » **Smart grids** – are becoming more attractive as communities seek to build greater resiliency and reliability in the face of natural disasters.
- » **Smart water networks** – can help pinpoint leaks in a system, and gain quick paybacks in regions where water is scarce and costly.

### 3

## THINK BIG, BUT START SMALL

And finally, do not hold back when setting those long-term goals. Be bold. Aim high. With the help of digital technology and willing stakeholders, virtually any project can achieve a greater level of liveability, productivity and sustainability. Yes, it will take longer for some projects. But the beauty of the digital revolution is that it offers hope to all projects, regardless of location, size or scale.

### FURTHER READING

Further information, including resources and readings, can be found at the Code for Smart Communities webpage at [www.smartcitiescouncil.com](http://www.smartcitiescouncil.com)

We envision a world where digital technology and intelligent design have been harnessed to create smart, sustainable cities with high-quality living and high-quality jobs.

To tap into the transformative power of smart technologies, cities need a trusted, neutral advisor. The Smart Cities Council provides that help. We are a network of leading companies advised by top universities, laboratories and standards bodies.

We promote cities that embody our three core values:

**Liveability:** Cities that provide clean, healthy living conditions without pollution and congestion. With a digital infrastructure that makes city services instantly and conveniently available anytime, anywhere.

**Workability:** Cities that provide the enabling infrastructure — energy, connectivity, computing, essential services — to compete globally for high-quality jobs.

**Sustainability:** Cities that provide services without stealing from future generations.

[www.smartcitiescouncil.com](http://www.smartcitiescouncil.com)

