Fishermans Bend
Smart City Framework

1 Introduction

The purpose of this framework document is to articulate the smart city vision for Fishermans Bend and to provide a conceptual structure which identifies the key pillars that will lead to the creation of Fishermans Bend as a smart city.

This framework primarily supports the overarching Fishermans Bend Strategic Framework Plan while also informing other Fishermans Bend Smart City strategies and activities.

The Fisherman Bend Smart City Framework is a Government led initiative to ensure that conditions are optimal across Fishermans Bend such that a community led smart city can be established and prosper for the benefit of that community.

2 What do we mean by smart city?

Based on the consultation undertaken in the preparation of this framework document alone, it is quite evident that there is no universally held or accepted definition for what a Smart City is. What is becoming increasingly evident in Australia and globally is that being 'smart' is very much tailored to the particular geography or city in question.

In the case of this Smart City Framework, the Employment Precinct is the focus area though it is acknowledged that it is the intention that this Framework will become the template for the other precincts in Fishermans Bend. The Framework is therefore written in this context.

Perhaps a common thread running through all examples of successful smart cities globally, and therefore an appropriate definition for Fishermans Bend Smart City, is:

The capture and analysis of qualitative and quantitative data to enable effective, evidence based, decision making in the interest of deriving benefit for the Fishermans Bend community.
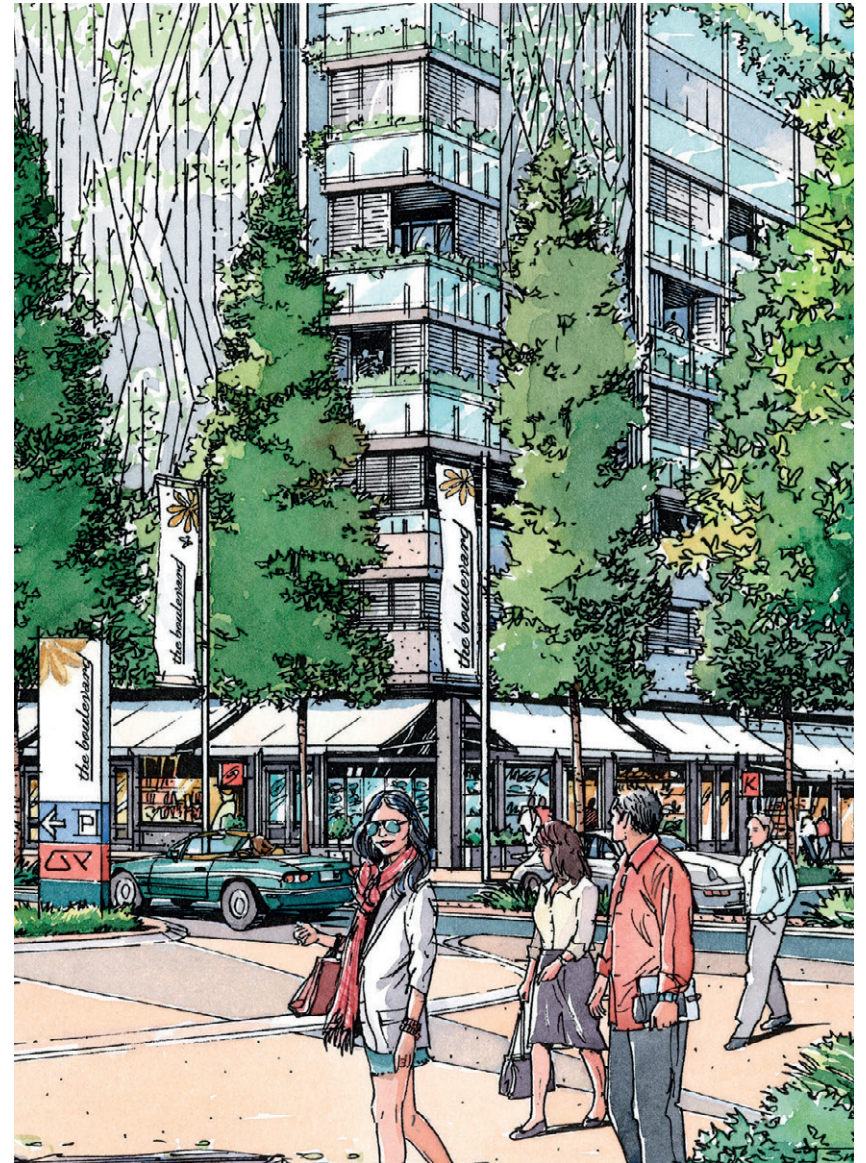
2 What do we mean by smart city?

The primary function and focus of adopting a smart city strategy is therefore to benefit the communities within Fishermans Bend. This is about people. Technology is intended only as an enabler which is driven by community needs to help address city challenges and in so doing make Fishermans Bend resilient, future ready and the best play to live, work and play.

In studying various examples of successful smart cities around the world it is clear that, in each case, smart cities as a concept has been successfully adapted to the local context and is bespoke for each city. This is important as fundamentally the smart city strategy to be implemented across Fishermans Bend must be bespoke to the aspirations of Fishermans Bend as articulated in the Vision, Strategic Framework Plan and the Fishermans Bend community.

This is not to say that we should not learn from the experience of other smart cities globally; in fact it is crucial that we do; but it is also critical that such learning are adapted to the local context within Fishermans Bend.

Another fundamental question is 'what do we want our Fishermans Bend Smart City to be'. The answer to this question will most likely be very different in 50 years than it is today. And so the purpose of this framework is not necessarily to answer that question now, but to ensure that the measures implemented in parallel with the re-generation of Fishermans Bend empower the community to determine the answer to that question at any point in time in the future.

3 Fishermans Bend – a unique smart city

A significant number of the world's most successful examples of smart cities began with retro-fitting the existing city fabric with smart technology. This is quite challenging in that the existing physical built environment, and in most cases heritage constraints, present costly barriers to implementing a smart city strategy. This in turn can have a limiting effect.

Fishermans Bend presents a unique opportunity in that the aspiration to create a smart city is being developed in parallel with the intention to re-generate the built environment across Fishermans Bend. In effect, this provides an opportunity to build a smart city from the ground-up.

It is widely accepted that collaboration across community, government and private enterprise including developers, utility companies etc. will be a key factor in the successful re-generation of Fishermans Bend. This spirit of partnership will be equally critical in the creation of Fishermans Bend as a Smart City. Each will have their role to play and contribution to make in realising the smart city vision for Fishermans Bend.

This presents a unique opportunity to embrace the philosophy of becoming a smart city and embed that philosophy in the re-generation of Fishermans Bend. There exists the potential to create a knowledge based community where research and innovation is carried out in partnership with all members of the Fishermans Bend community and to create a smart city brand for Fishermans Bend which has global reputation that will create a positive legacy for generations.

4 The function of the Fishermans Bend smart cities framework plan

The role of this Framework is to identify the key elements necessary to lay the foundations which ultimately will help realise Fishermans Bend as a smart city. The ambition of this Framework is to establish Fishermans Bend as smart-ready and to create an environment for smart initiatives and innovations to thrive.

This Framework deliberately does not identify smart city point solutions as to do so at this early stage may create too narrow a focus which ultimately may result in opportunities for data analytics, correlation of data, and efficient management and operation being largely lost.

The far reaching potential and influence of a successful Smart City Framework is such that it is impossible to capture, in one document alone, all aspects of how such a framework might be implemented within, and influence, community life in Fishermans Bend.

This Framework is therefore an important first step in the smart city journey for Fishermans Bend.

5 The Question of 'Why'

A very important consideration, and fair question to ask is 'why'? Why bother with a smart city at all? Why invest and what benefit can be delivered for the community by making Fishermans Bend smart?

It is arguably the case that the question of 'why' is not asked often enough when engaging with the topic of smart cities. If 'why' is not the central consideration of every smart city initiative there is a risk that technology will drive outcomes which are potentially either undesirable or unnecessary.

'What is the city but its people'

Shakespeare, Coriolanus.

Melbourne is projected to almost double in population by 2050. Fishermans Bend, located in the heart of Melbourne and adjacent to the CBD, will experience significant growth over that same timeframe. The ambition in creating Fishermans Bend as a smart city is to enable the growth across Fishermans Bend in a more sustainable and resilient manner.

At the very core of 'why' must be how applying a 'smart' overlay to the way in which Fishermans Bend is planned, re-generated and operated can deliver better outcomes for the Fishermans Bend community.

IMPROVED WORK-LIFE BALANCE

POSITIVE ENVIRONMENTAL IMPACT

RESILIENCE – ENVIRONMENT AND ENERGY

REDUCED ENERGY COSTS

CONNECTED COMMUNITY FOR ALL AGE GROUPS

ADAPTIVE AND RESPONSIVE TRANSPORT

HEALTHIER LIFESTYLE

SAFER PRECINCTS

EFFICIENT ASSET MANAGEMENT

AFFORDABLE HOMES

DEMAND SIDE MANAGEMENT
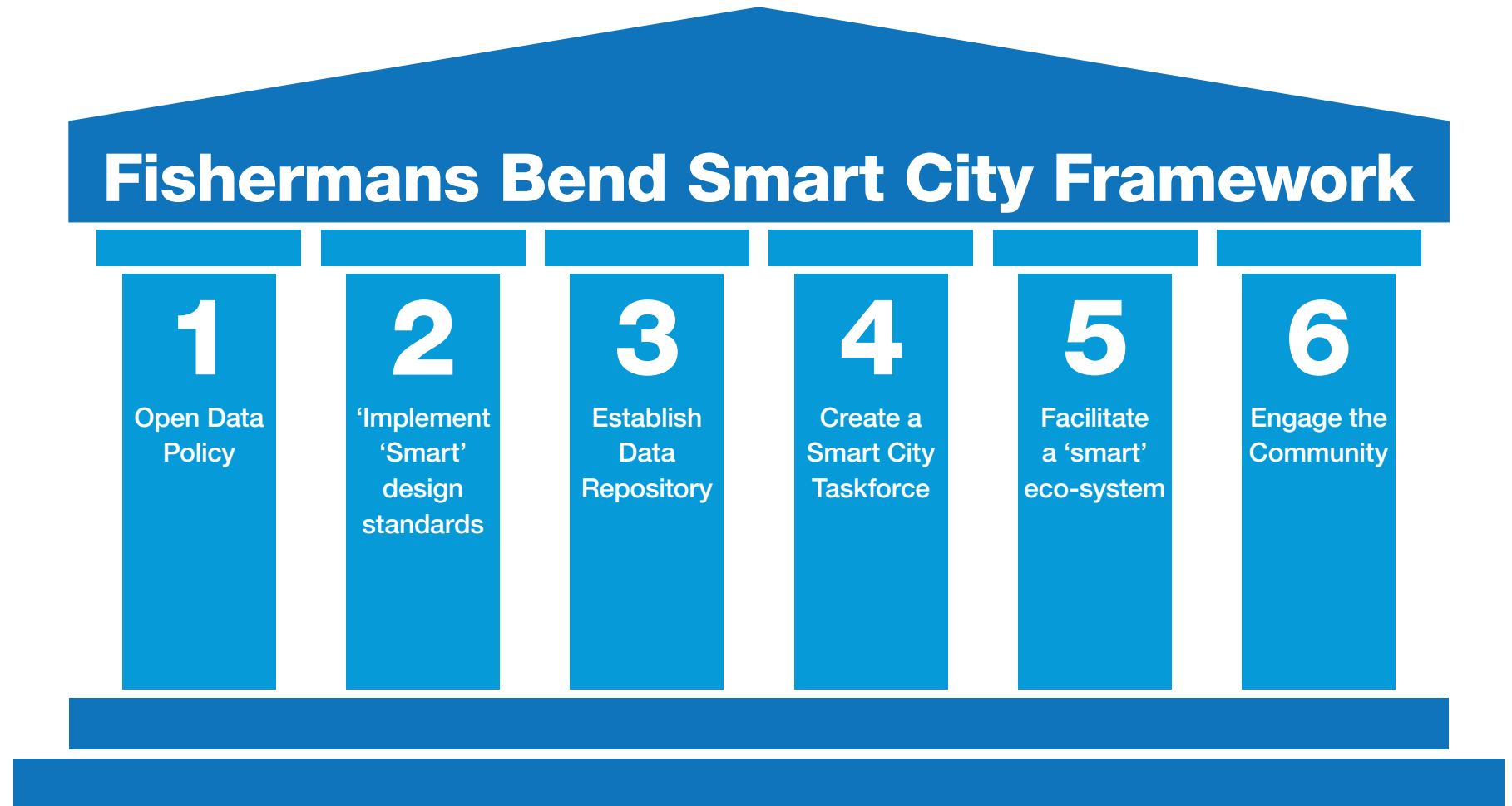
PROSPERITY

FISHERMANS BEND SMART CITY

HEALTHIER CLEANER CITY ENVIRONMENT

PEER-TO-PEER SHARING/TRADING

WATER, WASTE AND ENERGY CONSERVATION

6 Fishermans Bend Smart City Framework

The Fishermans Bend Smart City Framework is be founded on 6 key pillars. These are:

Fishermans Bend Smart City Framework

1 Open Data Policy

2 'Implement 'Smart' design standards

3 Establish Data Repository

4 Create a Smart City Taskforce

5 Facilitate a 'smart' eco-system

6 Engage the Community

6

Each of these 6 key pillars are now discussed individually.

6.1 Open Data Policy

A fundamental principle which unpins all aspects of Fishermans Bend Smart City is a policy of open data.
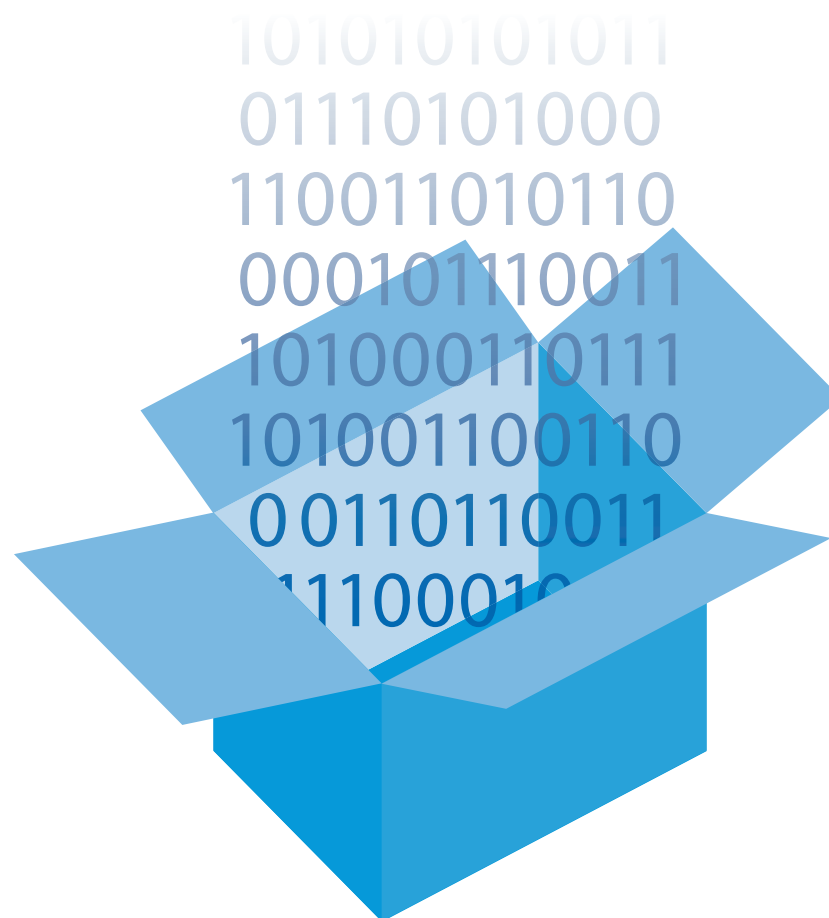
Open data is the idea that data can be freely used and re-used by anyone. The availability of this data is, of course, subject to there being no privacy or security concerns with making such data available.

There are a number of reasons why an open data policy is important.

The first of these is interoperability. Interoperability is the ability of diverse systems to communicate and operate with each other. This establishes an environment where any party can participate in the smart city eco-system from corporate entity to the individual. This is critical so as to create a fertile environment where innovation can thrive which is a key objective for Fishermans Bend.

The second reason is to avoid the inadvertent monopolisation of any public asset or service by a single entity. Where proprietary, or bespoke, systems are allowed to prevail this can create a situation where data gathered is not effectively shared or cannot be used by others and so interoperability is not achieved. This could, for example, lead to a situation where certain interests essentially control or own data or systems in Fishermans Bend. This can create a monopoly, could lead to unfair competitive advantage and most importantly stifle innovation within Fishermans Bend.

The third reason is that the use of proprietary systems can result in the effective privatisation of a public asset. In this case the public asset is data. It is quite likely that data will become a major asset and it is important that the potential for such an asset remains in public ownership for the benefit of the Fishermans Bend community.
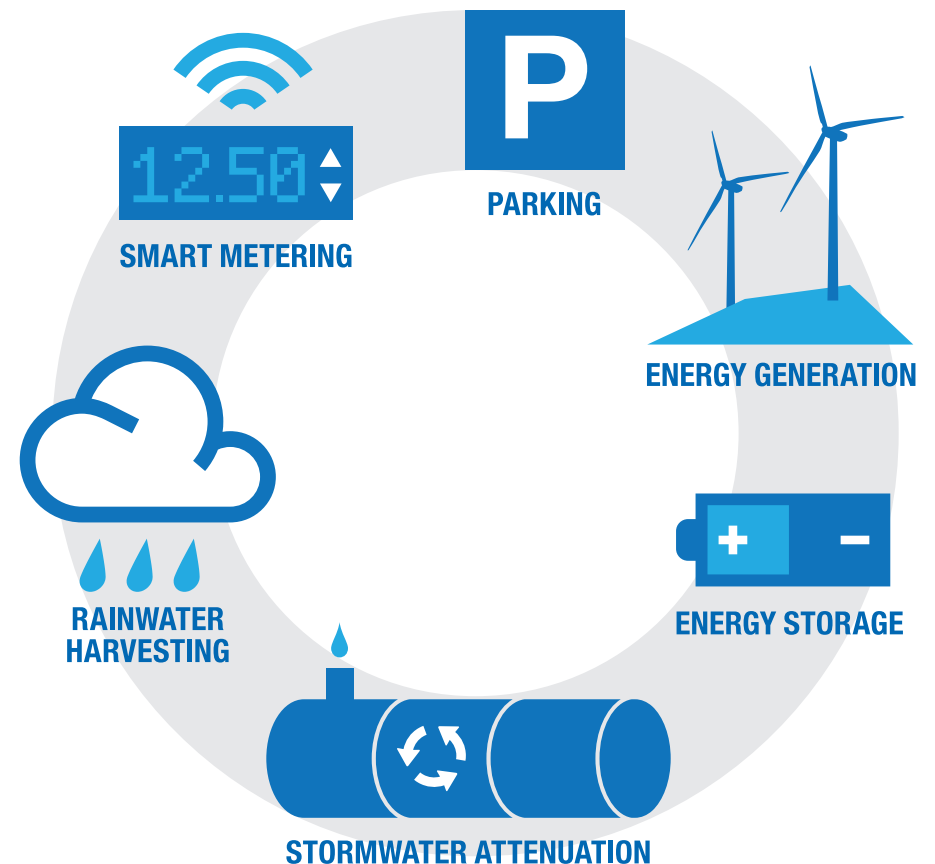
6.2 Implement 'Smart' design standards

In keeping with the spirit of collaboration, property developers, owners, tenants and managers will have a central role to play, in partnership with government, to realise the vision for Fishermans Bend as a smart city.

This starts with ensuring that the core infrastructure required to support a smart city is delivered at the outset in tandem with the re-generation of Fishermans Bend across the public and private domain.

In support of this aspiration, a 'smart' design standard will be created and implemented which applies to all development in Fishermans Bend. This design standard will articulate the minimum standards and specification which must be satisfied if undertaking development in Fishermans Bend.

These measures will be implemented so as to ensure that all development across Fishermans Bend is at least smart ready. This is so as to avoid a situation where the first step in wishing to participate in a smart city initiative requires retrofitting, or modification, to existing development which can often be one of the most significant impediments to realising smart city initiatives. Setting these minimum requirements will help to promote an eco-system of open standards and interoperability, both of which will be key factors in achieving true innovation across Fishermans Bend.

It is not anticipated that the requirement to implement these standards will necessarily represent an increase in costs to homeowners, developers etc. In fact it is anticipated that, over time, being smart ready will actually deliver cost saving for the Fishermans Bend community.

SMART METERING

PARKING

ENERGY GENERATION

ENERGY STORAGE

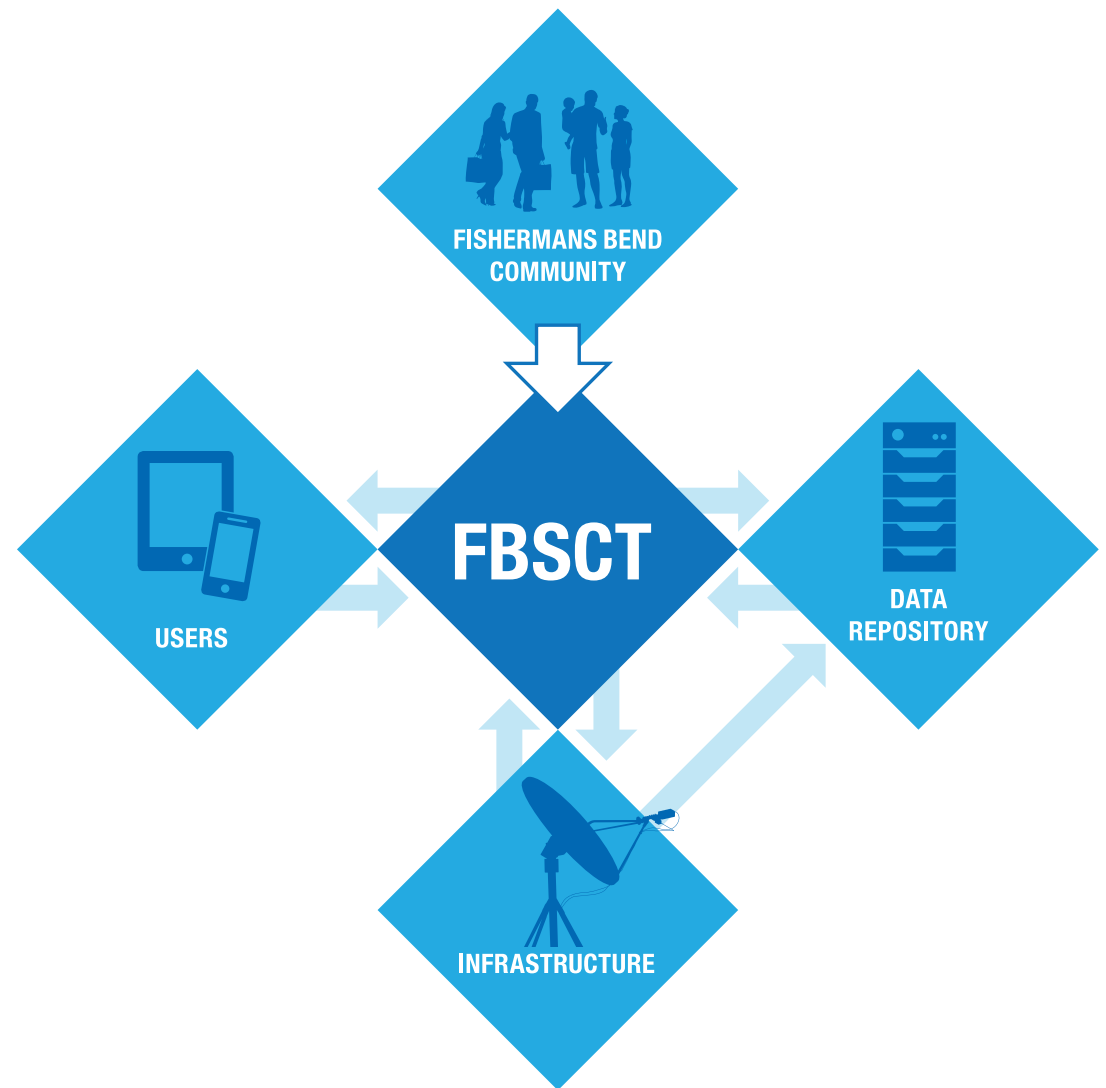STORMWATER ATTENUATION

RAINWATER HARVESTING

6.3 Establish Data Repository

Data is at the heart of the Fishermans Bend Smart City. The safe storage and management of data is therefore a critical component to ensure the success of Fishermans Bend as a smart city.

The Fishermans Bend Smart City Taskforce will have administrative responsibility for sourcing and management of a data repository for Fishermans Bend. This repository will be cloud based and will be a central storage facility for all data collected across Fishermans Bend.

Once established, the Taskforce will have an ongoing role to manage all aspects of data.

To allay any security or privacy concerns, the Fishermans Bend Smart City Taskforce will be responsible for establishing protocols and permissions in respect of data access and use.
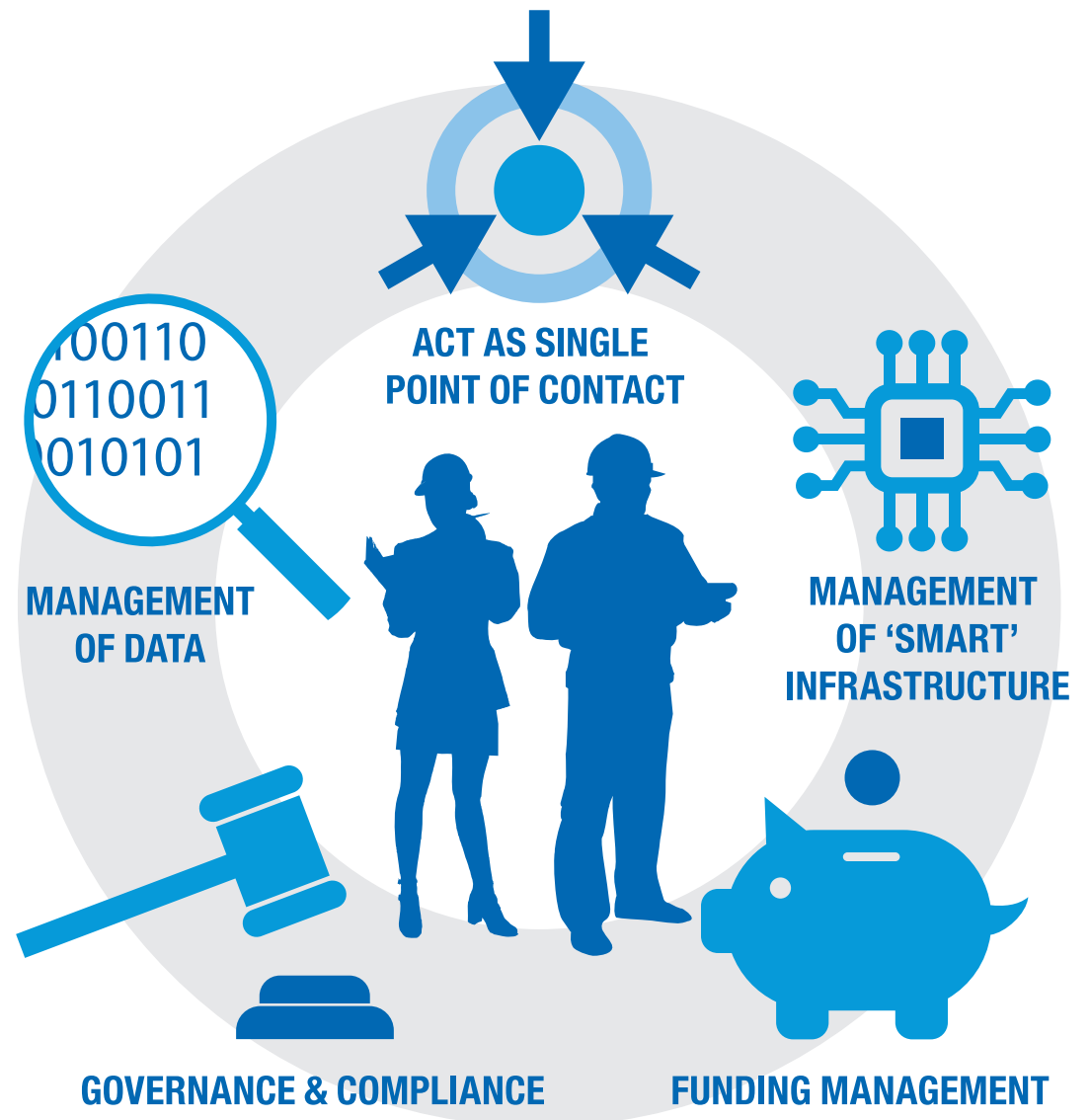

FISHERMANS BEND COMMUNITY

FBSCT

USERS

DATA REPOSITORY

INFRASTRUCTURE

6.4 Create a Smart City Taskforce

It is proposed to establish the Fishermans Bend Smart City Taskforce (FBSCT).

It is acknowledged that both the City of Melbourne and City of Port Philip and have a range of smart city initiatives within each of their respective administrative areas. The purpose of establishing the FBSCT is not to replicate this work but to build on it and create a focus specifically for Fishermans Bend.
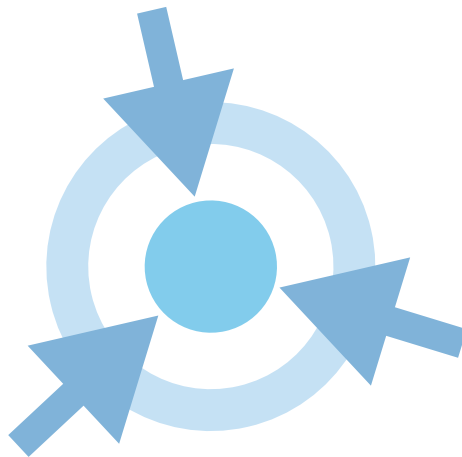
The FBSCT will comprise staff who are technically competent to deal with the day-to-day management of a smart city. They will have a number of core functions which are illustrated in the adjacent figure.

ACT AS SINGLE POINT OF CONTACT

MANAGEMENT OF DATA

MANAGEMENT OF 'SMART' INFRASTRUCTURE

GOVERNANCE & COMPLIANCE

FUNDING MANAGEMENT

6

Act as the Single Point of Contact

The FBSCT will act as the single point of contact for all matters relating Fishermans Bend Smart City. This will not only create focus for smart city activity but also ensure that any party wishing to collaborate in smart city initiatives has a clearly identified point of contact.

Management of Data

The effective and reliable management of data is critical to ensure that the privacy and security of data is protected in the public interest. This includes all aspects of data collection, storage and distribution and use.

The FBSCT will be responsible to ensure that all data, sensitive or otherwise, is managed appropriately and that the appropriate measures are implemented and maintained to ensure that data is used to influence positive outcomes for the Fishermans Bend community.

The City of Melbourne is also participating in the World Council on City Data (WCCD) ISO 37120 initiative which is the first standard on global city indicators. The collection of data across Fishermans Bend will be undertaken in accordance with this standard in support of this initiative.
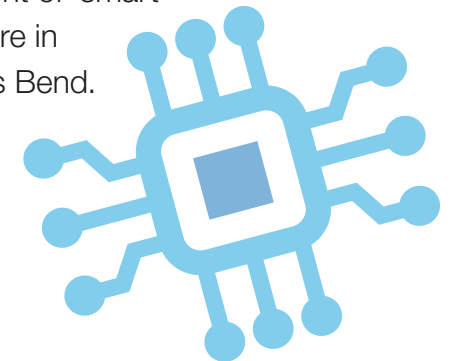
Management of 'Smart' Infrastructure

As smart infrastructure is established in tandem with the re-generation of Fishermans Bend there will be an increasing need to manage that infrastructure. This management may include, for example:

- Day-today operations
- Security/Privacy
- Maintenance, repair and upgrade
- Infrastructure Leasing e.g. to third parties

The FBSCT will take a lead role in the management of 'smart' infrastructure in Fishermans Bend.

6 Governance and Compliance

In a similar manner to our planning system, the Smart City Framework will need to evolve over time to adapt to the changing smart city environment. The Taskforce will play a key role taking lessons learnt and using that experience to ensure that the appropriate governance mechanisms are in place to enable Fishermans Bend to thrive as a smart city.

The Taskforce role will also include a level of oversight to ensure compliance. It is not intended that the Taskforce will act as a standalone enforcement agency but will work in collaboration with the existing enforcement instruments available at local, state and federal government level.
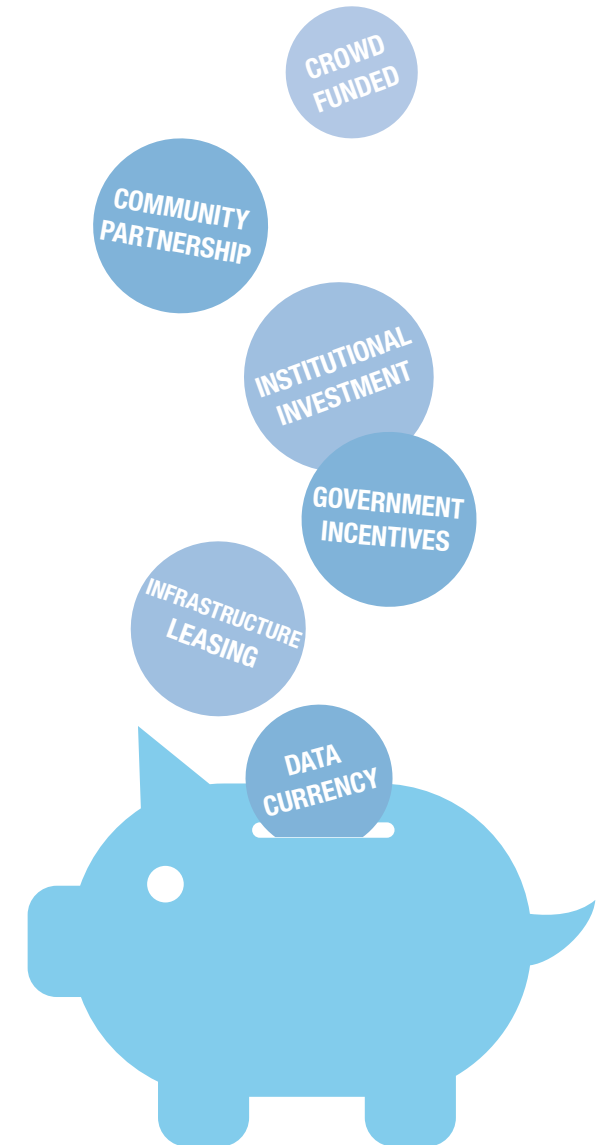
Funding Management

Funding will be necessary to support Fishermans Bend as a smart city. It is anticipated that funding will come from a range of sources

- Crowd funded
- Community Partnership
- Institutional Investment
- Infrastructure Leasing
- Government incentives
- Data currency

Funding will be driven by the spirit of partnership and collaboration with the FBSCT acting as the focal point for all investment in smart city initiatives in Fishermans Bend. The FBSCT will be responsible for creating conditions favourable for such investment.

CROWD FUNDED

COMMUNITY PARTNERSHIP

INSTITUTIONAL INVESTMENT

GOVERNMENT INCENTIVES

INFRASTRUCTURE LEASING

DATA CURRENCY

6.5 Facilitate a 'smart' eco-system

A number of key initiatives have been identified which will meaningfully contribute to the creation a smart city eco-system that will benefit the Fishermans Bend community.

These include:

- Establish a high capacity communication network
- Design public realm spaces to be smart-ready
- Reduce the bureaucratic burden for 'smart' initiatives
- Maximise the opportunity for data capture

6.5.1 Establish a high capacity communication network

For every 1 high tech job created it is believed that an additional 4 to 5 employment opportunities, comprising skilled and unskilled workers, are created. This is known as the cluster effect.

There is increasing evidence that the availability of high capacity communication networks is a fundamental requirement for major high tech companies and hence a key consideration for those companies when searching for new sites to set up facilities. A backbone high capacity communication network is therefore not only an essential ingredient for a successful smart city but also key to maximising the opportunity for employment in Fishermans Bend.

But the opportunity for Fishermans Bend does not stop at major high tech companies. It also creates opportunity for standalone small to medium size enterprise, incubators, residents etc. The high-capacity network will be available for all of the Fishermans Bend community.

The establishment of high capacity communication networks in Fishermans Bend will therefore be a key differentiator and selling point for Fishermans Bend. This measure alone could create the conditions for significant employment opportunities across Fishermans Bend.

6.5 Facilitate a 'smart' eco-system

6.5.2 Design the public realm to be smart-ready

Being 'smart-ready' is the idea that the infrastructure necessary to support 'smart' initiatives is in place and either operational or easily activated

The re-generation of Fishermans Bend presents a once in a generation opportunity to embed a set of design principles to ensure that Fishermans Bend is 'smart-ready' from the very outset.

These principles might include, for example, a requirement to:

- Only install light poles which have power and communications connectivity and can accommodate 'smart' infrastructure such as sensors, wi-fi points etc.;

- Test any landscaping proposal to ensure no adverse impact on wireless networks;

- Ensure any public realm development must deliver a 3D model which accurately represents all underground and overground features; and

- Ensure all streetscapes are autonomous vehicle ready.

The purpose of creating a smart–ready city is to establish an environment where innovation, which will ultimately benefit the Fishermans Bend community, can be readily established and supported.

6.5.3 Reduce the bureaucratic burden for 'smart' initiatives

Currently across Melbourne those wishing to establish smart initiatives can be required to apply to a range of authorities. These may include, for example, applications to power and communications providers as well as local government. This can be a significant administrative burden which can discourage potential investors and initiatives and as a consequence can stifle innovation and opportunity.

A function of the Fishermans Bend Smart City Taskforce will therefore be to act as the single point of contact for smart city programs and to work with the Fishermans Bend community to assist with establishing smart city initiatives.

This ability to provide an agile one-stop-shop will ensure Fishermans Bend is an attractive proposition for inward investment which will lead to employment and revenue generation opportunities across all precincts

6.5 Facilitate a 'smart' eco-system

6.5.4 Maximise the opportunity for data capture

The possibilities that stem from the availability of robust data sets across Fishermans Bend are countless. Data will be the currency of Fishermans Bends Smart City.

It is intended that Fishermans Bend will become a rich open data eco-system to provide a platform for data analysis that will ultimately create opportunity and derive a range of benefits for the Fishermans Bend community.

Robust data sets, however, do not just happen. They require an architecture to be established which facilitates and promotes effective data capture and dissemination.

Proactive measures will be established and will apply, through planning instruments, design standards etc., across the public and private domain which promote opportunity for data capture across Fishermans.

6.6 Engage the Community

The ongoing participation of the Fishermans Bend community will fundamentally underpin the success of the Fishermans Bend Smart City. It is therefore important that measures are established which ensure the community are engaged with, and instrumental in shaping, how their smart city should evolve. The Taskforce will be the focal point for the community to provide strategic direction in this regard
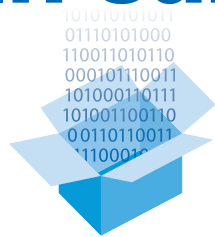
It is hoped that this ongoing engagement will build community trust through collaboration and create a harmonious environment for Fishermans Bend Smart City to thrive.

Some of the ways in which the community can participate in Fishermans Bend Smart City are shown in the adjacent figure.

7 In summary

Open data policy

Why

- Access for all
- Promote innovation
- Avoid inadvertent privatisation/ monopolisation of pubilc asset

How

- Implement policy which madates open data and standards across Fishermans Bend

Implement 'smart' design standards

- Create a 'smart' ready fishermans bend across the public/private domain

- Create mandatory design & performance criteria which standardise 'smart' infrastructure

Data repository

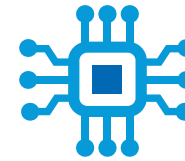- Local data management automony

- Establish data centre agreement with specified service level to the user community

Create a smart city taskforce

- Build trust
- Technical competence
- Capture benefits for Fishermans Bend

- Establish Taskforce whose responsibilties include:
  - Data management
  - Security and privacy
  - Liaising with 3rd party technology providers
  - Licencing/leasing
  - Community engagement
  - Policy advisory
  - Industry engagement

Facilitate a 'smart' eco-system

- Maximise employment opportunity
- Resilient community

- Reduce bureaucratic burden in establishing 'smart' initiatives
- Deliver high capacity & quality backbone infrastructure
- Create test-bed environment

Engage the community

- Community influenced 'smart' governance
- Participation by all
- Social licence

- Community reference groups
- Educational programs
- Tactical engagement
- Co-design
- Behavioural change

8 Next steps