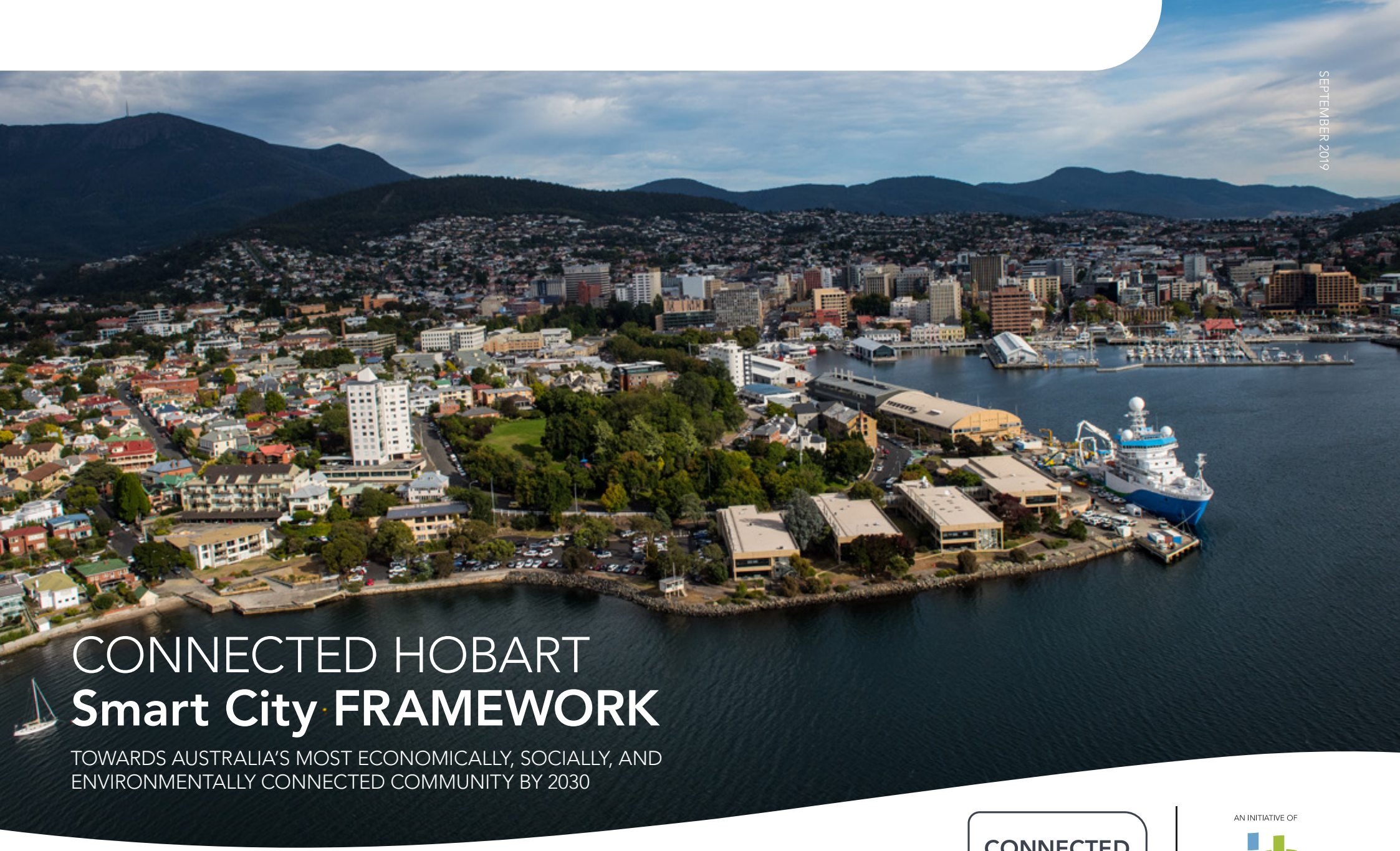

SEPTEMBER 2019

CONNECTED HOBART
Smart City FRAMEWORK

TOWARDS AUSTRALIA'S MOST ECONOMICALLY, SOCIALLY, AND ENVIRONMENTALLY CONNECTED COMMUNITY BY 2030

CONNECTED HOBART

AN INITIATIVE OF

City of HOBART

EXECUTIVE SUMMARY

TOWARDS AUSTRALIA'S MOST ECONOMICALLY, SOCIALLY AND ENVIRONMENTALLY CONNECTED COMMUNITY BY 2030

The Connected Hobart Smart City Framework lays out the architecture for Smart Cities decision-making in Hobart. It provides our definitions for the important components of a Smart City and what they mean for Hobart, so people will better understand the intent behind each significant infrastructure and innovation decision the City of Hobart makes. The framework responds to both exciting and challenging trends associated with the latest technology revolution.

STRATEGIC DRIVERS

New developments are changing the way core utilities operate. Age-old technologies are being digitised and transformed at revolutionary speed into three new networks – communications, energy and transport – where devices are increasingly connected. Aging city infrastructures can be upgraded or replaced with contemporary solutions that talk to us – and each other, anywhere in the world – through new data and information technologies. The stories they share can help us improve city, urban and metropolitan life in truly transformational ways.

SMART CITY ELEMENTS

Connected Hobart is about more than just technology. There are eight core elements that we can use to meet Hobart's needs.

1. **Hobart identity:** Hobart's approach is framed by Hobart identity, described in the community vision.
2. **Smart Cities definition:** Our Connected Hobart Smart City is one that combines human ingenuity with technological innovations to enhance quality of life for all.
3. **Challenges:** We need to understand the local, regional and national/global challenges communities face before enacting solutions.
4. **Partners:** We can't and shouldn't do this alone. Working closely with customers and partners is the only way to make sure the benefits of smart city projects are relevant and shared.

5. **Principles:** All technology choices say something about what we believe. We have outlined 10 principles for humans (Hobart communities) and five principles about technology, to help ensure ethical technology decision-making.
6. **Technology choices:** The latest and greatest is not necessarily the only or the best option. We need to consider a range of solutions to some of our most pressing concerns, and then decide how we use technology, assets and new civil infrastructure to help us.
7. **Data:** New technologies provide us with more data than ever before, but we need to ask the right questions and analyse it well for it to help make positive change.
8. **Programs:** Connected Hobart projects are aligned with eight programs, which align with the eight pillars of our community vision. They are themes that help us ensure everything we do is relevant to a part or parts of city life.

GOALS

Smart Cities is a means to an end, to enhancing quality of life for all in Hobart. That's why the goal of the Connected Hobart program is to help Hobart become:

AUSTRALIA'S MOST ECONOMICALLY, ENVIRONMENTALLY AND SOCIALLY CONNECTED COMMUNITY BY 2030.

Anyone making Smart Cities decisions in Hobart can use the Connected Hobart framework to make their work relevant, useful and reflective of our city's needs.

If you are interested in getting involved in Connected Hobart you can put forward a project or partnership idea. See page 13 for details.

Image Credit:
Cover, p. 17 – Alastair Bett
p. 29 – Natasha Mulhall
All other photos – City of Hobart

ACKNOWLEDGEMENT OF COUNTRY

In recognition of the deep history and culture of our city, we acknowledge the determination and resilience of the palawa people of Tasmania, who have survived invasion and dispossession and continue to maintain their identity, culture and rights. Australian Aboriginal people represent the world's oldest continuing culture. They have been designing and using technology in this place for more than 40 000 years, baking bread, building complex structures and studying the stars long before most others on the planet. We acknowledge that we have much to learn from Traditional Custodians here in Hobart as we move into the future.

MESSAGE FROM THE LORD MAYOR

Hobart is one of Australia's most remote and scenic capital cities.

Our environment embraces our city. It is surrounded by water and bushland and is known for having a more relaxed pace of life. But as an island city, it is also a place for inventive people, who have been able to use the resources at hand to create new, useful and exciting things to benefit residents and visitors alike.

Hobart was the first city in Australia to install electric trams. The first daguerrotype photo (the first photography process made easily available to the public) of an Australian scene was taken in Hobart. From Blundstone boots to Incat ferries, the region is home to many iconic brands and inventions that responded to the island's unique context.

Today, Hobart is a home to a range of niche technology companies and remote workers. Hobart is a place where new technologies have been invented and embraced for generations.

At a global scale, the current pace of change can be difficult to understand. It seems like new technologies are being invented almost daily, and they have big impacts on how we live our lives. People are feeling these impacts and so are cities and communities. The global development of Smart Cities, a concept that talks about how technologies are integrated into cities, is one trend that local governments are responding to. Being more connected creates many exciting opportunities but it also presents questions and challenges.

Hobart is at a turning point, as are cities around the world. We can wait for these changes to happen to us, or we can guide and respond to the opportunities of Smart Cities while working to reduce the risks and pitfalls. This means thinking of the people in Hobart first – hearing their needs and wants for their city – before considering whether and how new technologies might serve them.

Connected Hobart is the City of Hobart's response to the Smart Cities agenda. It is the first program of its kind for the city, and its Hobart-specific, place-based, people-first approach is unique in Australia.

Connected Hobart creates a framework for technology decision making that helps anyone with a new Smart Cities idea to think critically about what they hope to do, with the aim of leading to best quality of life outcomes for Hobart communities.

The Connected Hobart action plan shows what the City of Hobart plans to do to respond to Hobart's challenges as well as to trial some of the new technologies and approaches that just might have benefits for the people in our island capital.

On behalf of the elected members of the City of Hobart, I am pleased to share Connected Hobart and excited for what the future holds for Hobart.

Councillor Anna Reynolds, Lord Mayor

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WELCOME TO CONNECTED HOBART

A 'Smart City' is not a physical entity. You can't buy one. Nor is it about constructing a futuristic robotic metropolis.

Smart Cities is a very important, but conceptual, global movement – a blueprint for how we can face the challenges of the future.

It provides an approach for city administrators and service providers to address the most significant changes to the world's transport, energy and communication infrastructures since the Industrial Revolution of 1760 to 1840.

In those days, the power loom, machine tools and steam power were new inventions that revolutionised human societies. Now, we are seeing even more far-reaching changes.

New data and information technologies mean that aging city infrastructures can be upgraded or replaced with contemporary solutions that talk to us – and each other, anywhere in the world. Sensors can measure air quality, drones can assess conservation values in bushland, and artificial intelligence can help find and analyse information quickly. Networks of these sensors are called the Internet of Things (IoT). The stories these technologies share help us improve city, urban and metropolitan life in truly transformational ways.

This revolution provides opportunities to address the challenges and concerns that exist within our local neighbourhoods, businesses, schools and industries. Thousands of cities the world over are now turning their attention to developing their own Smart City strategies. But we need to guide these changes and respond well in our own context to make sure we create a safe, productive, inclusive and economically flourishing future. A place-based approach to Smart Cities will ensure Hobart continues to be a great place to live, work, study, and visit.

THIS CHANGE IS HAPPENING NOW, AND IT'S HAPPENING ON OUR WATCH.

Hobart is at a significant tipping point in its history. Local government is increasingly being asked to consider both local and global change, responding to what's happening now and planning for what could happen in the future. Government decision-making is often reactive but, with the data produced by Smart Cities infrastructure, there is an exciting opportunity to see the world a bit differently, to listen to our city in new ways.

Connected Hobart is the City of Hobart's response to the current trends and future possibilities of Smart Cities. The Connected Hobart program is a way of understanding how we will adapt to change, embrace new opportunities and channel the city's evolution towards positive outcomes for all Hobart communities.

Connected Hobart aims to pay homage to one of Hobartians' most treasured qualities about their city, that:

CONNECTIONS BETWEEN NATURE, HISTORY, CULTURE AND EACH OTHER ARE THE HEART OF OUR CITY.

Our Smart Cities decisions should reinforce, not undermine, what people most love about this place.

At the same time, communities and local government need to embrace the fact that the world will continue changing and that these changes will influence our lives. We want to use Smart Cities to make us actors, not observers, in that revolution.

Connected Hobart includes improvements to the way we operate as a council and how we partner and share resources and information. With these improvements, we can succeed for the mutual benefit of all stakeholders. But, as with the original transformative period of the Industrial Revolution, it will take time. Transforming the Hobart region's communications, energy and transport systems is a big feat. But we will take smaller and more visible steps along the way.

WELCOME TO CONNECTED HOBART.

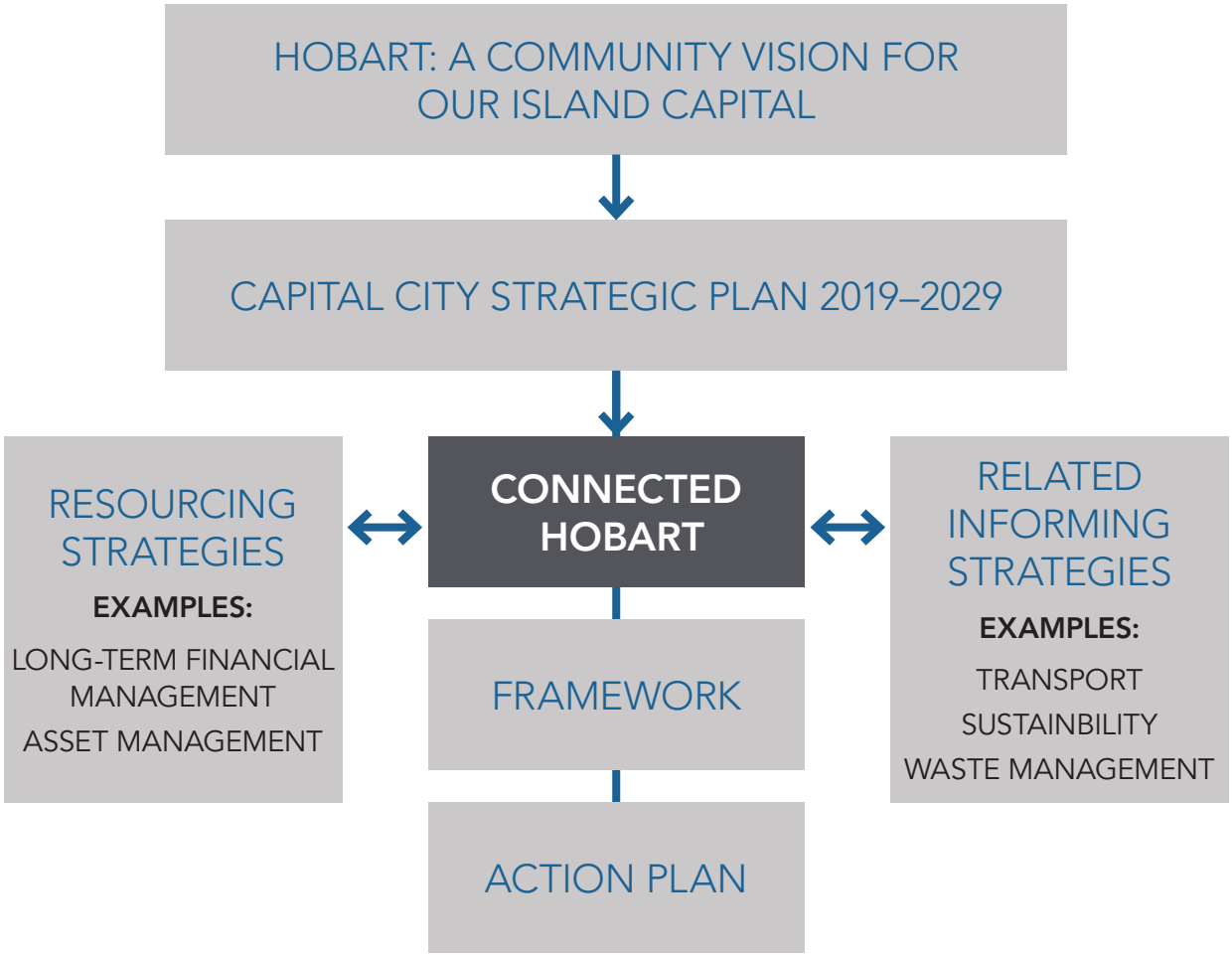
CONNECTED
HOBART

HOW CONNECTED HOBART FITS INTO THE CITY OF HOBART'S WORK

Connected Hobart is one of the major strategic programs at the City of Hobart.

In the City's Planning and Reporting Framework, Connected Hobart is a resourcing and informing initiative: it covers resources required to run City operations as well as providing specific goals and guidance on areas of work.

Technology supports work in every division, so Connected Hobart influences and is influenced by all of the City's functions, from infrastructure and assets to bushland management and creative programs.



WHAT WE LEARNED: RESEARCH AND COMMUNITY ENGAGEMENT

Connected Hobart is the product of over a year of research and engagement with stakeholders and community members.

Research included a review of existing City of Hobart strategies and Smart Cities strategies and initiatives from around the world. Resources on related topics, such as climate change, economic trends, global risks, and social trends, in particular to do with technology behaviour, were also consulted.

Community engagement included:

- four forums about Smart Cities trends (250+ attendees)
- a survey on the Your Say Hobart online engagement platform, with a mail-in postcard survey, asking about community members' definitions of and ideas for Smart Cities (241 responses)
- a second survey on the draft framework and action plan (41 responses)
- industry stakeholder conversations (22 major industry stakeholders, including the University of Tasmania and the Tasmanian Government)
- technology vendor conversations (over 30 vendors, including NBN Co., Cisco and Telstra)
- briefings with stakeholder groups (for example, the Youth Advisory Squad and the Access Advisory Committee)
- presentations at conferences and forums (for example, Melbourne Design Week and the Tasmanian Combined Principals Association Conference)
- workshops with staff from all divisions of the City of Hobart (50+ participants).

Over 3100 people visited the Connected Hobart information page on Your Say Hobart.

Strong messages we heard:

- the framework and action plan need to consider a range of topics important for Hobart today, such as transport, environment and climate, health, community, tourism, education, heritage and art
- Smart Cities is a complex concept that needs to be communicated in a way that is easy for people to understand
- ethics and long-term impacts need to be considered, for example, about people's privacy and the potential consequences of technology-related decisions
- the City needs to have clear plans for how Connected Hobart programs will be implemented and resourced
- partnerships with government, industry and community will be critical to Connected Hobart's success and relevance to Hobart communities.

A reference list can be found at www.hobartcity.com.au

It takes all of us, as Hobart custodians, to build a framework and action plan and make them work. The City of Hobart would like to express its gratitude to everyone who gave their time and thought to building a Connected Hobart, one that aims to be Australia's most economically, socially and environmentally connected community by 2030.

HOW TO GET INVOLVED

READ THE CONNECTED HOBART FRAMEWORK AND ACTION PLAN

The **Connected Hobart Smart City Framework** – this document – lays out the architecture for Smart Cities decision-making in Hobart. It provides our definitions for the important components of a Smart City and what they mean for the city so people will better understand the intent behind each significant infrastructure and innovation decision we make. The framework responds to both exciting and challenging trends associated with this latest industrial revolution and acknowledges the importance of dealing directly with this tension. It long-term, designed to guide thinking at the big picture level.

The **Connected Hobart Action Plan** is operational: the framework in practice, in the real world. It has over 50 specific projects. Some are large and some are small. All of them start to move us through this period of inevitable change and support the intent described in the Connected Hobart Smart City Framework. The action plan is a five-year document, reviewed every 12 months.

FOLLOW THE CHECKPOINTS

Successful Smart Cities are inclusive by nature. Ideas can come from anywhere – both from within the city government itself or directly from partners and the community – and we welcome them all.

So what can you do if you have an innovative or Smart Cities idea for Hobart?

Each part of the Connected Hobart framework has three questions to consider (in the boxes marked with lightbulbs).

These questions cover the critical parts of Smart Cities thinking. They are interrelated and should be considered at multiple stages of a project. Responding to them all helps make sure that the actions we take are customer-focused, community first – that they will support Hobart communities and improve quality of life in our city.

Answer each question to put the framework into action.

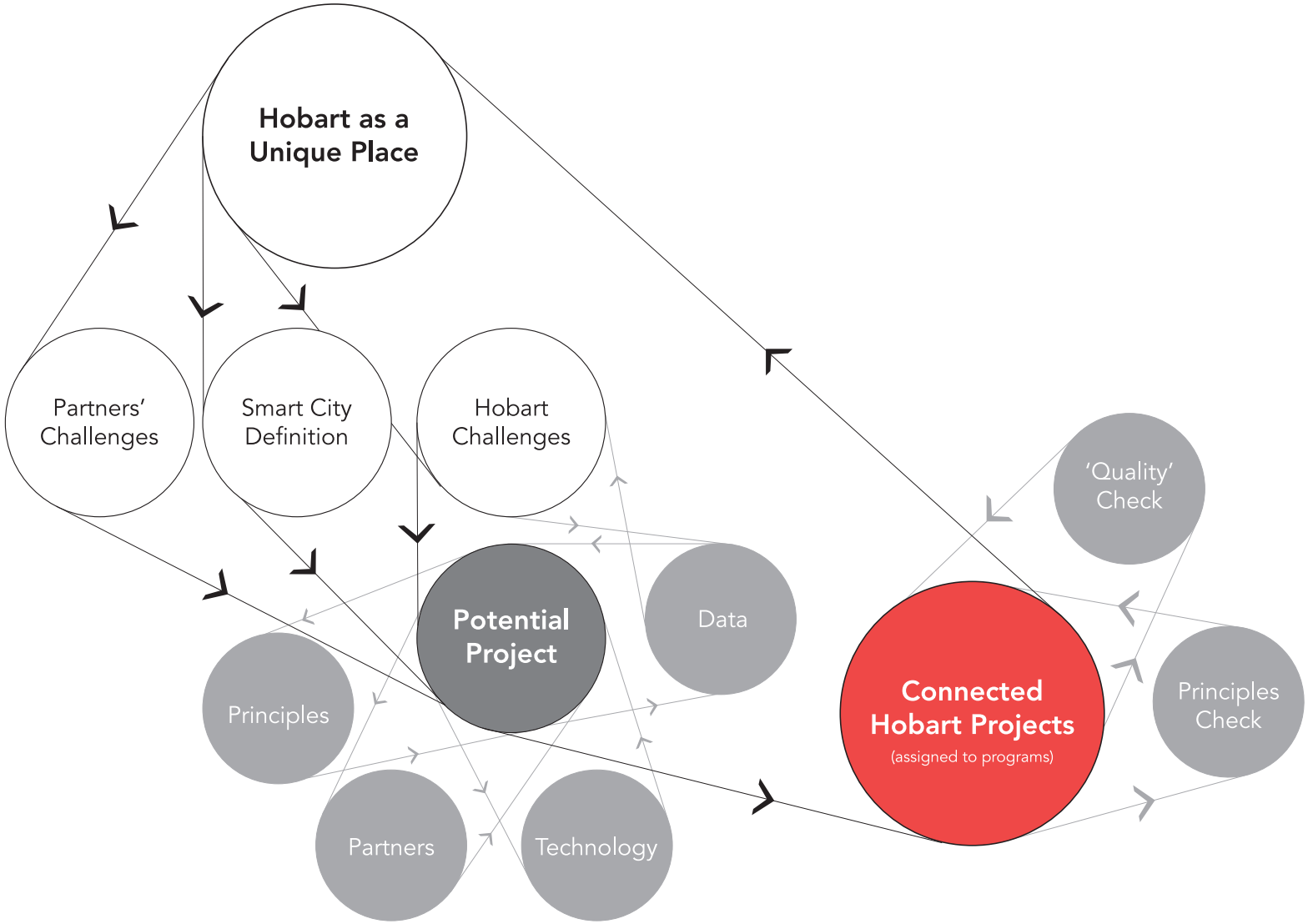
HOW TO GET INVOLVED

Are you a community member with an idea for your neighbourhood? A business or organisation with an initiative you'd like to partner on? A member of staff interested in collaborating on a new project to serve Hobart communities?

Get in touch with the Connected Hobart team at connectedhobart@hobartcity.com.au

The team can guide you on how your idea might fit with the Connected Hobart program.

CONNECTED HOBART FRAMEWORK



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HOBART IDENTITY

Our island capital is like nowhere else on earth. Hobart identity is something we aim to respect, enhance, share and evolve.

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SMART CITIES DEFINITION

Our Connected Hobart Smart City is one that combines human ingenuity with technological innovations to enhance quality of life for all.

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CHALLENGES

Smart Cities can help us find new ways to deal with some of our biggest challenges.

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PARTNERS

It takes collaborative relationships with community members and partners to maximise the benefits of Smart Cities.

CONNECTED HOBART ELEMENTS

PRINCIPLES

Every choice we make says something about what we believe; every Smart Cities choice should consider the best interests of our world.

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TECHNOLOGY CHOICES

Technology is part of what makes us human – but it is only a means to an end.

PAGE 28

BIG DATA STEWARDSHIP

Larger and larger data sets provide new insights into our world – but they are a precious resource that we must manage well.

PAGE 30

PROGRAMS

Our Smart Cities initiatives match up with the eight aspirational pillars in the community vision. They reflect what the people of Hobart want for their city.

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HOBART IDENTITY

CHECKPOINT

- How does your project reflect Hobart communities' values and aspirations for the future, as explained in *Hobart: A community vision for our island capital*?
- How does your project reinforce the objectives in the City of Hobart's strategic plan, which is the City's practical response to the community vision?
- How does your project help Hobart respond and contribute to our Smart Cities agenda in a Hobart way?

OUR ISLAND CAPITAL

Hobart is one of the most remote capital cities in the world, on the edge of an island on the edge of the Southern Ocean. It is a city whose borders are drawn by its waterfront and bushland, with kunanyi/Mt Wellington and the River Derwent as its most striking landmarks.

The Hobart region is home to tens of thousands of years of palawa people's – Tasmanian Aboriginal people's – continuing culture. Our city is also filled with heritage buildings and reminders of our more recent history. Our communities are known for their connectedness, and many people love Hobart's cultural life and smaller scale compared to other Australian capitals. Hobart is a Tasmanian city, and many Hobartians are proud of the creativity, inventiveness, resourcefulness and entrepreneurial spirit that the island is known for.

From those who have been in Hobart for generations to those who have only recently arrived, there is nowhere else many of us would rather live. Like any other city, it's not perfect, but Hobart is a special place, and it's home.

We have a responsibility to who we are and could be. We believe a strong state needs a strong capital. This identity is what we have the chance to enhance, share and evolve. It's what is at stake as we move into the future.

SMART CITIES DEFINITION

CHECKPOINT

- How does your project apply the Connected Hobart definition for Smart Cities?
- How does your project link to the Connected Hobart Smart City Framework?
- How does your project consider the overall goal of helping Hobart become Australia's most economically, environmentally and socially connected community by 2030?

A GLOBAL IMPERATIVE

Cities often adopt a Smart Cities agenda without deeply considering what they mean by the term, mainly because there is no easy definition for Smart Cities. To avoid confusion about what Smart Cities could mean for Hobart, we've kept it simple:

Our Connected Hobart Smart City is one that combines human ingenuity with technological innovations to enhance quality of life for all.

We're interested in an approach that understands that cities should not simply use modern gadgets and conveniences to become more efficient and economically competitive. We do not assume that simply adopting new technologies will solve urban problems or that cities require the newest and latest to be 'smart'.

While ensuring we do have adequate access and amenity to contemporary versions of the world's three core networks - communications, transport and energy - this kind of definition doesn't go far enough in assuring technology is just one part of a Smart City.

Other cities have defined Smart Cities more generally, arguing that a 'smart' city is one that can sustain its future and enhance quality of life. This wider definition is more inclusive of different perspectives and needs but unclear on what that involves.

In practice, a Smart City is the sum of many parts, and it must have all to succeed. At the City of Hobart, we've distilled this jumble of definitions and moving parts into three layers.

STRATEGIC DRIVERS

The global economy is, by definition, interconnected. And it is currently in the process of transforming much of the existing 19th and 20th century communication, transport and energy technologies that underpin modern society. These age-old technologies are being digitised and transformed at revolutionary speed into three new networks: the Communications Internet, the Energy Internet and the Transport Internet. Cities must adapt in order to continue operating city assets and infrastructure through the 21st century and into the 22nd.

SMART CITY ELEMENTS

Eight core components help a city to individualise and adapt the Smart Cities concept to its unique context. Together, they create a Smart Cities model for Hobart:

1. Hobart identity
2. Smart Cities definition
3. Challenges
4. Partners
5. Principles
6. Technology choices
7. Big data stewardship
8. Programs

These elements are where cities are finding the greatest opportunities to tailor Smart Cities to their communities, which is why this framework describes the elements in detail.

GOALS

Every city must have a clear objective that defines its destination, and how Smart Cities will take it there. Our objective for Connected Hobart is to be the most economically, environmentally and socially connected capital city community in Australia by 2030.

CHALLENGES

CHECKPOINT

- What Hobart 'problem' does your Smart Cities project solve?
- What global trends does it respond to?
- How does your project think beyond the obvious to what could be?

CREATING FUTURE HOBART

For all the great things about Hobart, there are challenges facing our city. Some of them have persisted over generations while others are just on the horizon. Others we don't even know about yet. Some are local impacts of global challenges and some are unique to us.

The City of Hobart's responsibilities go well beyond roads, rates and rubbish. Council needs to act for the wellbeing of the community, for today and the future.

LOCAL

There are many **challenges in our daily lives** that we will be better placed to solve through the Connected Hobart program. For example:

- How can we better manage waste?
- How can we maintain high air, water and road quality?
- How can we protect ourselves from fires, floods and other disasters?
- How can we make sure everyone has a safe walk, ride or drive to and from work or school?
- How can we enhance our night-time economy?

REGIONAL

Similarly, as part of a community of connected cities, the global reach of the Smart City concept means that Hobart will be able to collectively grapple with many **common big picture challenges** but within our own context. These include:

- How can we provide affordable housing for all?
- How can we welcome visitors to our city and still keep our sense of place?
- How can we bridge social and digital divides within our communities as technology advances?
- How can we increase usage of public and active transport and reduce traffic congestion?
- How can we manage Hobart's increasing role as a capital city, which has finite resources but also provides services for commuters and visitors?
- How can we support equitable growth across all the city's retail and urban precincts, and not just in the city centre?
- How will the Greater Hobart City Deal affect the Hobart region?

NATIONAL/GLOBAL

To better understand and deal with these issues, we have to think beyond how things are now and how we usually react. We need to think **about possible future challenges** and how we might respond, and what we can do differently and better, for example:

- How will we respond to cycles in the tourism and housing markets?
- How can we enhance the quality and health of our natural environment, especially in the face of climate change?
- What choices will we need to make about Hobart's bushland as natural disasters increase in frequency and intensity?
- What changes might we see in Hobart if there is an influx of new migrants?
- How will we respond if air travel and freight suddenly become prohibitively expensive?
- How will we respond to the changing revenue landscape for local governments?

None of these problems has a single, easy solution. But more importantly, conversations about how to solve them are being held in the new international language: data. Without having better information to understand our problems, we will have little guidance at home, and little chance of keeping pace with significant national and international communities.

Our partners are critical collaborators for this part of Smart Cities. They might identify problems that we didn't know about, or they might bring skills, products or other assets that we don't have. We have to work together to find creative ways to approach our challenges, especially if we want our solutions to improve quality of life in Hobart.

PARTNERS

CHECKPOINT

- Which customers does your project serve and how?
- Which collaborators will be involved and how?
- How does your project bring more than one stakeholder together and solve mutual 'problems'?

BENEFITS WE CAN ALL SHARE

Cities are complex ecosystems, involving many people and organisations.

True Smart Cities solutions are customer-focused, community first. They attempt to involve community members, government, industry and academia in the design process. They provide opportunities for everyone to step out of their own experiences and find ways to move forward together – especially where common challenges affect multiple communities, organisations or service providers.

Connected Hobart thinking recognises that, even though all these stakeholders might seem separate, many of our needs and motivations overlap. In many ways, we are all custodians of the same city. The complexity of the issues we face requires us to work together. Our shared challenges can be tackled once.

OUR CUSTOMERS AND COMMUNITIES

Connected Hobart has people at its core. And because Hobart is a state capital, our city has to constantly consider the needs of numerous customer groups including:

- Hobart residents and ratepayers
- Greater Hobart commuters
- visitors and tourists to Hobart and Tasmania
- Hobart businesses and their employees.

Within each of these groups, further shared interests connect people across family, cultural, business or professional, recreational, religious, political and neighbourhood communities. Each individual may also be a member of many overlapping communities. Our diversity as a city is important to consider in thinking about which customer group our many Connected Hobart initiatives aim to serve. Some will touch all, some many and others few. The important thing to remember is that our destination is the same: to serve the community's vision and to become Australia's most economically, socially and environmentally connected community by 2030.

OUR COLLABORATORS

In the new economy – where structural change across the world's transport, energy and communication infrastructures is digitally connecting us all – working with partners is no longer just a nice thing to do. It is a new imperative to ensure our individual decisions enhance rather than detract from the outcomes of others. New partnerships will allow the city to help each other solve problems that affect each of us and our shared customers. Through Connected Hobart, the City of Hobart will enhance its partnership programs beyond our existing relationships, including:

- state and regional local governments, including through our international relationships
- utilities and government business providers
- commercial technology providers
- businesses, their peak industry bodies and associations
- educational institutions and their student bodies.

New partnerships – be they collaborative, commercial or otherwise – have a key role to play in the Connected Hobart program.

OUR GOAL CAN ONLY BE ACHIEVED THROUGH ENHANCING THE SERVICES FOR AND EXPERIENCES OF THE PEOPLE INTERACTING WITH OUR CITY.

PRINCIPLES

CHECKPOINT

- What ethical position does your project take?
- How does your project reinforce the principles for the humanity?
- How does it reinforce the principles for technology?

THE BEST CHOICES FOR OUR CITY

Revolutions in society, like evolution in technology, push humankind to the edge of our abilities, creating things the world has never known. Thus, we need to monitor our motivations and make sure we have the world's best interests in mind.

We are pushing into the unknown and so need to consider the intended and unintended consequences of our actions. For example, who could have predicted the unintended consequences of social media? What kind of social, economic, or environmental impact could digitising and connecting the global energy grid have on our city? What are the consequences of a more automated workforce?

Smart Cities deal with technological change, with the potential to both create and resolve some of the world's most pressing ethical issues.

Every decision we make today involves technology on some level and thus shows our ethical position on technology decision-making. The Connected Hobart program operates within a set of principles that define and guide decision-making. Its initiatives reflect the hopes and fears about new and unknown things that we heard from the people of Hobart. And they reflect the current major debates about ethics in technology decision-making.

PRINCIPLES FOR HUMANITY

1. We connect innovation to values. Innovation is the execution of new ideas that create value for the city and are recognised by the community as important, relevant and timely. It is not all about shiny new things, which are just a means to an end. We aim to encourage the best and avoid the worst of technological advancement, acknowledging that we don't control everything.

2. We use new solutions to augment and enhance the human. People are indispensable. We consider how advances in society affect people's livelihoods and how people can flourish in a world that is increasingly uncertain. Our choices give people dignity, agency and control of their lives. New solutions help us to transcend our limitations but we remember what our lives would be like without technology. We gain skills rather than surrender our capacities to the machine. New solutions make our lives better, not just easier.

3. Our choices bring clarity and meaning. We create environments where truth can flourish, where people can learn to understand each other, rather than become divided by misinformation. Technology, assets and infrastructure – and the data they create – enable citizen engagement and awareness of important issues.

4. We live in the real world. Our experiences online translate to meaning in physical reality – and can seem indistinguishable. People become more instead of less connected. Innovation brings out the best in us. We are encouraged to interact with our environment, as actors not just observers. We consider that technological advances in society are happening at the same time as resilience in many natural and social spheres – globally and within our own communities – is decreasing. We respond to these needs.

5. We honour and protect people's privacy and attention. We ensure good governance, handling data like the precious resource that it is. We recognise that when people use connected assets and infrastructure, they trust that their data will be managed well. We help people understand what they're signing up for. We ensure that someone is always asking 'why'.

6. We don't try to remove all mystery from the world. We balance what is technically possible with what is socially desirable. We aim to make information accessible but not overwhelming. People need a sense of freedom and the unknown – some element of surprise – for life to be meaningful.

7. We use tension as a strength. Sometimes, we have to deal with tension in innovation decision-making, balancing one value with another, for example, by sacrificing some privacy for convenience. We balance our value of history and heritage with the desire and imperative to innovate. We are deliberate, methodical and intentional in how we make these choices. We consider unintended consequences.

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PRINCIPLES

CHECKPOINT

- What ethical position does your project take?
- How does your project reinforce the principles for the humanity?
- How does it reinforce the principles for technology?

THE BEST CHOICES FOR OUR CITY CONT.

8. We make innovation accessible, bridging the digital divide. Innovation has the potential to divide people and has done so many times in the past. It affects the ways people work, live, study and communicate, and the rapid pace of change can leave some feeling left out or left behind. We work to make sure people are included and able to keep pace with changes in technology.

9. We create opportunities for people to participate. We think of service and social change as a way of increasing meaningful participation in our city and the world. Anyone, not just experts, can collect and use data. We support citizen data scientists from all sectors, backgrounds, ages and demographics. We're in this together.

10. We work in partnership with people and organisations. Many of our problems are shared problems, with shared solutions. Wherever possible, we work with businesses, community, government and academia to learn and act.

PRINCIPLES FOR TECHNOLOGY

1. We will ensure smart technology is actually smart. From procurement to managing and integrating data between systems, we will make sure different technology systems work together. Our commitment to interoperability will ensure that Council investments in smart technologies are well made and user experiences are above expectations.

2. We will share the benefits of smart technology. Technology can enable a better future for all kinds of people and organisations, whether in government, businesses or across Hobart's neighbourhoods. All of us can learn through trial and testing, by sharing open data, or by enshrining the value of personal trust and security in every decision. We will make sure every opportunity is beneficial to more than just the City or a single user group.

3. We will plan using smart data, with the result in mind. Data will drive our decision-making. We will take the time to research and find the right questions to ask. We will take a scientific approach, testing hypotheses rather than working from assumptions. We won't be able to predict the outcome but that's the point: we are open to being surprised by the results and flexible enough to change as we discover new things about our city. Technology-enabled data will improve our ability to sense and respond to, or predict and act on, Hobart's ever-changing needs.

4. We're agile. The ability to truly innovate and make progress requires acknowledging and learning from success and failures. We will fail fast and succeed fast but in a structured and manageable way.

5. We will ensure smart technologies demonstrate forward flexibility. The City will avoid proprietary and closed systems and unintended supplier lock-in. These innovation inhibitors quickly change agile organisations into rigid businesses, costing self-driven strategic direction and operational control.

TECHNOLOGY CHOICES

CHECKPOINT

- What technologies does your project involve?
- How has your project balanced optimism and caution about new technologies?
- What new problems might your project create?

WHAT MAKES US HUMAN

To really understand Smart Cities and what it could mean for Hobart, we need to think about two of the core components: technology and the data we get from it.

The dictionary definition of technology is: 'a practical application of knowledge, a way of accomplishing a task'.

When we think of technology today, more recent inventions like smartphones and social media come to mind. But technology is really any tool that humans use to help us get things done. We still get daily benefits from tea towels and push bikes, even though more advanced alternatives exist.

In thinking about using technology to solve a problem, we need to think about whether the most advanced solution is really the best solution, and what new problems the solutions themselves could create.

We are living in a time of notable speed and scale of change. Although humans have been creating and adapting to new technologies since we have existed as a species, today these advances are leading to far-reaching questions about what they mean for our future.

Some of us are very optimistic about what new technologies could do for us. They can save us time and bring convenience to our lives. They can make complicated tasks simpler and easier. They can offer solutions to problems we've never been able to solve. They can provide security and instant connection to people and information. They can give us freedom and bring a bit of magic to our lives. They can reduce costs. They are the next logical step in human evolution.

Some of us are more cautious about new technologies. They can take our time instead of saving it. The solutions they present can create new, unintended problems. They can be second-rate substitutes for more meaningful interactions and experiences. They make simple things complicated and create new risks and vulnerabilities. They can take away our privacy and our ability to do even simple tasks ourselves. They can cost a lot. They can undermine our humanity.

Many of us sit between these extremes and maybe believe a bit of each. This tension is healthy for our society: we need both in order to progress in ways that add value to the world.

As such, this framework is not just about the technologies that will come to sit atop the world's new communication, transport and energy internets. It is about how we make decisions about potential solutions to some of our most pressing concerns, and in what ways we use technology, assets and new civil infrastructure to help us.

BIG DATA STEWARDSHIP

CHECKPOINT

- What data will be collected as a result of your project?
- What systems for analysing and protecting the data have been or will be put in place? Are they appropriate and effective for your project?
- How will the data be explained and shared so that all different kinds of people can understand, learn from and use it?

BRINGING NEW INSIGHTS

Many recent advances in technology have dramatically increased our ability to collect information in the form of data, especially using sensors (devices that detect and measure or respond to a stimulus, such as light, sound or movement) and the internet.

Sensors are increasingly embedded in everything from smartphones to rubbish bins. Using network technology, sensors can transmit all kinds of data about things such as movement patterns and air quality. They make it possible to talk to things and for those things to talk to us. Unsurprisingly, then, these networks of sensors are called the Internet of Things (IoT).

Although these devices are capable of collecting and producing information in the form of computer data, it doesn't mean much unless we ask the right questions about it and analyse it in ways that are relevant to the context where the lessons will be applied.

Data by itself is an unrefined product and needs to be analysed well in order to lead to any meaningful insights that can help drive change and find solutions to our challenges. It also needs to be balanced with people's lived experiences of the City and how it works.

The capacity for data to provide insights, and thus more relevant products and services, makes it extremely useful and valuable to cities. And the widespread use of sensors and the internet means that there is more of it than ever before, and that there is highly detailed information about groups of people and even individuals.

In particular, there are many ways to create and share geospatial data – data that links information with specific locations. Geospatial data is especially important for Smart Cities because it helps drive change in and across particular urban locations while also being easier for the public to consume compared to spreadsheets and reports.

The value, abundance and detail of the kind of curated data we now have makes it a precious resource that can transform how we live, work and learn. But we also need to handle it with care and make sure we use and store data in ways that lead to positive outcomes for individuals and communities across Hobart.

STAGG

PROGRAMS

CHECKPOINT

- Which Connected Hobart program does your project belong to?
- How does your project reflect the corresponding pillar of *Hobart: A community vision for our island capital*?
- What other pillars might it reflect?

ACTION PLAN

Futuristic cities are being built right now. But that's not what the Connected Hobart program is about. It is about preparing our city for the future. Some of that will involve the structural reform to our existing assets and infrastructure that contemporary communities expect of their city governments. And there are many ways that Smart Cities technologies can help us address improvements to traditional rates, roads and rubbish problems while also keeping an eye on some of Hobart's major challenges.

Hobart: A community vision for our island capital was created in collaboration with Hobart communities and businesses, and spells out what people want for their city. As a city, our future is tied to that vision, so it is fitting that Connected Hobart's many initiatives be tied to the vision, as well. Accordingly, we have aligned our Connected Hobart programs with the pillars and aspirations outlined in the vision with specific projects for each program subsequently described in the *Connected Hobart Smart Cities Action Plan*.

Smart Cities good practice can't be learned from a book. Nor can we sit by, as a capital city and watch and learn from others. That hasn't always worked well for Tasmania in the past. Innovation involves adopting and trying and sometimes failing at new things together – hence the focus on trials and targeted initiatives unique to our city.

1

CONNECTED PLACES

Initiatives that contribute to and are inspired by Hobart's strong sense of place, extending and capitalising on Hobart's unique attributes, targeting built environment investment and improving planning.

COMMUNITY VISION STATEMENT PILLAR 1 SENSE OF PLACE

We are a city of unique beauty, environment, heritage and people, built on a shared sense of ownership, pride and wonder. This spirit of place has been shaped by Tasmanian Aboriginal people for tens of thousands of years and continues to be shaped by all who have called Hobart home. It is developed jointly by community, private enterprise and government, valuing and enhancing our Hobart identity.

2

CONNECTED COMMUNITIES AND SAFETY

Initiatives that enhance social equity for Hobart communities, focusing on public safety and security, consumer and people-centred projects and community-driven innovation.

COMMUNITY VISION STATEMENT PILLAR 2 COMMUNITY INCLUSION, PARTICIPATION AND BELONGING

We are an island capital city that is socially inclusive and coherently connected, whose people are informed, safe, happy, healthy and resilient.

3

CONNECTED CREATIVITY

Initiatives that deliver creative and interactive experiences for Hobart communities, celebrating Hobart culture and drawing on Tasmania's inventive spirit.

COMMUNITY VISION STATEMENT PILLAR 3 CREATIVITY AND CULTURE

We are a city connected, embracing our diverse communities in cultural expression and creative and artistic participation; a city that enhances our homes, lifestyles and heritage; a city that bravely puts its people first.

CONTINUED ON NEXT PAGE

PROGRAMS

CHECKPOINT

- Which Connected Hobart program does your project belong to?
- How does your project reflect the corresponding pillar of *Hobart: A community vision for our island capital*?
- What other pillars might it reflect?

ACTION PLAN

4

CONNECTED VISITORS AND INDUSTRY

Initiatives that connect commuters, tourists and merchants, creating new ways of navigating and spending time in the city and providing support to Hobart's Smart City ecosystem.

COMMUNITY VISION STATEMENT PILLAR 4 CITY ECONOMIES

We are a city whose economies connect people, businesses, education and government to create a high-quality lifestyle in a thriving and diverse community. Our city is our workshop. We collaborate, embracing ideas, inventiveness and initiative.

5

CONNECTED TRANSPORT

Initiatives helping to prepare Hobart for the future of transport, including contributing to ways of addressing mobility-congestion problems and reducing sole-reliance on the automobile and carbon fuels.

COMMUNITY VISION STATEMENT PILLAR 5 MOVEMENT AND CONNECTIVITY

We are a city where everyone has effective, safe, healthy and environmentally friendly ways to move and connect, with people, information and goods, and to and through spaces and the natural environment. We are able to maintain a pace of life that allows us to fulfil our needs, such as work, study, business, socialising, recreation, accessing services, shopping, entertainment and spending time with loved ones.

6

CONNECTED ENVIRONMENT

Initiatives that enhance and operationalise regulatory responsiveness, disaster minimisation and compliance enforcement, and improve the lives of citizens through increased awareness of the City's environmental and sustainability goals.

COMMUNITY VISION STATEMENT PILLAR 6 NATURAL ENVIRONMENT

We are a city whose people see ourselves as part of a beautiful and unique natural environment, from the mountain to the river, which embrace us and shape our identity. We are proud custodians and advocates, ensuring resources are appreciated rather than wasted, supporting biodiverse ecosystems in honour of past, current and future generations.

7

CONNECTED INFRASTRUCTURE

Initiatives that prepare the city for new and more efficient operational delivery models in the face of rapidly increasing requirements for services and population growth.

COMMUNITY VISION STATEMENT PILLAR 7 BUILT ENVIRONMENT

We are a city that maintains our unique built and ecological character, where we all have a safe, secure and healthy place to live. We are a city where people and communities can access world-class services and infrastructure and provide for their social, cultural and economic wellbeing. We embrace change but not at the expense of our Hobart identity and character.

8

CONNECTED GOVERNMENT

Initiatives that transparently communicate data to the community while protecting personal data and preserving individual privacy, and that improve governance and operations at the City of Hobart.

COMMUNITY VISION STATEMENT PILLAR 8 GOVERNANCE AND CIVIC INVOLVEMENT

We are a city of ethics and integrity. We govern with transparency and accountability, encouraging and welcoming active civic involvement. We collaborate for the collective good, working together to create a successful Hobart.

GLOSSARY

KEY TERMS ABOUT PLANNING AT THE CITY OF HOBART

Action plan

A detailed plan outlining the specific actions that will be taken to meet a goal or goals.

Checkpoint

A stage of reflection and assessment in the lifecycle of a project or initiative.

Community vision

The City's highest-level strategic document, called *Hobart: A community vision for our island capital*. It articulates community values about and aspirations for Hobart now and into the future, based on in-depth engagement. The vision is critical for ensuring that the City's work aligns with what is important to Hobart communities.

Framework

A structure and system used to guide planning, decision-making and implementation.

Implementation plan

A plan outlining how actions will be undertaken, including details about timing, resources and other operational aspects.

Pillars

The major aspects of city life, used in the community vision and the strategic plan.

Programs

A group of projects or initiatives about the same general topic.

Strategic drivers

The forces shaping the direction an organisation chooses to take.

Strategic plan

The City of Hobart's primary planning document, outlining the outcomes we aim to achieve over a 10-year period, in response to the community vision. It is required under the Local Government Act 1993 and must be reviewed every four years.

KEY TERMS ABOUT SMART CITIES

Architecture

A concrete view or outline of how different parts of a technology system fit together. Putting together a clear technology architecture helps make sure that all hardware, software, information management and other systems components work together smoothly and efficiently.

Artificial intelligence (AI)

The ability of a computer or robot to perform tasks ordinarily associated with humans, for example, reasoning and learning from past experience. AI currently performs best on clear-cut, repetitive tasks where performing the same action again and again can help AI algorithms learn and improve. Examples include medical diagnosis, voice recognition, chess and video analysis. Artificial intelligence is allowing computers to perform increasingly complex tasks.

Automation

Tasks undertaken by machines without human intervention. Automation is a step beyond mechanisation, where machines replace human labour but still require human input. With new developments in technology, automated systems can perform tasks beyond what humans would be able to accomplish, increasing performing cognitive rather than manual tasks.

Big data

Extremely large data sets that may be analysed using computers to reveal patterns, trends and associations.

City analytics

The measurement, collection, analysis and reporting of data about a city for the purpose of optimising services and experiences and the environments in which they occur.

Co-design

A design approach where the people affected by a particular project or issue have direct involvement in influencing outcomes. Sometimes called 'participatory design', co-design has a strong focus on facilitation and partnership between decision makers and the people who will be affected by the project. An example is a collaboration with community members to upgrade a precinct where they live or run a business, where they can provide input on how they use the space and other aspects.

Data

Information collected for use, especially to inform decision making. Data can involve numbers (quantitative) or observations that can't be measured (qualitative). Smart cities technologies collect mainly quantitative data, which can be used alone or with qualitative data to guide decision-making.

Digital infrastructure

Foundational services necessary to the information and technology capabilities of a city or region.

Innovation

The translation of new ideas into reality, in ways that create value and are recognised by the community as important, relevant and timely.

Internet of things (IoT)

Objects containing sensors connected over networks, which can send and receive data. The Internet of Things involves sensors embedded in often everyday objects (such as light poles, parking spaces and smartphones), and the data that is transferred is typically stored on cloud-based platforms where the data can be viewed and analysed. The Consumer Internet of Things (CIoT) refers to the same type of systems but for private individuals, rather than Smart Cities.

GLOSSARY

KEY TERMS ABOUT SMART CITIES

Machine learning

Rather than following a fixed set of instructions, machine learning algorithms can modify or re-write themselves as they process data, to improve their performance and accuracy. Examples of machine learning algorithms can be found in web-based services that offer recommendations based on viewing and purchase history, such as Amazon and Netflix.

Open data

Data that is made publicly available and can be freely accessed and used by anyone. New sources of open data are invaluable for solving our long- and short-term challenges. Privacy can be protected by making data anonymous as long as systems are in place to make sure that people's identity can't be discovered.

Public realm

The streets, squares, parks, green spaces and other outdoor places that require no key to access and are available, without charge for everyone to use and should not be seen in isolation but in the context of its adjacent buildings, their uses and its location in a wider network of public and private space.

Sense of place

People's relationships, connections and bonds with places. Sense of place evolves through culture, history, environment, economics, politics, geography and all kinds of other interactions between humans and their environments.

Sensors

A device that measures a physical property and then records and/or responds to it. Sensors require an input, such as light, heat, motion, moisture, location, pressure or other aspects of the environment. The typical smartphone contains more than 10 sensors.

Smart City asset

A traditional city asset – like a building, a light, or a road – that uses sensors and automated controls to manage its operations.

Smart devices

An electronic device that can connect to other devices or networks, using wireless technologies such as Wi-Fi and Bluetooth.

User

The person or entity using a product, service or system. The term 'user' is most often associated with people or customers engaging with technology.


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