

Sunshine Coast Council

# Smart City Framework and Implementation Plan

2022-2025



**Sunshine Coast**  
COUNCIL

**Smart City**  
The future is now.

# Glossary

Term	Definition
4th industrial revolution (also known as Industry 4.0)	Refers to the marriage of physical assets and advanced digital technologies (Internet of Things, artificial intelligence, robots, drones, autonomous vehicles, 3D printing, cloud computing, nanotechnology, and more) that communicate, analyse, and act upon information, enabling organisations and communities to be more flexible, responsive and make more intelligent, data-driven decisions. <a href="http://www2.deloitte.com/content/dam/Deloitte/de/Documents/human-capital/Deloitte_Review_26_Fourth_Industrial_Revolution.pdf">www2.deloitte.com/content/dam/Deloitte/de/Documents/human-capital/Deloitte_Review_26_Fourth_Industrial_Revolution.pdf</a>
Actuator	A device that moves or operates a machine or system, eg a valve.
Analogue	Pre digital.
ArcGIS	Cloud-based software to create and share interactive web maps.
Data driven decision making	Data analysis that extracts value and meaning for enhanced decision-making using predictive, decisive, descriptive, prescriptive, and diagnostic data.
Data mining	The process of uncovering patterns and other valuable information from large data sets.
Digital twin	A virtual replica of a physical object or environment used to run simulations before it is built and deployed.
Digital innovation solutions	Provide highly accurate information about how the community is using the region to inform council's planning and management of our networks and how we provide services to the region.
Enabling physical digital infrastructure	Infrastructure that supports digital technology, including multi-function poles, sensors and devices.
Enabling non-physical digital infrastructure	Software systems that support digital technologies, such as platforms and dashboards.
Geographic Information System (GIS)	A system that creates, manages, analyses, and maps geographical data.
Internet of Things (IoT)	A network of interconnected sensors and devices which collect and exchange data through the internet. These devices are connected wirelessly and can be remotely monitored and controlled.
Long Range Wide Area Network (LoRaWAN)	Wireless communication allowing IoT devices to communicate over large distances with minimal battery use as they send small amounts of data infrequently.
Open data	Information that anyone can find, explore and reuse.
Power BI	An online platform that creates and shares interactive data visualisations.
Sensors	Sensors can warn of potential problems, allowing businesses to perform predictive maintenance and avoid costly downtime. Data from sensors can also be analysed to provide insights into crucial trends and make informed evidence-based decisions.
Smart city	Term used since early 2000 to describe the fourth industrial revolution (digital) solutions in urban cities and regions.

Edition JULY 2022

[sunshinecoast.qld.gov.au](http://sunshinecoast.qld.gov.au)

07 5475 7272

© Sunshine Coast Regional Council 2009-current.

Sunshine Coast Council™ is a registered trademark of Sunshine Coast Regional Council.

## Disclaimer

Information contained in this document is based on available information at the time of writing. All figures and diagrams are indicative only and should be referred to as such. While council has exercised reasonable care in preparing this document it does not warrant or represent that it is accurate or complete. Council or its officers accept no responsibility for any loss occasioned to any person acting or refraining from acting in reliance upon any material contained in this document.

## Acknowledgements of Country

Sunshine Coast Council acknowledges the Kabi Kabi peoples and the Jinibara peoples and recognises that the Sunshine Coast local government area has always been a place of cultural, spiritual, social and economic significance to its Traditional Custodians. Council is committed to working in partnership with Traditional Custodians and the First Nations community to support self-determination through economic and community development.

## Acknowledgements

Council wishes to thank all contributors and stakeholders involved in the development of this document.

# Contents

<p><b>1</b></p> <p><b>Introduction</b></p> <p>1.1 SCF 2022 purpose statement</p>	<p><b>2</b></p> <p><b>Why we need a Smart City Framework</b></p>	<p><b>3</b></p> <p><b>Our achievements since the first Smart City Framework</b></p> <p>3.1 Enabling digital infrastructure</p> <p>3.2 Connectivity</p> <p>3.3 IoT sensors and actuators</p>	<p><b>4</b></p> <p><b>Learnings</b></p> <p>4.1 Industry</p> <p>4.2 Organisation</p> <p>4.3 Smart City Framework 2016-2021</p> <p>4.4 Implementation Plan</p>	<p><b>5</b></p> <p><b>Smart city references in council plans and strategies</b></p> <p>5.1 Corporate Plan 2021-2025</p> <p>5.2 Operational Plan 2021-2022</p>	<p><b>6</b></p> <p><b>Principles for an innovative data driven region</b></p>	<p><b>7</b></p> <p><b>Priorities and pathways</b></p> <p>7.1 Leadership</p> <p>7.2 Advanced digital technologies and innovation</p> <p>7.3 Connectivity</p> <p>7.4 Data driven decision making</p> <p>7.5 Solutions Pipeline and business value model</p>	<p><b>8</b></p> <p><b>Measuring success</b></p> <p>8.2 Success measures</p>	<p><b>9</b></p> <p><b>Appendix</b></p> <p>9.1 Smart City Framework - Implementation Plan 2022-2025</p> <p>Year 1 (2022-2023) Implementation Plan</p> <p>Year 2 (2023-2024) Implementation Plan</p> <p>Year 3 (2024-2025) Implementation Plan</p>	<p><b>14</b></p> <p><b>18</b></p> <p>18</p> <p>21</p> <p>21</p> <p>22</p> <p>24</p> <p><b>26</b></p> <p>27</p> <p><b>28</b></p> <p>28</p> <p>28</p> <p>33</p> <p>34</p>
--	--	---	--	---	---	---	---	--	---



# Introduction

Council adopted the Smart City Framework (SCF) in 2016, focusing on the development of enabling infrastructure for the new Maroochydore City Centre and key regional nodes. Many of those new infrastructure specifications are now routinely included in council capital works.

## 1

This next SCF and Implementation Plan emphasises the selective use of emerging technologies and data to increase performance in our strategy development and service delivery.

Council uses information and communications technology to connect people, data actuators and sensors to provide improved evidence for strategic development, service delivery and quality of life, stimulate economic growth, and ensure environmental sustainability.

Selective digital systems and services provide effective and improved efficiency to:

- Provide data driven planning and policy development.
- Improve asset use, maintenance and often extend renewal timelines to deliver savings.
- Support enhanced service delivery, scheduling and responses.
- Help design better public spaces and create cleaner, more liveable urban areas.
- Alignment with Digital and Information Services Run, Grow and Transform approach

Council actively seeks to continue to harness the benefits of digital modernisation for our region through the SCF 2022. Innovative technologies and data driven decision making help us deliver more efficient services and improve residents' lifestyle, while realising our vision to be Australia's most sustainable region – healthy, smart, creative.





## 1.1 | SCF 2022 purpose statement

This Smart City Framework identifies the elements necessary to achieve a successful and integrated program of digital solutions and business services for our region.

The SCF 2022 reflects the initial focus set out in 2016, and acknowledges the profound influence the fourth industrial (digital) revolution has on the competitive advantage of a workforce.

The long and short of the digital revolution<sup>1</sup> describes digital transformation resulting from a general-purpose technology:

---

One that has the power to continually transform itself, progressively branching out and boosting productivity across all sectors and industries. Only three previous technologies earned this distinction: the steam engine, the electricity generator, and the printing press.

---

The SCF 2022 purpose refines smart messaging to reflect the need for council to innovate, invest in digital infrastructure, and coordinate digital work programs across all business services.



PURPOSE STATEMENT



This Smart City Framework identifies the elements necessary to achieve a successful and integrated program of smart and connected services for our region.



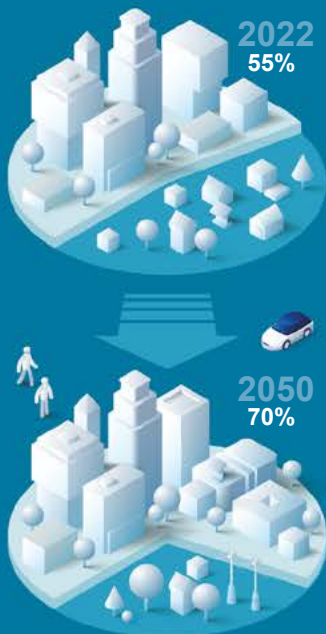
<sup>1</sup> International Monetary Fund, Finance and Development, June 2018.

# Why we need a Smart City Framework

Cities are places where people come together to live, collaborate, and create.

## 2

World population living in cities



The SCF provides council with the ability to proactively address two major challenges:

- Manage population growth and tighten resource scarcity.
- Manage the emerging challenges and opportunities of the fourth industrial (digital) revolution.

Cities are places where people come together to live, collaborate, and create.

About 55% of the world's population lives in cities, and this number is expected to increase to 70% by 2050. Cities also contribute 80% of global Gross Domestic Product. These significant implications highlight how critical it is that we get our city making policies right.

Cities are better placed to meet our communities' needs. These include jobs, human services, growing social capital and improving sustainability. They lead the development and re-invigoration of inclusive, safe, productive, sustainable, and resilient cities.

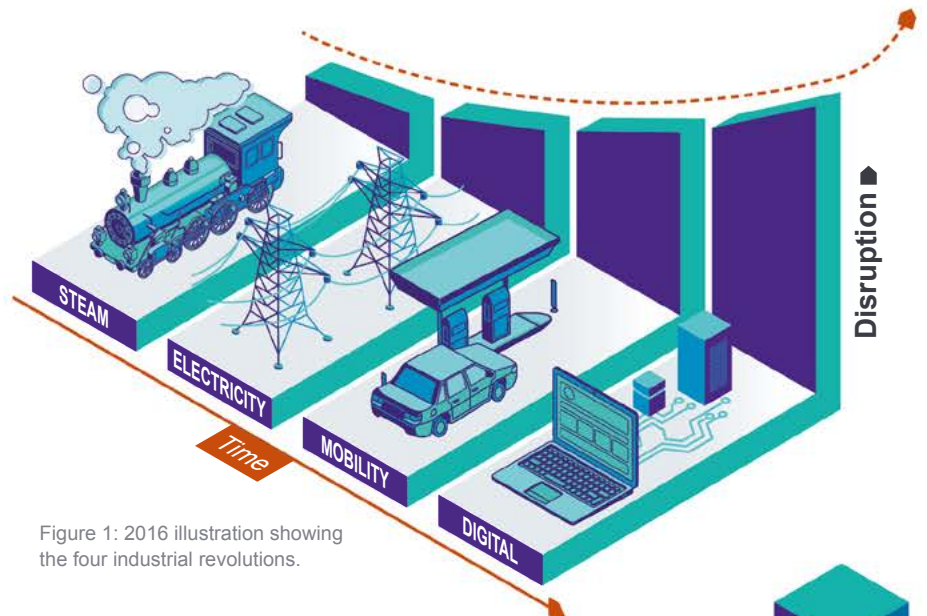
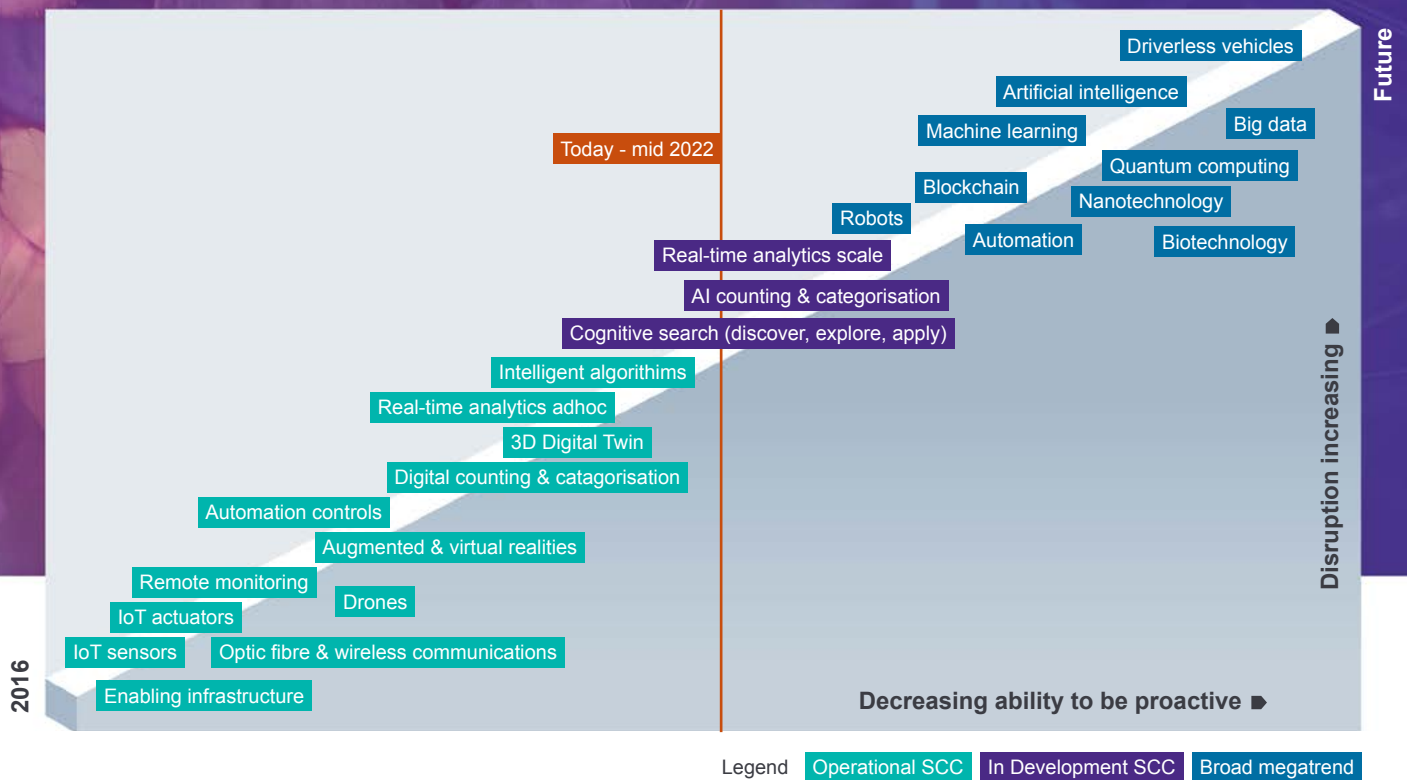


Figure 1: 2016 illustration showing the four industrial revolutions.

Figure 2: Examples of council's realised smart city solutions and future mega trends.



In a post-pandemic world, council plays an increasingly important leadership role in delivering services that meet these community needs. Our population of 350,000 is estimated to grow to more than 520,000 by 2041. Demand for assets and services will increase, placing pressure on council funding.

Council must take a strategic approach to program development, project prioritisation and scheduling to maintain our high quality of service. Access to new data and information enhances our knowledge. It enables us to test new ideas, make informed decisions and improve our service delivery.

In 2016, the term Smart Cities was used to brand the fourth industrial revolution. This revolution is data driven and powered by advanced digital technologies primarily using the Internet of Things (IoT). Proactively seeking to use advanced digital technologies to improve efficiency and effectiveness across the Sunshine Coast remains as critical today.

Technology terms such as big data, artificial intelligence (AI), machine learning (ML), nanotechnology, quantum computing, and the nascent rise of autonomous/driverless vehicles were distant possibilities in 2016.

Since then, council has matched needs with appropriate solutions to proactively deliver results. The illustration above shows significant progress with smart city solutions.

This SCF provides a platform for council to test the practical implementation of relevant digital technologies that will:

- Assist branches to use tiger team methodology to tactically diagnose problems and identify solutions for integration into organisational systems and address the challenges of growth and resource scarcity.
- Selectively use emerging technologies while scoping and planning for longer term digital transformation programs to be implemented over time.
- Provide a governance tool for organisation-wide evaluation and prioritisation of ideas into solutions using the Solutions Pipeline and business value model.
- Develop and provide data acquisition capability to meet the needs of branches looking for evidence-based business services and modelling.
- Facilitate the transition of solutions into Business as usual (BAU). Identify adequately resourced operational capability for solutions through application of the Digital Infrastructure Manual, covering physical and non-physical systems specifications, standards, architecture and user-friendly data access for evidence-based decision making.

This will create new opportunities using innovative technologies and decision-making processes to better plan and support our communities.

# Our achievements

Since the first Smart City Framework

## 3

Council developed the 2016 SCF to ensure major projects such as the new Maroochydore City Centre addressed the growing emphasis on enabling digital infrastructure, use of multi-function poles and Internet of Things (IoT) sensors to deliver data for decision making.

**Figure 3 opposite** shows a sample of SCF solutions by their progress, operational and associated data insights. Each solution is colour coded to show the primary Group and demonstrates the range of involvement across council.

The Solutions Pipeline provides a tool to actively innovate and support sustainable objectives focusing on the issues and challenges for all branches and teams.

Starting early at the planning and development phase makes it easier to build the solutions into design, construction and operational stages.

### 3.1 | Enabling digital infrastructure

Deployment of enabling digital infrastructure within the capital works program has resulted in significant deployments at incremental cost and strong alignment with council priority locations.

Council's placemaking and street design now routinely incorporates underground and above ground enabling infrastructure that supports improved data collection and real-time insights for better sustainability planning.

Enabling digital infrastructure has been deployed in more than 10 locations, including Maroochydore City Centre, Caloundra, two Mooloolaba projects, Mudjimba, Palmwoods Town Centre, Landsborough, Beerwah, Caloundra South (Aura) and Palmview (Harmony).

Multi-function poles replace standard light and traffic poles and are fitted with WiFi, digital signage, environmental sensors, people and vehicle counters, LED lights and optic fibre cable.



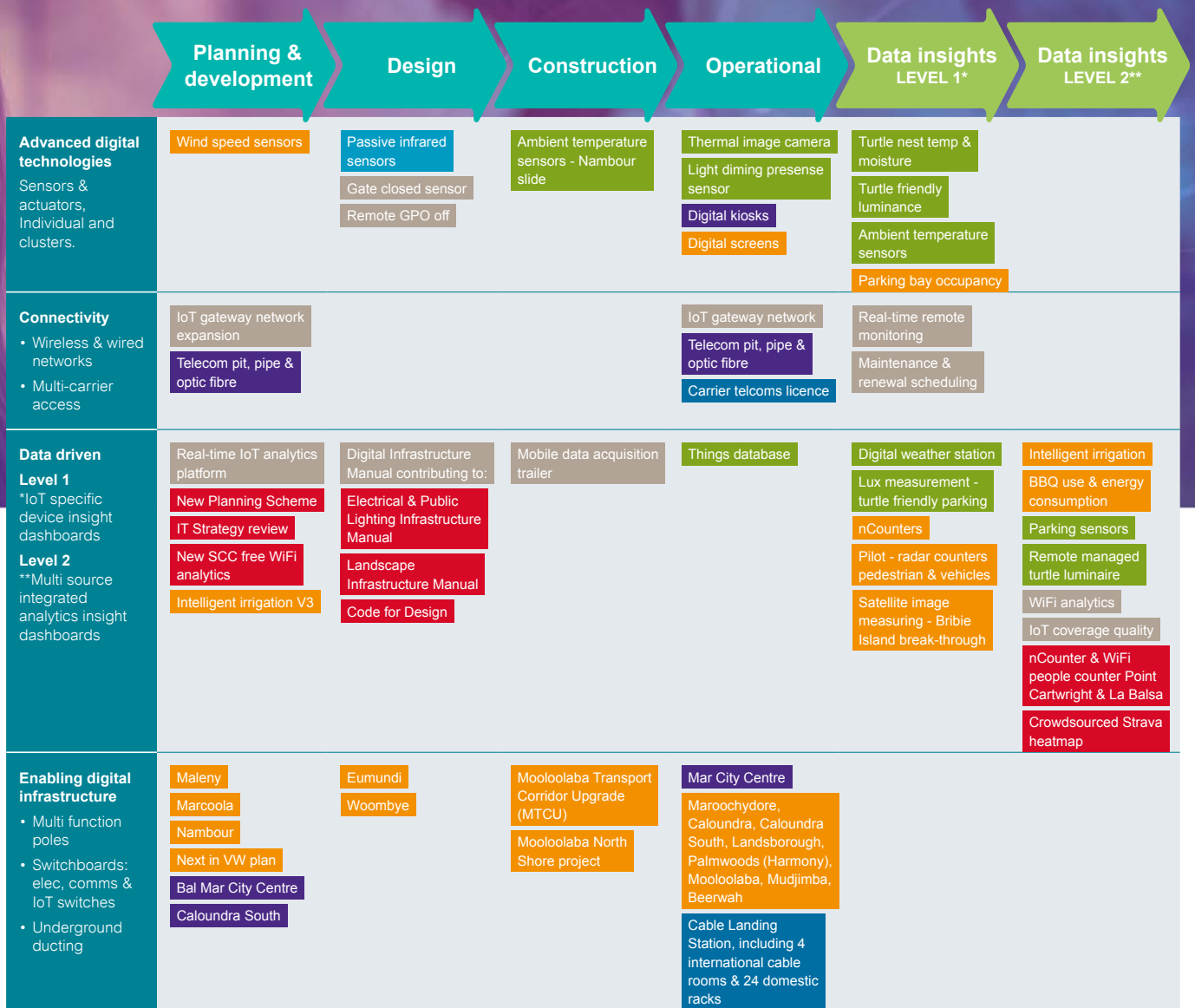


Figure 3: Digital solutions that are in progress, operational and delivering data insights.

Groups Built Infrastructure Liveability & Natural Assets Economic & Community Dev  
Customer Engagement & Planning Business Performance OMCEO Whole of Council

- Digital kiosks and screens provide wayfinding and real-time information about events, the weather, local history and public transport.
- Switchboards for electrical services include controls for irrigation, events use, specialised coloured lighting, communications switches for smart poles and telecommunication connection to individual development lots in Maroochydore City Centre.
- Digital kiosks, arbors, art installations and urban furniture are increasingly fitted with power, communications and cavities for future sensors, devices and actuators to be added over time.

### 3.2 | Connectivity

Enabling infrastructure and network connectivity services support the delivery of effective and efficient data that informs council planning and services.

- 17 LoRaWAN gateways are installed across the region, enabling free connectivity for council's IoT devices and sensors. The combined sensors and gateways maintain high security and privacy standards while reducing costs by 75% of alternative solutions in the market.
- Below ground electrical and telecommunications pits and ducts with optic fibre are installed in key locations, including Maroochydore City Centre, regional and local centres, and specialised locations such as tourist parks and Sunshine Coast Stadium.

### 3.3 | IoT sensors and actuators

#### Environmental

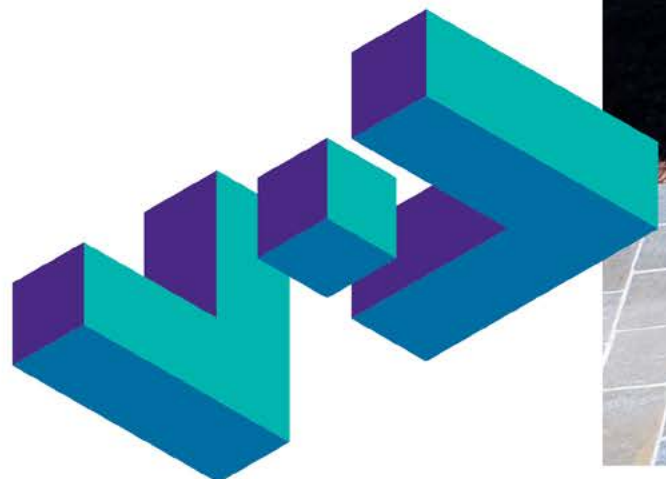
- Ambient temperature sensors collect temperature and humidity data that assist Design and Placemaking Services in streetscaping designs in public spaces to maximise people's comfort levels.
- Weather stations provide real-time information to the Disaster Management team and inform climate change policy decisions.
- Thermal image camera provides temperature comparisons between asphalt, concrete, grass, canopy, shaded locations, and helps council to better plan and design public areas using material and colours that enhance cooler spaces.
- Sensors monitor sand temperature and humidity, providing data to council's Natural Areas team and TurtleCare volunteers to monitor turtle nesting locations in near real-time.
- Turtle friendly luminaires with dual colour LEDs, presence sensors and smart controls installed at Mudjimba, Kawana and Shelly Beach reduce the glow of artificial lights in turtle nesting areas to minimise hatchling disorientation and increase survival rates.
- Flood sensors are installed at selected roads and bridges prone to flooding. Information about closures is available on the SCC app.
- Woombye pilot sensor program is collecting data over 2-3 years about people movement, water use and ambient temperatures to help council better plan facilities and community services. It will also inform Design and Placemaking's Woombye streetscaping project.

#### Counting, movement and categorisation

- People and cycle counters monitor how many people use public areas, eg parks and walking trails, allowing council to better maintain and clean facilities, and plan for future demand.
- Vehicle counters monitor how many and how long vehicles are in an area, if they are a car, truck, or motorbike, and what speeds they travel, to inform better planning of parking areas or if speed humps are required.
- Parking bay sensors provide real-time information about how often they are used, how long vehicles stay, and peak times.

#### Digital controls and remote monitoring

- IoT connected devices provide data about the sensor, batteries, performance, and maintenance alerts, eg smart controls for lighting to reduce energy use and improve maintenance programming.
- IoT actuators enable manual and automated remote switching of operational systems to improve performance and reduce the need for officers to go on site.
- Irrigation actuators and flow sensors allow council to maintain healthy plants and minimise potable water use. The system is connected to weather stations to determine if irrigation is needed after rainfall, saving water and lowering costs.
- LED lights turn on/off automatically during twilight periods, reducing energy consumption, electricity costs and CO2 emissions.
- Remote controlled artistic lighting provides innovative and energy-efficient solutions, including multi-coloured LED spot lighting, building projection of images, shapes, pathway colours and uplighting.





Smart kiosk



Envac outdoor bins



Autonomous mower



# Learnings

Lessons learnt must be translated into change and improvements to maximise gains and accelerate the benefits for council and our community.

## 4

A comprehensive review has been undertaken of the first five years of the Smart City Framework. The following learnings have been grouped across four categories: Industry, Organisation, Smart City Framework, and Implementation Plan.

### 4.1 | Industry

Providing council teams with access to digital services and data has not automatically translated into realised benefits.

Digital upskilling is required to enable teams and staff to effectively use data. Digital services are recognised as a key growth area by Australian and state government agencies<sup>3</sup>.

#### **Proposed improvements:**

- Invest in the development of a council Digital Professional Strategy, and Community of Practice for professional development.
- Engage with business area managers to gather operational requirements for digital capabilities.
- Work with relevant internal partners to identify key messages for digital skills development.
- Identify state and federal government digital skills initiatives to build staff capability and leverage this investment for council and community benefit.

<sup>3</sup> The Australian Public Service Review, ACS 2018 identified that human capital is a strategic asset, preparation should include recruiting for emerging technologies, and rapid upskilling and retraining is required. "The Digital Professional Stream Strategy is a structured way to build and uplift the core digital expertise of leadership and the workforce, and specialist expertise in digital roles." (Australian Public Service Commission, Digital Transformation Strategy, 2020).



## 4.2 | Organisation

More than 50 council plans and strategies from 2010-2021 were reviewed to determine the impact of the 2016 SCF. The results show there was no increase in the use of the terms technology, digital or data before and after adoption of the SCF.

There may be negative consequences if council fails to innovate with digital technologies and adapt to the digital transformation occurring across a broad range of industries.

### Proposed improvement:

- Engage those business areas with less digital adoption and adaptation to improve their awareness of stagnation risk and the growth mindset, discuss their challenges, and identify opportunities to learn about the benefits of technology and innovation.

## 4.3 | Smart City Framework 2016-2021

Common queries from the community, business groups and council staff about the SCF were:

- What is the Smart City?
- Why is council spending money on it?
- How do we deliver more Smart City outcomes?

### Proposed improvement:

- Consultation must include key messages that answer these queries and explain how stakeholders can be involved. Involve Smart Cities earlier in our policy development, process reviews and relevant projects from inception through to operational. It is important to explain council's Smart City Framework project methodology and design thinking approach.

## 4.4 | Implementation Plan

High value outcomes are only achieved when:

- People can change their own actions/behaviour or use evidence-based data to positively change outcomes.
- Change management results in the adoption of new processes that improve existing operations.
- Digital design or engineering applies a holistic approach instead of a short term or silo view.
- There is improved coordination with branches and teams across council.

### Proposed improvement:

- Develop and implement staff training to improve digital capacity and capability to improve delivery of benefits.
- Align with branches across council, including DIS and the Run, Grow and Transform methodology

# Smart city references

in council plans and strategies

## 5

Council's Corporate Plan, Operational Plan, and our three key strategies identify how the Smart City Framework and innovative technologies contribute to organisational and regional outcomes using data driven decision making.

### 5.1 | Corporate Plan 2021-2025

Our Corporate Plan recognises the need to leverage smart, integrated and connected technology to bring benefits to service delivery and improve asset use.

---

Council's Smart City Framework establishes an approach for the region to think differently about how services can be delivered and establishes an integrated program of smart and connected assets and services. It represents a positive and proactive response to the economic, environment, demographic, and contextual challenges many governments around the world are facing, particularly in areas that are experiencing high levels of growth. (*Corporate Plan 2022-2026 p42*)

---



## 5.2 | Operational Plan 2021-2022

The Operational Plan recognises the need to update the 2016 SCF and calls for the development of a new SCF:

---

4.3.2 Progress a new Smart City Framework and Smart City Implementation Plan, which will identify processes and projects to realise smart city opportunities and further develop council's data driven decision making capability.

---

Several other council strategies and plans refer to Smart City and identify specific actions to be delivered in partnership with or through the Smart Cities Team.



# Principles

for an innovative data driven region

## 6

Team members across council and the region are involved in the identification, selection and delivery of smart city solutions.

In many cases, this is as simple as taking traditional systems and approaches (often referred as analogue) and introducing digital plans and solutions.

The following principles were collaboratively developed to help us navigate the rapidly evolving urban landscape, address complex challenges and ensure the design, development and deployment of our digital future is grounded in our true purpose.

Principle	Description	How we do it
Community first	Our people are at the heart of everything we do. We use technology and data for better decision making and service delivery to our community.	When engaging with stakeholders, industry, and community, we will communicate regularly and ensure that privacy and security of data collected is managed in accordance with industry best practice.
Collaborative	We foster strong connections across our diverse stakeholders, breaking down silos and unlocking the value of our region's collective intelligence, capability and investment.	Develop partnerships with key stakeholders across private, public and educational sectors.



Principle	Description	How we do it
<b>Innovative culture</b>	<p>We harness disruption and promote the development of bold ideas to address pressing challenges and unlock new opportunities.</p> <p>Focus on problem-driven, evidence-based, and prioritise highest value considering financial and non-financial benefits</p>	<p>Provide staff with access to an innovation system to identify potential solutions for current problems and challenges.</p> <p>Our internal innovation portal provides staff with the opportunity to run campaigns, submit and vote on ideas.</p> <p>Support small scale trials to test the value of scale deployments. Recognise that fast fail at small scale is a success not a failure.</p> <p>Prioritise progression of best value / outcome solutions.</p> <p>Measure quantity of ideas, solutions, value and outcomes.</p>
<b>Digital first strategy and plans</b>	<p>Transition from analogue to integrated digital systems and platforms that provide staff access to identify and use data. This is critical to achieve maximum efficiency and effectiveness.</p>	<p>Identify Australian best-practice examples of data driven organisations built on a core smart city strategy and implement for council and community benefit.</p> <p>Measure the use of digital terms in council strategy, policy and planning documents to show change over time.</p> <p>Report on council use of data driven decision making.</p>
<b>Digital professional development</b>	<p>Upskilling provides opportunities to reduce barriers and realise the benefits of data driven decision making.</p>	<p>Implement a digital professional development plan with adequate resourcing.</p> <p>Facilitate identification of best-practice models and apply within council.</p>
<b>Resource change and transition</b>	<p>Recognition of resource gaps is the first step to identifying the value and extent of change required, and how this can be achieved.</p>	<p>Build on a core digital strategy for implementation for council and community benefit.</p> <p>Partner internally with key stakeholders to identify resource and changes required to accommodate transition.</p>

Principle	Description	How we do it
<b>Problem-driven, evidence-based, and highest value</b>	Our approach is firmly grounded in our region's challenges. These are evaluated using evidenced based methods and priorities that consider financial and non-financial attributes.	<p>We receive ideas, problems, and challenges through our Solutions Pipeline portal.</p> <p>We evaluate these with owning branches and stakeholders to deliver efficient, effective and high value outcomes.</p>
<b>Reduce barriers to scale deployment</b>	The challenges and barriers for smart city solutions are moving from pilots and trials to scale deployments.	Work with council teams and partners across the region to identify, remove or reduce barriers to deployment at scale where a solution is identified to have high value for council and the region.
<b>Flexible and adaptive</b>	We embrace a learn by doing approach and flexible responses to our rapidly evolving urban landscape and changing community needs.	Trial new sensors and solutions, eg passive infrared (PIR) sensors that detect motion around amenities, dual LED downlights.
<b>Privacy protected, secure and ethical by design</b>	We are ethical innovators in the information marketplace. Hardware and software security is built in - not added. Adherence to the <i>Queensland Privacy Act</i> is critical to our success and the community's confidence in data collection and management.	<p>We embed security and privacy protocols from the beginning to safeguard digital rights.</p> <p>Many IoT sensors and actuators produce data in public areas. Data collection must be built on secure privacy protocols and demonstrate this.</p>
<b>Data open by default</b>	Collected data is available for council staff to create an open ecosystem that enables innovation. Processes are in place to ensure data privacy and security.	<p>Datasets from sensors are available to council staff through Power BI or other platforms.</p> <p>Access to useable data in near real time and over time breaks down traditional silos and provides maximum benefits for council and the region.</p>

Principle	Description	How we do it
<b>Enabling physical digital infrastructure</b>	<p>Continued development of digital infrastructure for analogue and digital uses requires underground and above ground assets to be future ready and adapt to changing requirements as council manages its public spaces.</p>	<p>Align expansion of enabling digital infrastructure with council capital works priorities and major urban growth locations in partnership with developers.</p> <p>Incorporate digital infrastructure and multi-function pole standards in council documents, eg Landscape Infrastructure Manual, and Electrical and Public Lighting Services Infrastructure Manual.</p>
<b>Enabling non-physical digital systems</b>	<p>Digitally innovative cities depend on non-physical digital systems and platforms to capture, process and provide useable data to build capability for council staff to discover, explore and apply to their roles and needs.</p>	<p>In alignment with DIS and other stakeholders, identify suitable platforms or integrations to deliver an open, coherent system-based solution suited to scale use and access for council staff, and is open by default.</p>



# Priorities and pathways

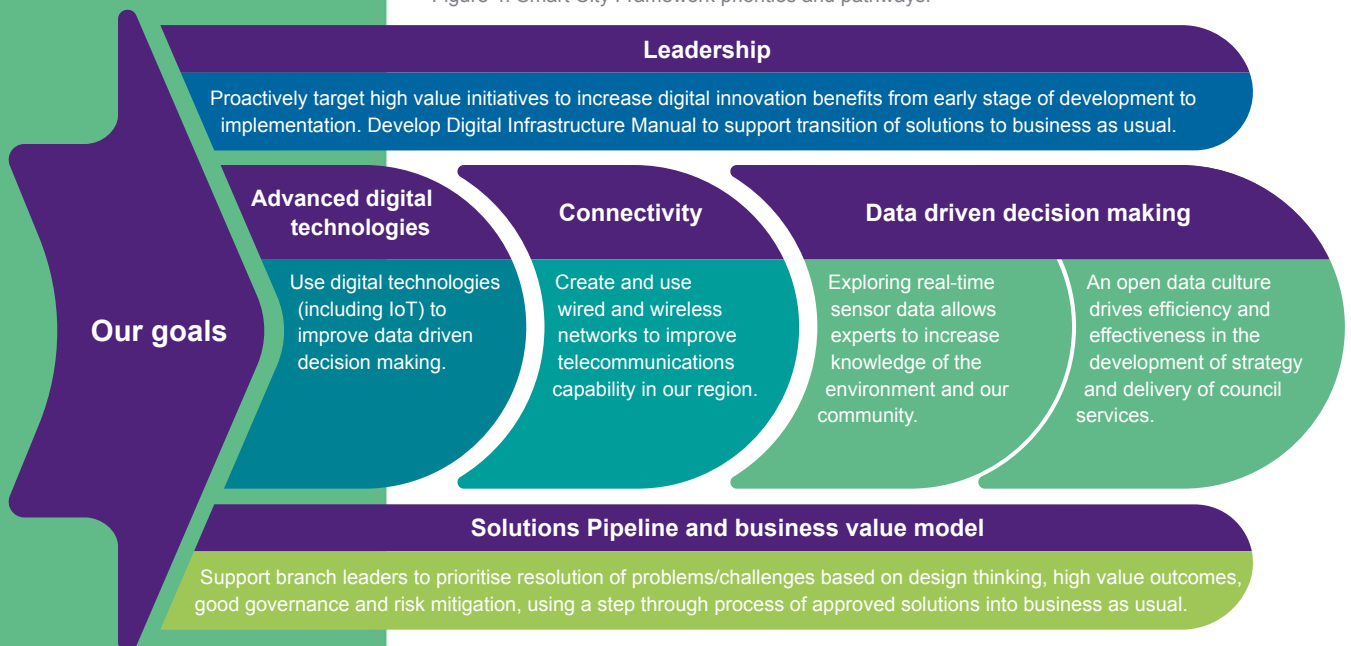
7

The Implementation Plan provides a transparent structure for the SCF's initiatives, objectives and outcomes to be implemented into council projects, systems and processes.

The Smart City Framework 2022-2025 outlines the following actions across five priorities and their respective pathways, or roadmap for implementation:

- ◆ Leadership
- ◆ Advanced digital technologies and innovation
- ◆ Connectivity
- ◆ Data driven decision making
- ◆ Solutions Pipeline and business value model.

Figure 4: Smart City Framework priorities and pathways.





## 7.1 | Leadership

Proactively target high value initiatives to increase the benefits of smart city innovation from early stage of development through to implementation.

Develop a Digital Infrastructure Manual to support the transition of solutions to business as usual (BAU). This BAU process is outlined further in the table below.

### Pathways:

- 1.1** Target early involvement in relevant activities across the development, planning, design, construction, operation and data insights phases. Contribute to development of strategies, policies, master plans, concept development through to capital works delivery and operation.
- 1.2** Develop a Digital Infrastructure Manual covering the physical and non-physical infrastructure pathways to deliver smart city solutions. Contribute to organisational standards manuals as solutions transition from development and evaluation into business as usual.
- 1.3** Develop a comprehensive communications plan including smart city user stories, data driven decision-making examples and online content that is publicly accessible.
- 1.4** Partner and collaborate with local, Australian, and international organisations to share learnings, reduce costs and time to identify, pilot and evaluate before scale deployment of new data driven innovations for the Sunshine Coast.

- 1.5** Build smart city capacity and capability within council. Partner with branches to develop and implement digital professional development and training for staff.

## Solution innovation to BAU process and governance linkages

Cross-organisational tiger teams validate and develop solutions to problems against existing organisational systems. This process is revisited to embed the solution into business as usual when it moves to operational status.

Adequate resourcing and process establishment is required to achieve operational capability for solutions. Approved solutions in transition use the Digital Infrastructure Manual, covering physical and non-physical systems specifications, standards, architecture and user-friendly data access for evidence-based decision making.

In order to achieve the data driven objectives that underpin each new solution, the team needs to consider the physical and non-physical attributes managed by many stakeholders and the whole of organisation access to the mature outcomes reflected in Figure 5.

Figure 5: Organisation stakeholders for physical and non-physical digital infrastructure.

	Branch	Common solution beneficiaries, service providers, process and governance groups
Physical digital infrastructure	Smart Cities Team	Digital Infrastructure Manual - assessment, idea generation, business value, R&D requirements, skilled resource engagement, governance
	Digital and Information Services	Physical digital infrastructure - power supply, communication/ sensor devices, specifications, configuration, security, administration, monitoring ITP Working Group; DIS Security Working Group, DIS Architecture Working Group
	Parks and Gardens	Landscape Infrastructure Manual (LIM)
	Transport Infrastructure Management	Electrical & Public Lighting Services Infrastructure Manual (ELSIM)
	Property Management	Property Design Manual
	Design and Placemaking	Code for Design
		Quality Assurance checklists
Project Delivery	Costs and scope, risk management	
	Capital Works program	
Non-physical digital infrastructure	Asset Management	Registration, stakeholder communications
		Lifecycle management
	Business Innovation	Procurement aggregation, supplier arrangements, service management
Digital and Information Services	Non-physical digital infrastructure - pre-processing, legacy systems analysis, middleware architecture, integration configuration, volume management, aggregation, ITP Working Group; DIS Security Working Group, DIS Architecture Working Group	
	Ingestion, data quality assessment/control	
Data driven outcome: Discover, Explore, Apply	Primary branch	Data insights - data publication, metadata, tools development, digital training, analytics, branch/expert insights, dashboard creation
	Whole of organisation	Strategies, corporate and operational planning
		Fund submissions, corporate digital infrastructure investment
		Service planning and delivery

## 7.2 | Advanced digital technologies and innovation

Pairing physical assets with advanced digital technologies<sup>4</sup> (IoT, sensors and actuators, artificial intelligence, robots, drones, cloud computing, nanotechnology, autonomous vehicles, etc) provides council with the opportunity to work more efficiently by controlling devices remotely, capture data and make more intelligent, data-driven decisions.

The extent of digital physical integration is significant, and rapidly increasing. The image below reflects the complex interactions between council's public infrastructure, devices, systems, processes and data.

This integration requires a proactive systems-based approach to ensure that high-value smart city solutions enable council to be more flexible, responsive and make better data-driven decisions for improved service delivery.

Council can modernise operational systems and gain near real-time insights, as well as historical trends, resulting in reduced operational costs and community benefits.

### Pathways:

- 2.1 | Identify and select suitable digital technologies that meet business and community needs.

- 2.2 | Ensure the hardware, software and data are functional, compatible, reliable, and deliver minimal transition costs and lower risks.

- 2.3 | Combine procurement for common solutions across council.

- 2.4 | Maintain awareness of new, maturing, and disruptive digital technologies relevant for the Sunshine Coast.

## 7.3 | Connectivity

Telecommunications connectivity is a critical feature in high performing regions managing population growth and rapidly increasing demands on resources.

Enabling physical digital infrastructure supports the creation and use of wired and wireless networks to improve telecommunications capability in our region.

### Pathways:

- 3.1 | Deploy enabling physical digital infrastructure and connectivity across the region to meet today's needs and support emerging community demands.

- 3.2 | Use wired and wireless services to connect sensors and actuators to analytics or operational platforms across the region.

Figure 6: The extent of digital physical integration across council assets.



4 [www2.deloitte.com/content/dam/Deloitte/de/Documents/human-capital/Deloitte\\_Review\\_26\\_Fourth\\_Industrial\\_Revolution.pdf](http://www2.deloitte.com/content/dam/Deloitte/de/Documents/human-capital/Deloitte_Review_26_Fourth_Industrial_Revolution.pdf)

## 7.4 | Data driven decision making

Evidenced based decision making is developed using a range of sources to service planning, delivery, increased their knowledge of the environment and our community.

Data-rich visualisations are published on Power BI and ArcGIS dashboards.

An open data culture sets the foundation for efficiency and effectiveness in strategy development and council service delivery.

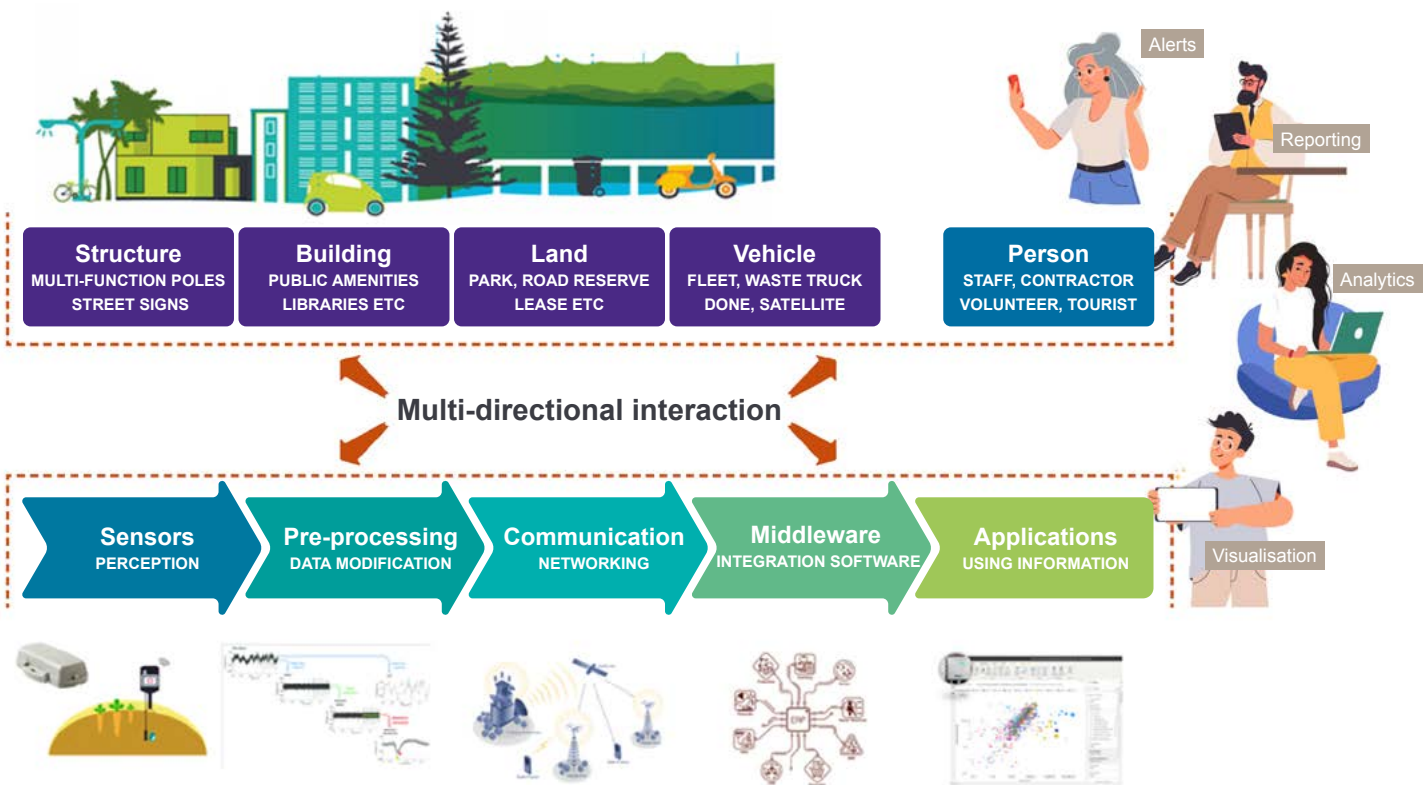
Digital literacy is developed through analytics skills, knowledge and capabilities. It provides staff with experience and helps develop the careers of young people driving digital disruption.

### Pathways:

**4.1** Combine advanced digital technology expertise across council to produce valuable business insights.

- Use low-energy devices and sensors to produce data.
- Deploy IoT devices using council's high-resolution aerial photography, 3D data and advanced mapping tools.
- Manage and track IoT asset deployments in a database that records purchase, installation, configuration, and servicing activities.

Figure 7: Physical digital connection – Digital infrastructure integration.





**4.2** Improve timely and quality decision making by connecting council staff to real-time data using open data systems.

- Develop business analytics capability by raising awareness of principles, technologies (including automation, machine learning, and artificial intelligence), modern tools, privacy, and cybersecurity standards. w
- Provide education and training opportunities to develop a workforce with comprehensive data management and analysis skills and remove barriers to adoption.
- Drive data innovation by providing a seamless experience of its discovery, exploration, and application to a diverse set of business problems.
- Enhance Information and Communication Technology (ICT) procurement and streamline access to technology hardware and device manufacturers, cloud-based software, and consultants who provide data science, analytics, training and education services.



Turtle Sensitive Lighting - 12 month data set



**4.3** Develop maturity in council's data culture.

Raise awareness about responsible use of data, the importance of scientific rigor, and quality assurance for data reporting.

- Develop council's information capability using technologies that provide simple and consistent capture, storage, access and management of data.
- Introduce data governance responsibilities for relevant council working groups and committees to create trust, improve regulation, and ensure the right people assess and manage organisational risk.
- Identify service duplication through data integration and create opportunities for efficiencies.
- Make data ready for analysis using an open by default policy and provide software tools and governance processes to support the change.

**4.4** Create data discovery and exploration infrastructure.

- Invest in IoT data integration platforms that provide council-wide and regional community benefit.
- Invest in a data catalogue and search technology that reduces or removes access barriers.

**4.5** Develop digital twin platforms to provide near real-time decision making for disaster management, service provision, land use planning, capital infrastructure works, asset management or other activities as required.



## 7.5 Solutions Pipeline and business value model

Support branch leaders to prioritise problem/challenge resolution based on design thinking, high value outcomes, good governance and risk mitigation, using a step through process of approved solutions into business as usual.

Provide an organisational governance tool to evaluate and prioritise ideas through a centralised database (using the Solutions Pipeline and business value model) to provide an aggregation tool and reduce duplication.

### Pathways:

- 5.1** Teams or individuals identify problems, provide or seek a possible solution, and develop a business case based on:
  - community benefit
  - reduced financial costs
  - reduced resourcing
  - enabling infrastructure
  - risk avoidance or reduction
  - revenue potential, where relevant.
- 5.2** Use a change management process to evaluate and validate potential high value solutions before operational implementation.
  - Address risk that there are pockets of innovation occurring: provide governance – via ITPWG for approvals where relevant
  - Provide a pre-project status evaluation to determine the problem/ solution and viability value to council
  - Baseline current organisational offerings that may already support an initiative/solution
  - Consolidate solutions/initiatives into a single point of coordination
  - Identify procurement opportunities, ie aggregation coordination and standardisation
  - Identify opportunity to scale solution/initiatives internally and externally, were appropriate
  - Drive holistic organisation wide outcomes to deliver improved efficiency and effectiveness
  - Drive prioritisation of solutions/initiatives through alignment with Group Executive and council priorities
  - Address standardisation of data structure.

# Smart City Framework alignment with Digital Strategy methodology

The Digital Strategy manages operations into run, grow and transform. This model has been adopted for the Smart City Framework as illustrated below.

Figure 8: Smart City Framework alignment with Digital Strategy.

Our vision		
To achieve a successful and integrated program of digital solutions and business services for our region.		
Robust foundations (Run)	Business productivity (Grow)	Data driven council (Transform)
What - Our goals		
<p><b>Leadership:</b> Proactively target high value initiatives to increase digital innovation benefits from early stage of development to implementation.</p> <p><b>Advanced digital technologies:</b> Use digital technologies (including IoT) to improve data driven decision making.</p> <p><b>Connectivity:</b> Create and use wired and wireless networks to improve telecommunications capability in our region.</p>	<p><b>Data driven decision making:</b> Exploring real-time sensor data allows experts to increase knowledge of the environment and our community. An open data culture drives efficiency and effectiveness in the development of strategy and delivery of council services.</p>	<p><b>Solution Pipeline:</b> Support branch leaders to prioritise resolution of problems/challenges based on design governance and risk mitigation, using a step through process of approved solutions into business as usual.</p>
Why - Our mandate		
Manage the emerging challenges and opportunities of the fourth industrial (digital) revolution.	Provide improved evidence for strategy development, service delivery and quality of life, stimulate economic growth and ensure environmental sustainability.	Deliver more effective and efficient services.
How - Our principals		
<p><b>Community first:</b> Our people are at the heart of everything we do. We use technology and data for better decision making and service delivery to our community.</p> <p><b>Collaborative:</b> We foster strong connections across our diverse stakeholders, breaking down silos and unlocking the value of our region's collective intelligence, capability and investment.</p> <p><b>Digital first strategy and plans:</b> Transition from analogue to integrated digital systems and platforms that provide staff access to identity and use data. This is critical to achieve maximum efficiency and effectiveness</p> <p><b>Flexible and adaptive:</b> we embrace a learn by doing approach and flexible responses to our rapidly evolving urban landscape and changing community needs.</p> <p><b>Enabling physical digital infrastructure:</b> Continued development of digital infrastructure for analogue and digital uses requires underground and above ground assets to be future ready and adapt to changing requirements as council manages its public spaces.</p>	<p><b>Innovative culture:</b> We harness disruption and promote the development of bold ideas to address pressing challenges and unlock new opportunities.</p> <p><b>Digital professional development:</b> Upskilling provides opportunities to reduce barriers and realise the benefits of data driven decision making.</p> <p><b>Resource change and transition:</b> Recognition of resource gaps is the first step to identifying the value and extent of change required, and how this can be achieved.</p> <p><b>Privacy protected, secure and ethical by design:</b> We are ethical innovators in the information marketplace. Hardware and software security is built in - not added.</p> <p><b>Data open by default:</b> Collected data is available for council staff to create an open ecosystem that enables innovation.</p>	<p><b>Problem-driven, evidence-based and highest value:</b> Our approach is firmly grounded in our region's challenges. These are evaluated using evidence based methods and priorities that consider financial and non-financial attributes.</p> <p><b>Reduce barriers to scale deployment:</b> The challenges and barriers for smart city solutions are moving from pilots and trials to scale deployments.</p>

# Measuring success

Smart Cities is an emerging field that tests the viability and value of new innovative solutions for application at scale. Early failure is as valid as early success.

## 8

Avoiding risks of high costs and impact deployment is a success. Failing quickly means we can confirm that a small-scale use is not suitable.

Our measures of success are built on a baseline and ongoing review using a five-step smart city journey and capability maturity model (below) developed for the initial SCF.

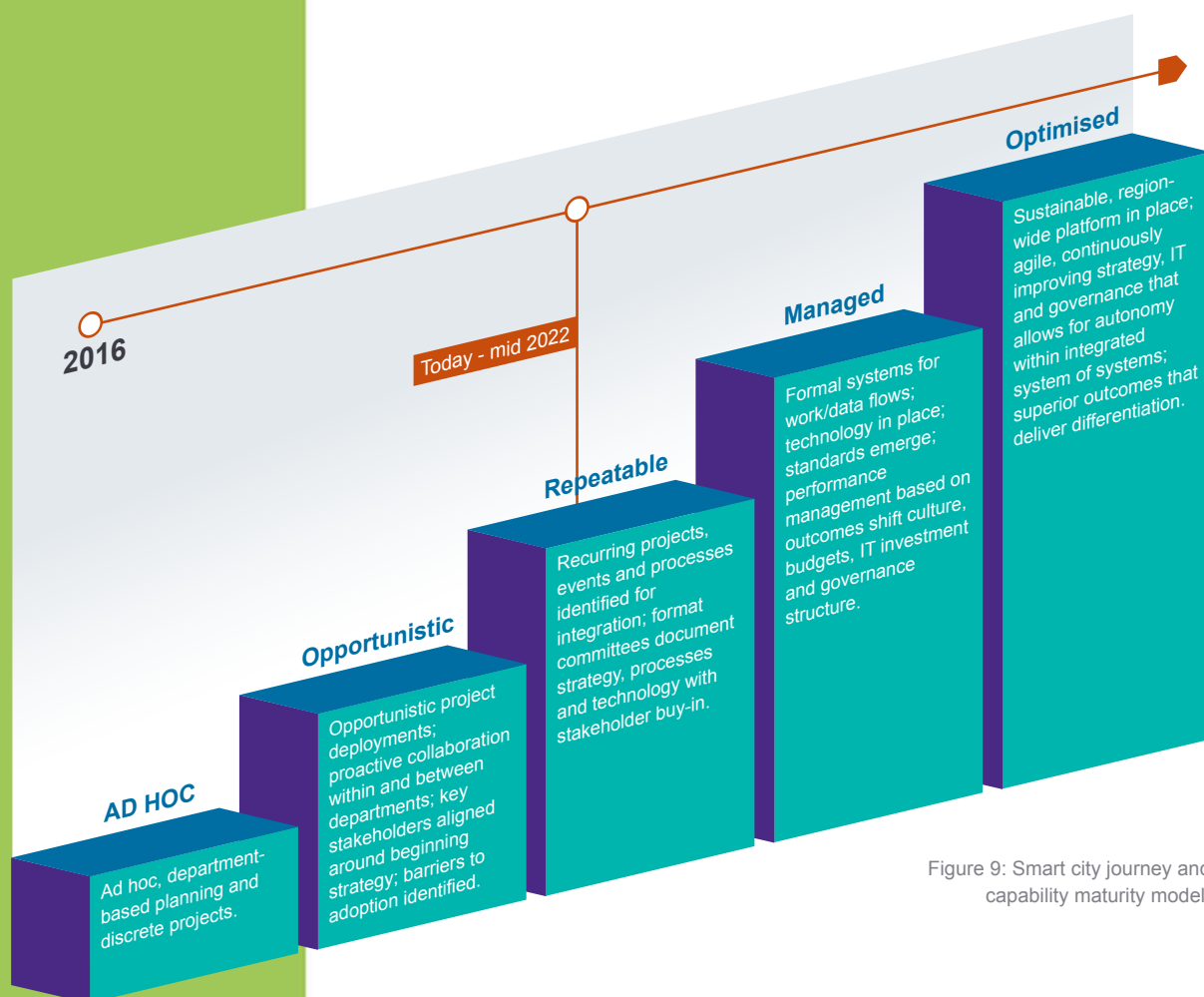


Figure 9: Smart city journey and capability maturity model.

## 8.2 | Success measures

The SCF success measures focus on quantitative data that can be routinely if not automatically ingested into a Power BI visualisation from existing council systems.

The measures have been selected to draw on the learnings from the first years of the SCF and consultation feedback.

Use of digital, data and innovation terminology in council documents

A review of 50 of council's 200+ plans revealed very low use of five key words: smart, digital, data, innovation and technology. Initial assessments from 2015 show a downward trend in the documents rather than upward.

IoT sensors and actuators by number, type, group, branch and electoral division

- Growth in IoT use by branches will demonstrate engagement and recognised benefits of these devices.

### Staff access to and use of data for decision making

- Ensuring staff have access to all organisational data is key to enabling the discover, explore and apply methodology can begin to improve our access to the right information at the right time with traceability and quality parameters.
- Measuring the growth in access, use and quality parameters will demonstrate our performances as an organisation.

### Development and expansion of enabling physical and non-physical digital infrastructure and systems

- Physical: number and location.
- Non-physical systems: IoT real time data analytics.
- Included in Landscape Infrastructure Manual, and Electrical and Public Lighting Services Infrastructure Manual.

### Resourcing and investment

Consistent resourcing of teams supports the change from solution identification to change implementation.

### Digital professional training

There has been minimal staff training on digital systems beyond basic install and access during the previous five years of the SCF's implementation. Formal and targeted training is needed to support and maximise awareness, skills and use of emerging systems.

Facilitate digital professional development training with People and Culture and Digital and Information Services branches.

### Partnerships

Report on existing and planned partnerships with key stakeholders including:

- Council
- Community
- Educational institutions and academics
- Developers
- Other local, state, federal governments
- Businesses
- Utilities
- Industry associations.

The success measures will be reported to ELT as part of the annual update report and quarterly reporting.

# Appendix

## 9

### 9.1 Smart City Framework - Implementation Plan 2022-2025

The Implementation Plan is a rolling three-year plan based on the pathways and priorities outlined in the SCF. Year one priorities are detailed and identify the lead and stakeholder responsibility. Years two and three are less detailed and revised in consultation with branches based on priorities and demand.

#### Year 1 (2022-2023) Implementation Plan

SCF pathways	Initiatives	Lead and stakeholder branches	Outcomes
<b>1 Leadership</b>			
<b>1.1 Target early involvement in strategies, policies, master plans and concept development.</b>	Review projects going into design with: <ul style="list-style-type: none"> <li>• Design and Placemaking: Eumundi, Woombye, Maleny urban streetscaping designs.</li> <li>• Natural Areas: Turtle nest temperature sensors, artificial natural light measurements.</li> <li>• Parks and Gardens: BBQ use sensors for renewals and counts for capital builds due to increased demands.</li> <li>• TIM &amp; CAMS: Where planned asset updates identify potential to use smart digital infrastructure as per LIM and Electrical and Public Lighting Infrastructure Manual</li> <li>• Response Services: Continue to support and potentially expand counting and use data.</li> <li>• Property: New amenities and heating, ventilation, and air conditioning (HVAC).</li> <li>• Caloundra admin to library transformation project.</li> <li>• Project Delivery: Review construction projects for the current financial year and target relevant high value projects for consultation with coordinators.</li> </ul>	Lead – self-selecting for each initiative <ul style="list-style-type: none"> <li>• Sustainability</li> <li>• Strategic Planning</li> <li>• Design and Placemaking</li> <li>• Natural Areas</li> <li>• Parks and Gardens</li> <li>• Transport Infrastructure Management (TIM)</li> <li>• Civil Asset Management (CAMS)</li> <li>• Response Services</li> <li>• Project Delivery</li> <li>• Sustainability Strategic Planning</li> <li>• Digital and Information Services (DIS)</li> <li>• SCF Team (facilitators)</li> </ul>	Environment and Liveability Strategy: <p>15.2 Continue to investigate options to integrate smart technology into public places and spaces to connect communities.</p> <p>17.1 Undertake an assessment of heat island effects to inform appropriate planning and design.</p> <p>Regional Economic Development Strategy (REDS) Implementation Plan 2019-2023: Smart connected centres - Whilst the development of the Maroochydore City Centre is a clear focus, the growth, investment and development of centres within the region's master-planned communities is essential to drive greater opportunity and prosperity.</p> <p>Community Strategy outcome 5: Creative, innovative communities - Smart infrastructure and technology making communities safe, accessible and user friendly (p41).</p> <p>Early smart city thinking in a policy, project or service design makes it easier to include financially and deliver.</p>



SCF pathways	Initiatives	Lead and stakeholder branches	Outcomes
	<p>Participate in council reviews and development of budget initiatives, policies, strategies, and plans to ensure they include relevant emphasis on smart city objectives with an evidenced based approach.</p> <p>Examples include:</p> <ul style="list-style-type: none"> <li>• Identification of projects such as the Built Infrastructure hydrology modelling and drainage water quality.</li> <li>• Review and assist development of DIS ICT Plan 2022 to deliver council priorities and improve team to team alignment.</li> <li>• Contribute to the new Planning Scheme and support branches with evidence-based data for submissions.</li> <li>• Review Urban Heat Island sensors, plan expansions where needed and contribute standards to the new Planning Scheme.</li> </ul>		<p>The number of locations where enabling digital infrastructure has been built into corporate priorities reflects this change with incremental cost increases.</p> <p>Service delivery teams are now beginning to routinely consider use of IoT sensor data to evidence change and investment.</p>
<p><b>1.2 Develop smart city solution specifications into standards.</b></p>	<p>Smart city specifications have been developed for physical and non-physical projects and processes within council in recent years. Some of these are now included in the Landscape Infrastructure Manual (LIM) and the draft Electrical and Public Lighting Services Infrastructure Manual.</p> <ul style="list-style-type: none"> <li>• Develop a Digital Infrastructure Manual to provide guidance during the design, development and delivery of council controlled smart city infrastructure to promote quality, compliance and sustainability, minimise ongoing maintenance and ensure longevity.</li> </ul> <p>Include enabling physical digital infrastructure:</p> <ul style="list-style-type: none"> <li>• Multi-function poles.</li> <li>• Integrated electrical and communications switchboards to provide optic fibre or high-speed wireless broadband, location sensors and actuator controllers.</li> <li>• Telecommunications duct and pit network connecting developments/projects to NBN and other carriers.</li> <li>• All current sensors and actuators (eg Turtle friendly dual LED luminaires with IoT controllers and Zharga presence sensors for suitable parks locations).</li> </ul>	<ul style="list-style-type: none"> <li>• Parks and Gardens</li> <li>• Transport Infrastructure Management (TIM)</li> <li>• Natural Areas</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>When technical specifications become council standards, smart city initiatives become the new business as usual.</p> <p>Corporate Plan - environment and liveability strategic priority: Continue to investigate smart technology to improve sustainability, user experience and affordability (p29).</p> <p>Centralised Digital Infrastructure Manual provides new and updated content for inclusion in council standards manuals where relevant:</p> <ul style="list-style-type: none"> <li>• Landscape Infrastructure Manual</li> <li>• Electrical and Public Lighting Services Infrastructure Manual</li> </ul>
<p><b>1.3 Develop a comprehensive communications plan.</b></p>	<p>Update the SCF Communications Plan and include:</p> <ul style="list-style-type: none"> <li>• Smart city user stories.</li> <li>• Access to interactive content with digital twin examples.</li> <li>• Data driven decision-making examples and publicly accessible online content.</li> </ul>	<ul style="list-style-type: none"> <li>• Communications Branch</li> <li>• SCT Team (facilitators)</li> </ul>	<p>Increase community awareness and address privacy and security of data collection systems.</p> <p>Communicate use of data for decision making process and benefit through improved service delivery.</p>

SCF pathways	Initiatives	Lead and stakeholder branches	Outcomes
1.4 Build digital capacity and capability within council.	<p>Partner with council branches to develop and implement digital professional development and training for staff.</p> <p>Seek procurement and resourcing models for Digital and Information Services to deliver priorities and development of platforms such as the Smart City Real Time IoT Analytics Project as a comprehensive data integration system for council.</p> <p>Leveraging local university expertise and research partnerships to identify and design effective tools for practitioners that address emerging sustainability issues facing the region.</p>	<ul style="list-style-type: none"> <li>• People and Culture</li> <li>• Business and Innovation</li> <li>• Procurement and contracting teams</li> <li>• Sustainability Policy</li> <li>• Parks &amp; Gardens</li> <li>• Urban Growth Projects</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p><b>Corporate Plan - Outstanding organisation strategic priority:</b> Develop and implement the Information and Communication Technology Plan 2021, with a strong focus on cyber-security, mobility, connectivity, accessibility and cloud computing (p46).</p> <p>How cool are our green urban forests? - A research project by University of the Sunshine Coast and Sunshine Coast Council Financial years 2022-2024</p>
<b>2 Advanced digital technologies</b>			
2.1 Use advanced digital technologies to help council work more efficiently.	<p>Identify and select suitable advanced solutions that meet business and community needs.</p> <p>Ensure the hardware, software and data are functional, compatible, reliable, and deliver minimal transition costs and lower risks.</p> <p>Develop and provide data acquisition services to meet branch needs for evidence-based business services and modelling, eg mobile data acquisition trailer under pilot evaluation.</p> <p>Combine procurement for common solutions across council.</p> <p>Maintain awareness of new, maturing, and disruptive IoT solutions relevant to the Sunshine Coast.</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Corporate Plan - service excellence: Mature the asset management framework and system to deliver quality data that provides the basis for more strategic asset planning, renewal, and maintenance (p40).</p> <p>Reliable, cost-effective sensors and devices are connected to secure low-cost networks and enable high volume deployments.</p> <p>Modernised operational systems provide near real-time insights, resulting in reduced operational costs and increased community benefits.</p> <p>Advanced Urban micro-climate simulation and regional green infrastructure and heat geospatial modelling.</p>
<b>3 Connectivity</b>			
3.1 Deploy enabling communications infrastructure and connectivity across the region.	<p>Use LoRaWAN technology to expand the regional IoT network with an additional 12 gateways to 30.</p> <p>Leverage council's telecommunications carrier licence to deliver new revenue from Facilities Access Agreements.</p> <p>Strategically expand council's network through Indefeasible Right of Use agreements with other carriers.</p> <p>Draft an organisational document that covers telecommunications activities and prioritises locations for telecommunications assets in key nodes and corridors, aligned with council's strategic priorities.</p> <p>Prepare an operations and maintenance program for telecommunications assets in partnership with branch team(s).</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Corporate Plan: The Smart City Framework represents a positive and proactive response to the economic, environment, demographic, and contextual challenges many governments around the world are facing, particularly in areas that are experiencing high levels of growth. (p42)</p> <p>REDS Implementation Plan 2019-2023:</p> <p>8. Work with technology providers to ensure the delivery of world-class broadband infrastructure and services, to support industry advancement as connected to the international broadband submarine network.</p> <p>27. Position the Sunshine Coast as an innovation, entrepreneurship and digital leader through the international submarine network and associated infrastructure. Enhance and connect to 5G capability to future-proof the region.</p> <p>28. Lead the SEQ City Deal action which aims to establish a digital trade hub by leveraging the international broadband submarine network.</p>



SCF pathways	Initiatives	Lead and stakeholder branches	Outcomes
<p><b>3.2 Use wired and wireless services to connect sensors and actuators to analytics or operational platforms.</b></p>	<p>Seek RFQ operational funds to develop and formalise emerging physical digital infrastructure investment standards.</p> <p>Seek funding to standardise maintenance of telecommunications assets in Maroochydore City Centre, land aspects of the SCIBN project, key centres and connecting corridors.</p> <p>Finalise carrier agreements for long term commercialisation of council telecommunication infrastructure in key town centers and connecting corridors.</p>	<ul style="list-style-type: none"> <li>• TIM</li> <li>• Property</li> <li>• Growth Management</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Smart city standards reflected in policies, plans and organisational documents.</p> <p>REDS Implementation Plan 2019-2023: Smart connected centres - Achieved via the realisation of master-planned community outcomes across Aura, Bokarina, Harmony, Maroochydore City Centre as well as staged smart technology implementation across the region's existing centres hierarchy.</p>
<p><b>4 Data driven decision making</b></p>			
<p><b>4.1 Combine advanced digital technology expertise across council to produce valuable business insights.</b></p>	<p>Investigate and communicate using GIS, high-resolution maps, 3D data and spatial modelling tools to manage IoT deployments.</p> <p>Publish intranet/internet articles containing interactive data-driven webpages produced by Power BI, Open Data Portal, ArcGIS Online, and other live dashboards.</p> <p>Use a Things Database to manage and track IoT asset deployments by recording and reporting equipment purchasing, installation, configuration, servicing and data analysis activities.</p>	<ul style="list-style-type: none"> <li>• Data Analytics (DIS)</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Council branches benefit from consistent data and IoT sensor performance.</p> <p>Produce and use new and unique business insights to improve service performance and create new service models.</p> <p>Partnerships and collaboration with local, Australian, and international organisations to share learnings and reduce cost and time to identify, test, evaluate and deploy new data driven innovations for the Sunshine Coast.</p>
<p><b>4.2 Improve timely and quality decision making by connecting council staff to real-time data.</b></p>	<p>Develop business analytics capability by raising awareness and providing education and training opportunities.</p> <p>Integrate IoT analytics capabilities into standard business processes by helping council staff with data management and analysis techniques.</p> <p>Drive data innovation through discovery, exploration, and application to diverse business problems.</p> <p>Educate staff about automation, machine learning, and artificial intelligence (AI) to provide better services.</p> <p>Enhance ICT procurement.</p> <p>Streamline access to device manufacturers, cloud-based software, and consultants who provide data science, analytics, training and education services.</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Contributing to the delivery of these actions:</p> <p>Corporate Plan: Outstanding organisation strategic priority: Enable data driven intelligence and analysis to inform evidence-based decision-making (p46).</p> <p>Environment and Liveability Strategy: 24.1 Undertake targeted monitoring, modelling, research and other data collection.</p> <p>Automated real-time sensor data ingested in Power Bi and ArcGIS systems and published to the intranet and internet via dashboards.</p>
<p><b>4.3 Develop maturity in council's data culture.</b></p>	<p>Train council staff with data analytics tools.</p> <p>Raise awareness about responsible data use and quality assurance for data reporting.</p> <p>Consistently develop information capability using technologies that provide simple and consistent capture, storage, access and management of data.</p> <p>Introduce data governance responsibilities for relevant council working groups and committees.</p> <p>Identify service duplication through data integration and create opportunities for efficiencies.</p> <p>Make data ready for analysis using an open by default policy and provide software tools and governance processes to support the change.</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Corporate Plan - service excellence strategic priority: Embrace technology to deliver innovative solutions that deliver defined service improvements and enable data driven decision-making (p41).</p> <p>Environment and Liveability Strategy: 24.5 Develop and trial new and emerging tools and technologies to improve knowledge.</p> <p>Data insights and reports published to internal and external audiences.</p> <p>Improved regulation and risk management.</p>

SCF pathways	Initiatives	Lead and stakeholder branches	Outcomes
<b>4.4 Create data discovery and exploration infrastructure.</b>	<p>Invest in IoT data integration platforms that provide council and community benefit.</p> <p>Invest in a data catalogue and search technology.</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Environment and Liveability Strategy: 24.3</p> <p>Develop and maintain a user-friendly interface to enable the provision of accessible, current and accurate data.</p>
<b>4.5 Develop digital twin platforms.</b>	<p>Provide improved and near real-time decision making for disaster management, service provision, land use planning, capital infrastructure works, asset management, etc.</p>	<ul style="list-style-type: none"> <li>• Disaster Management</li> <li>• Development Assessment</li> <li>• New Planning Scheme Team</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Environment and Liveability Strategy: 5.5</p> <p>Explore and implement innovative technologies for timely and proactive disaster communications.</p>
<b>5 Solutions Pipeline and business value model</b>			
<b>5.1 Teams or individuals identify problems and provide or seek a possible solution. Transform</b>	<p>Provide an organisational governance tool for evaluation and prioritisation of ideas into operational solutions using the Solutions Pipeline and business value model.</p> <p>Consult with branches to develop potential solutions to their challenges and problems.</p> <p>Process submitted ideas through development and business value model to determine if they will proceed or not.</p>	<ul style="list-style-type: none"> <li>• Relevant branches</li> </ul>	<p>Queensland Local Government Act 2009 principles:</p> <ul style="list-style-type: none"> <li>• transparent and effective processes, and decision-making in the public interest</li> <li>• sustainable development and management of assets and infrastructure, and delivery of effective services.</li> </ul> <p>Corporate Plan: Council's Smart City Framework establishes an approach for the region to think differently about how services can be delivered and establishes an integrated program of smart and connected assets and services.</p>
<b>5.2 Use change management process to evaluate and validate potential high value solutions.</b>	<p>Facilitate potential solution evaluations with owning and stakeholder branches.</p>	<ul style="list-style-type: none"> <li>• Lead/owning branch</li> <li>• Stakeholder branches</li> <li>• DIS</li> <li>• SCF Team (facilitators)</li> </ul>	<p>Progress to operational implementation for high value outcomes, including financial and non-financial measures, based on:</p> <ul style="list-style-type: none"> <li>• community benefit</li> <li>• reduced financial costs</li> <li>• reduced resourcing</li> <li>• enabling infrastructure</li> <li>• risk avoidance/reduction</li> <li>• new revenue potential, where feasible.</li> </ul>

# Year 2 (2023-2024) Implementation Plan

## Leadership

Continue working with branches and teams in the initial stages of developments to include smart city approaches to strategies, policies, master plans and concept development.

Continue to work with stakeholder branches to identify relevant forward projects in council's 10-year Capital Works program.

Continue to actively work with capital and operational project teams early in concept and subsequent phases to enable maximum integration of smart city solutions.

Ongoing development of smart city content for Landscape Infrastructure Manual and Electrical and Public Lighting Infrastructure Manual.

Continue partnerships with stakeholders, eg USC cool urban forests project.

## Advanced digital technologies

Deploy additional sensors around parks, natural areas, beaches, roads, road reserves and buildings. For high volume deployments identify sensors and devices that are reliable, secure, cost effective and can connect to secure low-cost networks.

## Connectivity

Continue expansion of council's regional IoT network using LoRaWAN technology.

Leverage council's telecommunications carrier licence to assist the region to become a nationally competitive Major Urban Growth Area through revenue from Facilities Access Agreements and Indefeasible Right of Use agreements with other carriers.

Partner with greenfield developments to share smart city solutions implementation costs.

Discuss deployment of enabling infrastructure in:

- Nambour
- Maleny
- MCC
- Caloundra South including Peoples Place
- Palmview

## Data driven decision making

Progress development of the Data Integration System (previous Smart Region Management Platform) to maximise community benefits and enhanced service delivery through improved decision making, operational efficiencies, and capital budget savings.

Automate real-time sensor data ingestion from device to Power BI and ArcGIS, allowing council to build dashboards and publish to the intranet and internet.

Onboard and upskill council staff with analytics tools so they can find data, generate insights, report findings and publish to internal and external audiences.

## Solutions Pipeline and business value model

Identify the next top five priorities and confirm availability of secure, mature solutions to deliver these outcomes.



## Year 3 (2024-2025) Implementation Plan

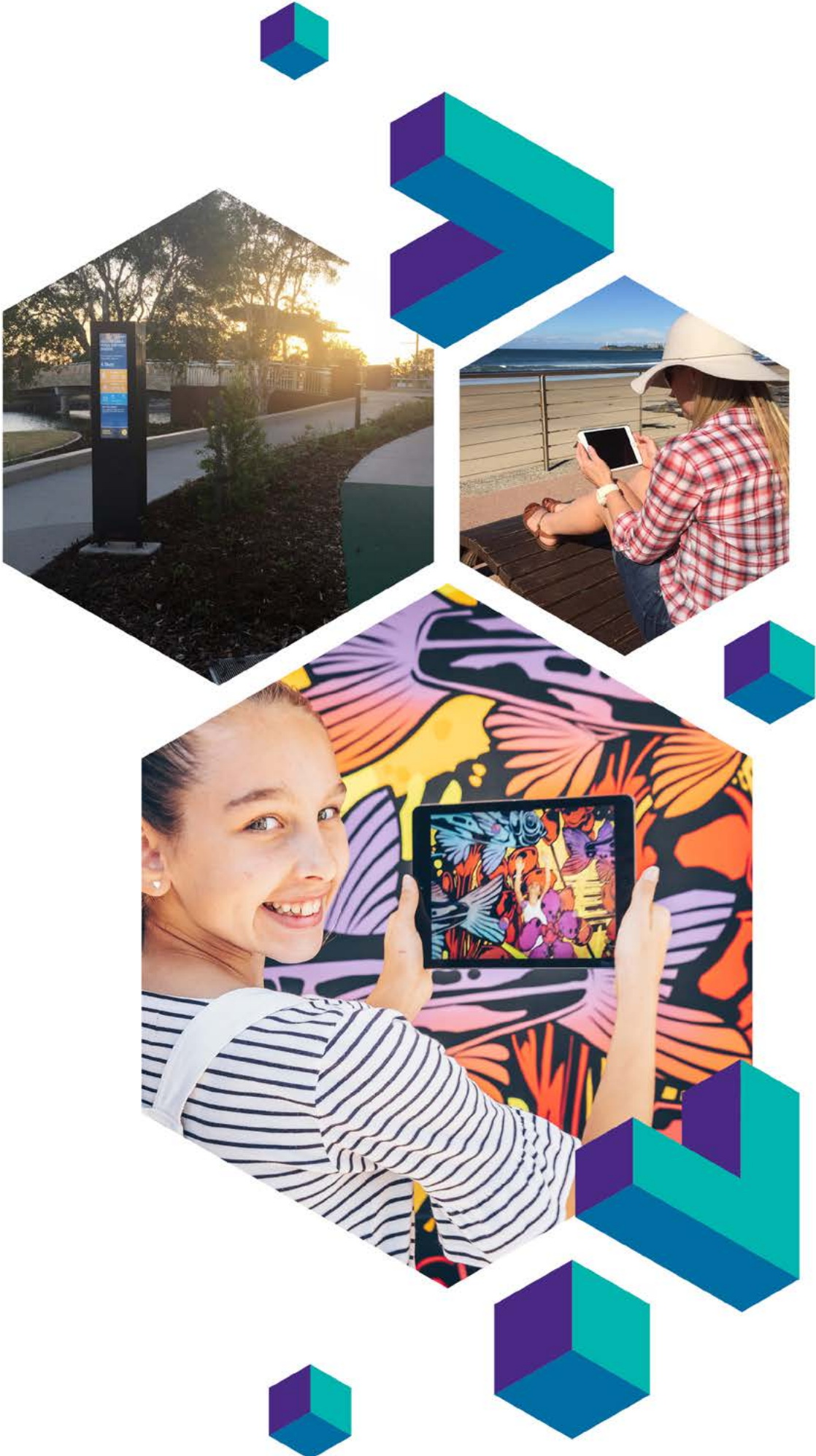
Build on the progress of the first two years adding detail actions based on branch input and prioritisation.

Facilitate council smart city solutions outcomes across the five core goals:

- Leadership
- Advanced digital technologies
- Connectivity
- Data driven decision making
- Solutions Pipeline and business value model

Continuing projects include:

- Work with branches and teams in the initial stages of developments to include smart city approaches to strategies, policies, master plans and concept development.
- Deploy additional sensors around parks, natural areas, beaches, roads, road reserves and buildings. For high volume deployments identify sensors and devices that are reliable, secure, cost effective and can connect to secure low-cost networks.
- Expand council's regional IoT network using LoRaWAN technology.
- Partner and collaborate with local, Australian, and international organisations to share learnings, reduce costs and time to identify, pilot and evaluate before scale deployment of new data driven innovations for the Sunshine Coast.
- Continue to develop the Digital Infrastructure Manual covering physical and non-physical digital infrastructure.
- Ensure council staff have access to digital professional development.
- Third phase of Data Integration System development to ensure routine access to data is efficient, relevant and has data quality measures.





 **Sunshine Coast**<sup>™</sup> | **Smart City**  
COUNCIL | The future is now.

[sunshinecoast.qld.gov.au/smartcity](http://sunshinecoast.qld.gov.au/smartcity)

07 5475 7272