



Building a Connected City

A Digital Strategy for Cork City



Comhairle Cathrach Chorcaí
Cork City Council

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Message from the Lord Mayor

Cork City's first digital strategy has been prepared during a time of intensive change. The emergence of Covid-19 has required all of us to adapt and embrace digital and virtual tools to work and interact with businesses and each other. While the pandemic is amplifying digital transformation, the advancement in new digital innovations were already changing our lives and our city.

This digital strategy has been developed with the aim of supporting our citizens and businesses to better engage with the digital economy. It builds upon ongoing collaborative efforts to advance Cork's transition to a smart and sustainable city. We are fortunate to have high calibre businesses, education and research centres and committed public and community services working together to deliver innovative solutions across our city. This strategy will build upon existing stakeholder relationships and seek to develop new partnerships to achieve our digital ambitions.

It is more important than ever to recognise that a smart city is an inclusive city. Rapid advancements in technology and the digitalisation of services in response to Covid-19 has been an important lifeline for many. However, for others who feel unable to engage with our new digital world, it can be very isolating. Actions in this strategy address some of these issues including digital upskilling for citizen and business's, digital inclusion, participation, and the digital divide.

As a city we aspire to work together to harness the benefits of digital advancement including job creation, online participation, and better access to public services in a safe and secure manner for our citizens and businesses.

Cllr. Joe Kavanagh

Lord Mayor



Message from the Chief Executive

There is a clear commitment in Cork to the pursuit of smart, sustainable, and inclusive city development. The role for technology, data, and digital tools to enable this development has emerged strongly in recent years. Indeed, we can all agree that technology now permeates many areas of our work and home lives.

Considering this, Cork City Council has led the development of Cork City's first digital strategy in consultation with city contributors and following the European Commission's Digital Cities Challenge programme.

This three-year strategy aspires to make Cork 'the connected city'. It aims to enhance the quality of life of our citizens and promote economic development through digital transformation.

This strategy centres around 4 key ambitions to enhance Cork City's digital maturity in a sustainable manner. These ambitions were developed with city stakeholders and include:

- Enhancing Digital Inclusion and Digital Skills
- Increasing Connected Services for Citizens
- Empowering People to use Open Data
- Utilising Best in Class Digital Infrastructure

A roadmap of over 70 actions across 7 themes have been developed to support these ambitions through a series of collaborative workshops and individual consultations. The strategy and actions are monitored and updated on an ongoing basis. This is a living strategy which will evolve over time, reflecting changing priorities and opportunities.

Ann Doherty

Chief Executive



Executive Summary

Developments in technology and communications have fundamentally changed the way that society and economies operate. Technology can alter how people live by offering new opportunities for engaging with others, utilising services, and accessing information. It progresses innovation, improves productivity and enables local businesses to compete on an international scale.

Citizens, businesses, education, and public authorities face challenges in meeting the demands and expectations created by rapid advances in the digital world. Disruptive industries, privacy concerns and security risks all require careful consideration, to ensure that the benefits of digital can be safely realised.

Cork City Council is committed to creating attractive, sustainable, and economically viable urban areas, in which citizens and communities can thrive. Embracing innovative and digital solutions is one way to help achieve this objective.

Cork City's Digital Strategy seeks to position Cork as an internationally recognised city for innovation. It aims to support citizens and businesses to take advantage of emerging digital

opportunities and ensure the benefits of the upcoming National Digital Strategy and the National Broadband Plan can be harnessed by communities locally.

This is a 3-year strategy which aspires to enhance quality of life for citizens and promote economic development across the city. It is a living strategy which will be adapted to respond to changing requirements, opportunities, and crises like Covid-19.

This strategy has been developed in consultation with city stakeholders using feedback from surveys, workshops, and meetings. Collaborative implementation of this strategy by city stakeholders, will ensure that the benefits accrued through digital can be dispersed across the city.

During the consultation period there was a strong consensus that the strategy should focus on people rather than on technology. This approach views technology not as a driver but as an enabler to help address city, citizen, and business challenges.

This approach considers how digital tools can better connect citizens with each other and with their city and its services. It explores how businesses, and in particular SMEs, can be supported through digital technologies.

These ambitions have been reflected in the vision developed collaboratively at the first strategy workshop:

Our collective vision is to make Cork the Connected City – Innovative, Inclusive, and Inspiring.

This vision reflects the need to reduce the impact of the digital divide by

empowering and enabling everyone to take advantage of digital opportunities. This involves supporting our tech natives and high-tech businesses while also removing barriers for those who are not as digitally engaged to take advantage of new opportunities.



1. Introduction

Cork is an ambitious city dedicated to inclusive, resilient, and sustainable development. The potential for digital tools to support these goals is well understood but can only be realised by taking a coordinated approach across the city.

It is important to set out that the purpose of the digital strategy is not to simply embed technology across our city. Instead, the strategy focuses on harnessing digital opportunities to deliver outcomes that ultimately improve the quality of life for people living, working, and visiting the city. For this reason, co-creating the strategy with local contributors was central to its development. A key feature of the methodology has been the engagement of local stakeholders in every step of the strategy design.

Additional information about the consultation process and the methodology employed to develop this strategy is contained in section 3.

Developing the Strategy

Since 2015, Cork City Council has actively engaged in a wide range of projects to assist Cork's development as a smart city. In addition to identifying projects across a variety of areas including citizen participation, energy efficiency and open data, Cork City Council undertook smart city benchmarking assessments which helped to develop our smart agenda.

In 2017, Cork City Council with support from the Innovation Value Institute and researchers at LERO – the Irish software Research Centre at Maynooth University; undertook a smart and sustainable city capability assessment. The process and results from this work helped to form a common understanding of our smart city maturity and helped to advance Cork City Council's smart city programme.

In 2018, as part of the National Broadband Plan, the Department of Rural and Community Development prepared a local digital readiness assessment for all local authority areas. Building on Cork City Council's experiences, digital maturity assessments and stakeholder inputs, the development of this digital

strategy is the next step in planning for a more digitally enabled city.

At the inception of this strategy's development it was determined that the methodology employed needed to prioritise collaboration but also be robust, externally validated, transparent and use open standards. To this end, Cork City Council identified an opportunity and successfully applied to participate in the Digital Cities Challenge Programme (DCC).

DCC is a programme developed by the European Commission to enable participating cities to advance digital policies and create a custom collaborative digital strategy for their city. The framework and tools of the DCC, provided Cork with a robust methodology to identify the digital transformation potential for the city. It also provided a peer review framework with other cities who were participating in the programme.

Stakeholder engagement and co-creation by design are the core principles that guided the strategy development. Design

and implementation of this strategy with and by city stakeholders ensure that the benefits to be accrued through digital can be dispersed more widely across the city than if it was developed in isolation.

Cork's Digital Vision and Ambitions

The Digital Vision and Ambitions for Cork were defined collaboratively by local stakeholders from the public and community sector, private sector, education, and research sector as part of the strategy's consultation process.

Cork City's strategic vision is:

To make Cork the Connected City – Innovative, Inclusive, and Inspiring

An internationally recognised city for innovation; where through collaboration Cork Citizens and Businesses can benefit from digital developments to enhance quality of life and enable economic growth.

Underpinning this vision are 4 Digital Ambitions which aim to support citizens and businesses to benefit from digital transformation.

Cork City's Digital Ambitions



Enhance Digital Inclusion to ensure that Citizens and Businesses can Engage with, Contribute to, and Benefit from the Digital Economy



Facilitate more Connected Services for Citizens through Collaboration



Empower people to use open data in creative, innovative, and sustainable ways



Utilise World Class Interconnected Infrastructure to Support Digital Connectivity

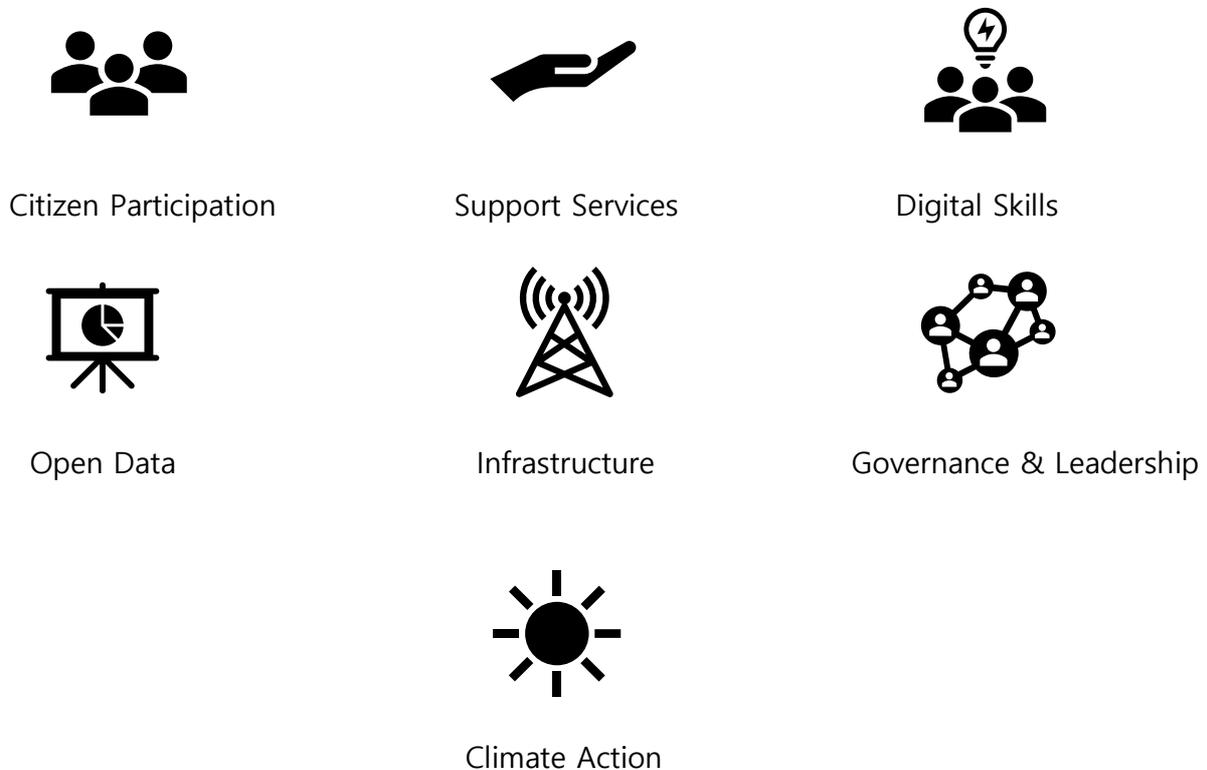
2. Digital strategy roadmap and planned actions

Overview of proposed actions

Cork City's digital strategy is developed around 7 dimensions and takes a balanced approach to improving digital maturity by advancing all dimensions.

The dimensions take a holistic approach to developing a more digitally enabled city and aim to reflect the needs and values of citizens and businesses.

Figure 1: Seven Digital Dimensions



The main output of the digital strategy process are the actions that drive its implementation. These actions are described in the following tables. The

'contributors' listed against the actions include organisations that could be involved in their implementation. The status of the actions reflects their

implementation status and will be updated as appropriate.

This is a living document, and the list of actions and contributors will change over time.

The emergence of Covid-19 in early 2020, affected some of the actions and their delivery schedule. Section 6 provides more detail about the impact and response to Covid-19 in relation to the digital strategy.





Looking for some help or need to make a Cork City
[Council Service Request](#)?



Want to report a [faulty streetlight](#)?



Trying to [renew your dog licence](#)?



Pay your [City Council housing rent](#) online?

Did you know that you can do much of your business with Cork City Council online?

There are many services available online through the [Cork City Council websites](#) and the corkcity.submit.com application page.

Table 1: Citizen Participation and Community

Dimension:		Citizen Participation and Community 		
Description:		Cork has an engaged and collaborative stakeholder ecosystem across the public, private, education, research, and community sectors. The actions under the citizen participation and community dimension aim to improve information sharing, promote the participation of citizens in decision making and support community development.		
#	Action name	Description and goals	Contributors	Status
1.1.	Digital Citizen Services Outreach	Increase citizen's knowledge of digital services through sharing information and creating awareness of services	CCC: CAIR ICT	Ongoing Increased use of Website and Social Media to communicate with Citizens
1.2.	Online Consultation Portal	Increase use and promotion of Cork City Council's online consultation platform which allows individuals/businesses to participate in public consultations (consult.corkcity.ie)	CCC: All Departments	Complete 29 online consultations launched between May and August 2020
1.3.	Customer Service Unit	Increase functionality of Cork City Council's Customer Service Unit (CSU) which streamlines incoming engagement from customers and records engagement through a CRM system.	CCC: CCP	Ongoing Extension of CSU to manage Community Response Forum.
1.4.	Customer Service Portal	Develop secure digital portal to enable customers to interact and transact with Cork City Council Services	CCC: CCP	Ongoing
1.5.	Cork Voices	Explore the extension of the 'Cork Voices' participatory grant making scheme	CCC: CCP	Ongoing Pilot completed and extension to be considered Q1 2021
1.6.	Citizen Participation	Explore innovative ways to enhance citizen participation and digital inclusion in Cork City	CCC: ICT/ CCP/ SED Nimbus/ Arup/ ICC	Ongoing Through Intelligent Cities Challenge Programme
1.7.	Digital Communication via www.corkcity.ie	Promote the development of user centric digital content, enabling access to information and public services for our customers through our website	CCC: ICT	Ongoing Increase in the use of the website for communication and services
1.8.	Digital Services in Cork City Council Libraries	Continue to provide and develop digital services in Cork City Libraries including implementing the objectives of the Digital Strategy for Cork City Libraries	Cork City Libraries	Ongoing
1.9.	A City Reading Podcast	Launch 'A City Reading' Podcast. A Cork City Libraries' Talking Newsletter podcast.	Cork City Libraries	Complete
1.10.	Cork City Now	Promotion of messaging service for Cork Citizens	CCC: CAIR ICT	Complete
1.11.	Mobile Enabled Websites	Ensure all Cork City Council managed websites are fully mobile enabled	CCC: ICT	Complete 23 websites fully mobile enabled
1.12.	Citizen Transport Survey	Survey of citizen's transport mode, behaviour and preferences and transport pain points.	CCC: Operations SED UCC/ ARUP	Planning



Is your business high tech, low tech, or no tech?

All businesses can benefit from digital.



Talk to the [Cork City LEO](#) about their trading online voucher or attend their online training sessions.



There are lots of supports for businesses through the [Cork Chamber of Commerce](#) and [Cork Business Association](#).



Looking for the perfect place to work or for some additional support? Check out some of the local [co-working and innovation](#) spaces.

Table 2: Support Services

Dimension:		Support Services 		
Description:		The support services dimension includes actions that aim to facilitate digital transformation across Cork. These actions build on the strong collaborative ecosystem of stakeholders and focus innovative mechanisms to embed digital across local organisations and across the city.		
#	Action name	Description and goals	Contributors	Status
2.1.	Historic Tourism Augmented Reality (AR) App	AR Historic Tourism App for Cork City to enable tourists and local citizens to engage with the city's past	CCC: SED UCC SFI	Ongoing Project Commenced with UCC
2.2.	Real Time Digital Displays	Digital Displays share real time messaging for citizens in the city and in key public buildings	CCC: Operations CAIR	Complete
2.3.	Digital Council	Equip the Cork City Council Representatives with Digital Equipment for a paperless Council	CCC: CAIR ICT	Complete
2.4.	Cork City Councillor Portal	Secure online portal to allow Councillors capture, monitor and manage Councillor representations using our corporate cloud CRM solution.	CCC: CAIR ICT CCP	Ongoing
2.5.	Digital Department	Investigate feasibility for a paperless office for CCC People and Organisation Development Department	CCC: P&OD	Planning
2.6.	Internal Digital Transformation	Explore the integration of new technologies or solutions to Cork City Council's HR function to improve the employee experience	CCC: P&OD	Ongoing Introduction of online training and video interviews
2.7.	Customer Relationship Management	Deploy additional CRM services including mobile across relevant departments in the Council.	CCC: ICT/CCP	Ongoing Additional functionality to facilitate the CRF
2.8.	Homeswapper.ie	Support the use of www.homeswapper.ie to facilitate mutually beneficial Council home swaps	CCC: Housing	Ongoing Pilot project commenced
2.9.	City Property Management	Explore opportunities to use technology to better manage Cork city's property assets	CCC: CAIR ICT	Planning
2.10.	MAAS Digital Transport Group	Engagement between stakeholders involved in supporting Mobility as a Service. Explore solutions to assist citizens to use multi modal transport solutions	CCC: Operations/ CCP/ICT/SED Transport Reps	Planning
2.11.	Collaborative DTIF Application	Explore collaborative funding applications including the Disruptive Technologies Innovation Fund (DTIF)	CCC: All City Contributors	Planning
2.12.	European policy and projects	Continue to explore best practice in smart and digital cities through European Projects and policy networks	CCC: ICT/SED	Ongoing
2.13.	Engagement with Research	Engage with research institutes regarding smart cities and digital transformation	CCC: ICT/SED Academic and Research bodies	Ongoing Collaborations with UCC, Tyndall, CIT, IERC, NUIM
2.14.	SFI Connect Collaboration	Industry partner agreement with SFI Connect Centre	CCC: ICT UCC/ SFI	Complete
2.15.	Collaboration with SFI	Explore Collaborations with additional SFI centres	CCC: ICT/SED SFI Centres	Ongoing



Planning a trip to Cork City?



Check out the [real time parking availability](#) in the Multi storey car parks across the city or in the park and ride



Pay for parking on street using the [Cork Park by Phone App](#).



Take a bus or train and grab a [city bike at any one of the bike stations](#).

Table 3: Digital Skills

Dimension:		Digital Skills 		
Description:		This dimension aims to enhance digital skills and understanding for people and businesses which are prerequisites for digital transformation.		
#	Action name	Description and goals	Contributors	Status
3.1.	Digital for Business Pilot	Event series to discuss different types of new/emerging digital technologies and ways that they can be applied to different businesses areas	CCC: ICT/SED CSG, Business Representative Organisations	Ongoing Webinar series commenced through the Cork Smart Gateway
3.2.	Digital Transformation Awareness	Support for businesses to embrace digital opportunities through exchange of experiences and learning from case studies	CCC: SED/LEO Business Representative Organisations	Ongoing Webinar's and online events and training for businesses
3.3.	Digital for Business Programme	Design and implement an up-skilling programme for micro businesses and SMEs to explore how non tech businesses can take advantage of opportunities that emerge because of digital developments	CCC: LEO/SED CSG partners Business Representative Organisations	To be considered following action #3.1
3.4.	Digital Lifelong Learning	Promote Digital Lifelong learning events and activities	CCC: CCP CIT	Ongoing Through Lifelong Learning Network and Libraries
3.5.	Smart Urban Neighbourhood	Develop a smart urban neighbourhood with the learning neighbourhood network	CCC: ICT CCP Learning Neighbourhood Stakeholders CIT	Planning
3.6.	Digital Skills Training	Digital skills and awareness training for City Council staff	CCC: ICT/P&OD	Ongoing
3.7.	Digital tools for up skilling	Explore the use of digital tools to enhance training outcomes for staff	CCC:P&OD ICT	Ongoing CCC commenced roll out of online training mechanisms



Cork City libraries have lots of digital activities on offer. Contact your [local library](#) to see what is available near you or view the range of [online services](#).



Check out some of the digital activities for kids such as a Coder Dojo coding class or a videogame club meet up.



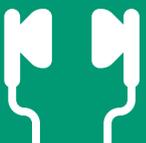
Cork City Libraries provide a vast range of [Maker Space Activities](#) including 3D printers and adult coding classes.



Use your library membership to take a free online course in [Art, Crafts & Hobbies](#), [web development](#) or [technology](#).



The libraries offer free Wi-Fi and access to PC's, online books, magazines, digital graphics novels and e-comics.



Keep up to date with new digital developments and sign up for Cork City's [talking newsletter podcast](#) 'A City Reading'.

Table 4: Open Data

Dimension:		Open Data 		
Description:		This dimension seeks to facilitate greater access to data to better inform decisions, improve transparency, and support innovation.		
#	Action name	Description and goals	Contributors	Status
4.1	Review of high value data sets	Review smart cities open data releases and identify high value data sets	CCC: ICT CSO	Planning
4.2	Challenge Workshops	Identify key challenges and data-based solutions for citizens	CCC: ICT NUI Maynooth PPN Learning Cities Network	Postponed Citizen Workshop postponed due to Covid-19
4.3	Open Data Citizen Engagement	Citizen engagement activities to raise awareness and use of open data	CCC: ICT CSO INSIGHT	Planning
4.4	Cork Dashboard	Engage with NUI Maynooth and the Building City Dashboards Project to create plan for short- and medium-term support of Cork Data Dashboard	CCC: ICT/SED NUI Maynooth UCC	Ongoing
4.5	Cork Dashboard Exhibition	Cork Dashboard Open Data Exhibition	CCC: ICT NUI Maynooth	Postponed Postponed due to Covid-19
4.6	Open Data Repository	Add and maintain relevant datasets on the Cork Open Data Repository	CCC: All Departments	Ongoing
4.7	Open Data Ethics	Review the ethics of data capture and sharing of data	CCC: ICT/Law AISCF INSIGHT CSO	Planning
4.8	Monthly Report Publication	Publication of the Data tables in the CE monthly Report	CCC: CAIR	Planning



Fancy checking your emails in the park or discovering what is happening in your city in real time?



Cork City Council has won four [Wi-Fi4EU](#) vouchers worth €60,000 to expand the public Wi-Fi offering across the city



Connect to the [free public Wi-Fi](#) that is available in the city with more locations to be added



Explore the [Cork Dashboard](#) for more data about Cork

Table 5: Infrastructure

Dimension:		Infrastructure		
Description:		This dimension focuses on the physical infrastructure required to enable digitalisation and improve connectivity		
#	Action name	Description and goals	Contributors	Status
5.1	WIFI4EU	Application of WIFI4EU Vouchers for public Wi-Fi	CCC: ICT European Commission	Complete Successful application of 4 Wifi4EU vouchers
5.2	Delivery of public WIFI projects	Expand public WIFI across public buildings and in public places	CCC: ICT European Commission DRCD	Ongoing Public Wi-Fi extended to Bishop Lucey Park, Plaza outside Central Library and Museum
5.3	Air Quality Sensors	Work with partner organisations to test Air Quality Sensors in Cork	CCC: Operations/ ICT UCC	Ongoing Pilot commenced
5.4	Footfall Counters	Maintain footfall counters across the city	CCC: Operations	Complete
5.5	Support National broadband plan	Support the local activities of the National Broadband Plan	CCC: ICT Operations	Ongoing
5.6	Digital Buildings Telecommunication Access Guidelines	Include Digital Buildings Telecommunication Access Guidelines inclusion in Planning Requirements	CCC: SED	Ongoing
5.7	Digital Infrastructure Report	Explore requirements for Digital Infrastructure for Cork City	CCC: SED Commercial Bodies e.g., Telecoms etc.	Planning
5.8	Fibre Ducting	Assess the opportunity to provide ducting for fibre, particularly in the Docklands area	CCC: SED Operations Telecom Companies	Planning
5.9	Migration of key ICT services to the Cloud	Deploy MS Office 365 and SharePoint and upgrade CRM to a cloud-based solution.	CCC: ICT	Ongoing



Did you know that you can shape your city's development from the comfort of your own home?



Participate in public consultations through Cork City Council's online consultation portal consult.corkcity.ie. Review proposals and submit a response and see the consultations that affect citizens and businesses in Cork.



Looking to explore local amenities digitally?

Learn about the history of the [Gun Powder Mills and virtually explore the Ballincollig Regional Park](#).



For those looking for something more creative, browse the Crawford Art Gallery [online collection](#) featuring works from the 18th Century to the present day.



Watch this space for the launch of a new Historic Tourism Augmented Reality Application which will bring Cork's rich history to life in situ and in real time using your mobile.

Table 6: Governance and Leadership

Dimension:		Governance and Leadership 		
Description:		This dimension explores the governance of the digital strategy and the coordination of a wider smart agenda		
#	Action name	Description and goals	Contributors	Status
6.1.	Digital Strategy	Publish a Digital Strategy for Cork City and coordinate the implementation of activities	Digital Strategy Stakeholders	Complete
6.2.	Digital Strategy Stakeholder Group	Engage with stakeholders around the delivery of Digital Strategy	Digital Strategy Stakeholders	Planning Stakeholder group to be established following strategy publication
6.3.	Cork Smart Gateway	Steering group member of the Regional Smart Cities Initiative for Cork	CCC: ICT	Complete
6.4.	All Ireland Smart Cities Forum	Member of the All Ireland Smart Cities Forum. The forum is a community of practice focused on the advancement of cities in Ireland	CCC: ICT	Complete
6.5.	Open and Agile Smart Cities	Member of Open and Agile Smart Cities Group	CCC: ICT	Complete
6.6.	Major Cities of Europe	Member of Major Cities of Europe ICT Group	CCC: ICT	Complete
6.7.	IWISH	Inspire, encourage, and motivate female students to pursue careers in STEM through the IWISH initiative	CCC: ICT IWISH Partners	Complete
6.8.	Athena SWAN	Athena SWAN initiative aims to effect change in HEIs to support gender equality and the career-progression of women in STEM disciplines	Academic Institutions	Complete
6.9.	Cyber-Security	Ensure a high level of security is protecting all Council digital assets during their entire lifecycles in Cork City Council ownership	CCC: ICT	Ongoing
6.10.	Cyber-Security Awareness	Foster information sharing between local authorities to encourage best practises to be implemented when securing assets. Educate all Council staff to be "Security Conscious"	CCC: ICT	Ongoing
6.11.	Ethics for Digital Transformation	Cork City Council are committed to using data in responsible and ethical ways and will act with integrity when implementing digital transformation actions.	CCC: All Departments	Ongoing
6.12.	Tech Cluster Accreditation	Bronze label ESCA accreditation for IT@Cork tech cluster	CCC: ICT IT@Cork	Complete



Looking to reduce your carbon footprint? Interested in co-creating a sustainable city?



Did you know that Cork City Council has a fleet of 76 Electric Vehicles? This is the largest Local Authority Electric Vehicle fleet in Ireland. Locate your nearest [e-charging point](#)



Leave the car at home and explore the nearby [City Walks, Parks and Playgrounds](#). Don't forget to visit your nearest [recycling centre](#) too



Check out the developments under the '[Re-imagining Cork City](#)' Programme that accelerate Cork's Sustainable Urban Growth Vision

Table 7: Climate Action

Dimension:		Climate Action 		
Description:		This dimension explores how digital solutions can help people and organisations to address climate action and achieve climate sustainability goals and responsibilities.		
#	Action name	Description and goals	Contributors	Status
7.1.	Explore Innovations to support Climate Action	Support, encourage and develop the move to digital services and exploit new ideas which seek to capture opportunities associated with the environmental and technological advances that support climate actions.	CCC: Climate Action Team Academic Institutions	Planning
7.2.	Business engagement in response to Climate Actions	Collaborate and work with businesses in seeking new ideas to reduce the impact of climate change on their business and on Cork City and help contribute to their business continuity plans	CCC: Climate Action Team LEO Business Rep Associations	Planning
7.3.	Response Coordination to Climate Events	Investigate the potential for technology-based solutions for the coordination of responses to severe or extreme climate events	CCC: Climate Action Team	Ongoing Solutions for remote access for systems and staff
7.4.	Communications Contingency Plan for Extreme Weather Events	Develop a Communications Contingency Plan to ensure access to remotely access essential council systems	CCC: Climate Action Team Operations, CAIR/ ICT	Ongoing
7.5.	Technologies for council buildings to reduce impact of climate change	Identify, resource, and install new technologies (or update existing) in council buildings/housing assets and other infrastructure to reduce the impacts of climate change on staff, customers, and citizens	CCC: Climate Action Team Housing	Ongoing
7.6.	Electric Vehicles	Support the rollout of electric vehicles and electric vehicle-charging infrastructure usage and corresponding infrastructure in Cork City	CCC: Operations	Complete Roll out of 76 EVs in CCC fleet in 2020
7.7.	Community Engagement	Develop strategies and social platforms to engage with communities and increase awareness of the need to reduce greenhouse gas emissions	CCC: Housing	Ongoing Focus of the Interreg Europe Intensify Project
7.8.	Innovative solutions for climate action	Exchange experiences with other cities to identify innovative solutions for carbon reduction that could be replicated in Cork	CCC: Climate Action Team ICT Operations	Ongoing Connections made with other cities through Major Cities of Europe and AISCF
7.9.	Smart Home Pilot	Deployment of smart energy measuring and monitoring pilot solution	CCC: Housing SRA, SHPLG	Ongoing Interreg Europe EMPOWER Project
7.10.	Low carbon electricity to heat homes	Deployment of pilot technology in 10 homes including an upgrade storage heating system to avail of low carbon electricity from the grid.	CCC, IT Sligo	Ongoing Interreg NW Europe RED-Wolf Project
7.11.	Demonstrate feasibility of heat pump and storage system	Installation of device in one home along with solar thermal and solar PV	CCC, IERC	Ongoing
7.12.	Living Wall Installation	Installation of four 'Living Walls' across Cork City to support improvements in air quality	CCC: Operations	Ongoing



3. A Collaborative and Consultative Approach to Developing Digital Strategy

Understanding Cork's Digital Maturity Level

Developing a collaborative and inclusive digital strategy was the key aim of the strategy development process. This aim placed consultation and engagement at the core of the methodology employed.

The European Commission's Digital Cities Challenge Programme followed a clear and robust 4 phase approach, relying on high levels of consultation and collaboration throughout.

Phase 0: Digital Strategy Context and Baseline



Establish Cork's Digital Maturity

Complete Cork's Self-Assessment Tool by surveying key local stakeholders



Key Performance Indicators (KPIs)

Gather data for the KPIs to quantify digital maturity level and establish a baseline



Good practices

Identify best practice examples from national and international sources

The first step in this process was to gain a common understanding Cork's current **Digital Maturity Level**. Over **50 stakeholders** from the public sector, private sector, community, and academic sectors completed a **Digital Maturity Self-Assessment** using a tool developed as part of the Digital Cities Challenge Programme.

The results of the Self-Assessment exercise provided an indicative understanding of how digitally mature the City was across 8 different dimensions:

Table 8: SAT Dimensions

Dimension 1.	Governance and Leadership
Dimension 2.	Digital Community
Dimension 3.	Finance
Dimension 4.	Digital and Physical Infrastructure
Dimension 5.	Support Services
Dimension 6.	Digital Skillset
Dimension 7.	Digital Competences of Companies
Dimension 8.	Open Data

The results of this activity, in combination with a list of **KPIs** identified for Cork, provided a baseline to consider the local context around each of these dimensions. This also helped to identify

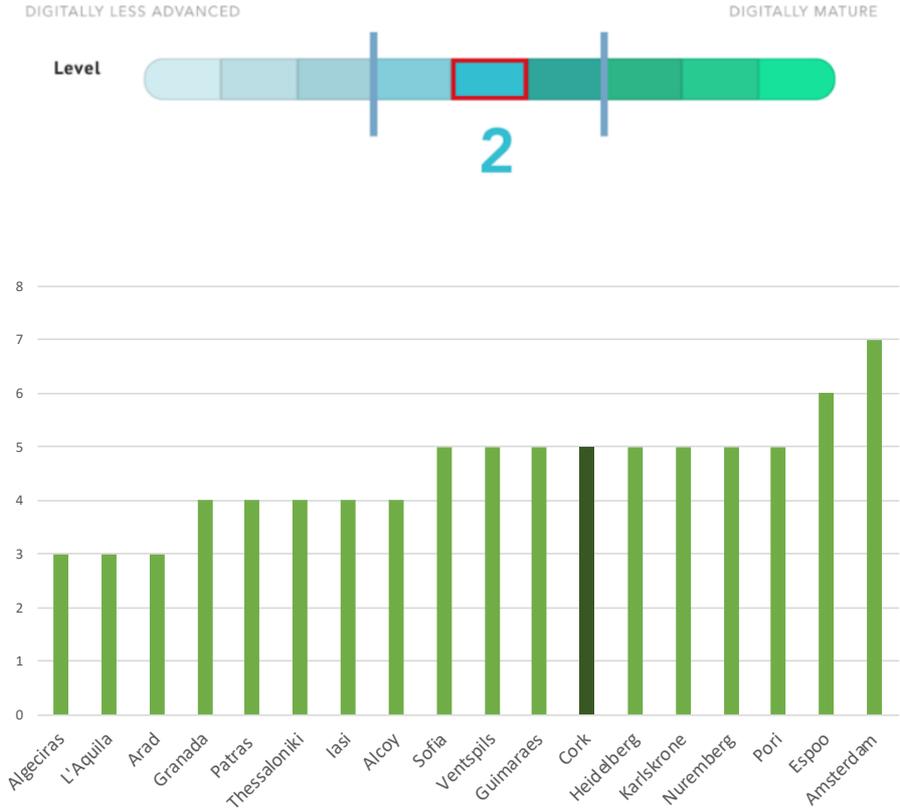
stakeholders to participate in the digital strategy process.

A detailed analysis of the SAT results per dimension is included in [Appendix 1](#).

Phase 1: Digital Maturity Baseline Results

Overall Digital Maturity Level Result	Digitally Transforming
<p>Cork City is on its way to becoming digitally mature according to the results of the Self-Assessment Tool (SAT). Overall, the City obtained a score '2' out of '3', based on the aggregate perception of 51 stakeholders from the public sector, private sector, education, and community sectors. This indicates that the City is on a good trajectory to fully participate in and benefit from the</p>	<p>global digital economy. This also indicates that there is potential to use digital technologies and adjust policies and actions that can address digital challenges more efficiently. 'Figure 2' displays the overall score of Cork's SAT and demonstrates how Cork's result compares to a selection of other cities who participated in the programme.</p>

Figure 2: Overall SAT score for Cork and its comparison to other cities participating in Digital Cities Challenge



The SAT results per dimension and sub-dimension provide further insights and are presented in Figure 3 and Figure 4.

According to the perception of the city stakeholders, Cork is strongest in Digital Community and in the sub-dimensions 'Ecosystem collaboration', 'Networking and monitoring' and 'Coordination'.

Cork's comparative weaknesses are Open Data; Infrastructure; and Governance and Leadership.

Note: there is a limitation regarding the impact of the finance results which should be noted due to an insufficient number of responses from financial institutions represented which skews the results of the SAT for this dimension.

Figure 3: Performance SAT dimensions

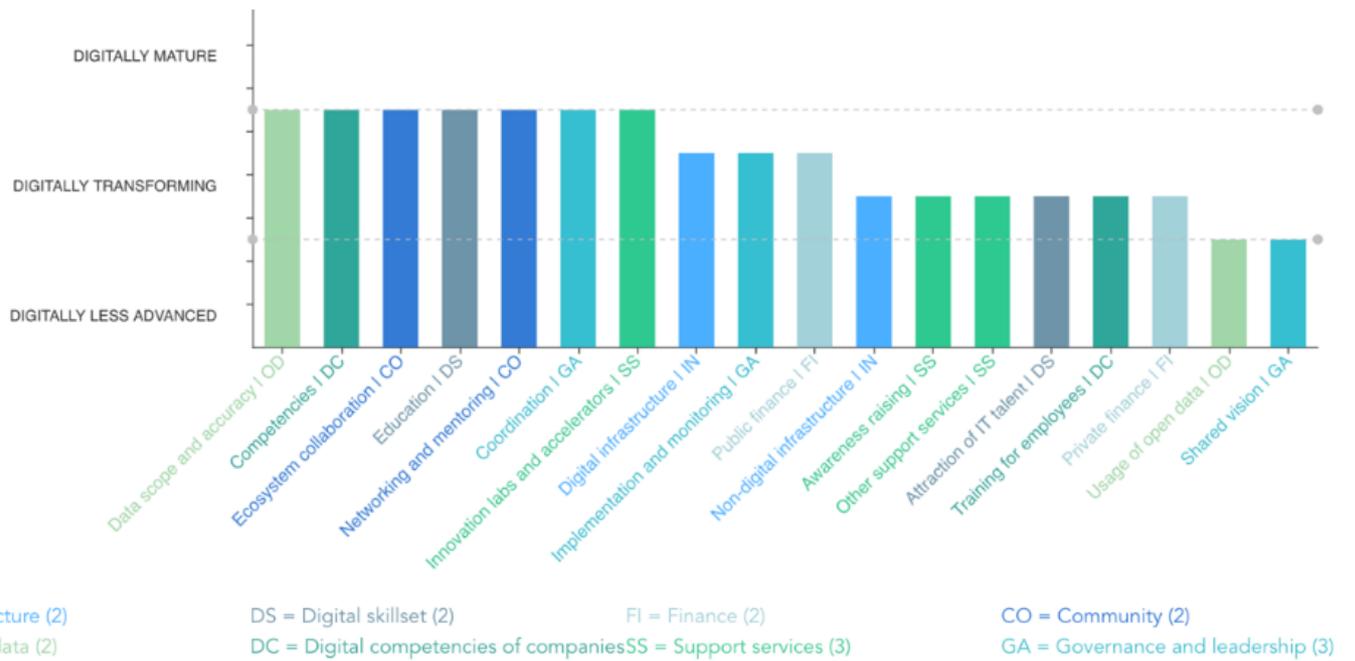


Figure 4: Cork's SAT Performance



A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was developed with input from local stakeholders to provide additional context to inform the digital strategy.

Figure 5: SWOT Analysis for Cork

		Strengths	Weaknesses
	Infrastructure	<ul style="list-style-type: none"> > Digital Gateway to Europe > Transatlantic undersea fibre cable > Port and International Airport > High-speed mobile and broadband internet 	<ul style="list-style-type: none"> > Broadband Tariffs > Limited 5G or Future Network pilots
	Access to data	<ul style="list-style-type: none"> > Development of Open Data Portal > Cork Dashboard with Data Visualisations > High level knowledge in Cork's Academic and research bodies and CSO 	<ul style="list-style-type: none"> > No Data Audit > Data not used sufficiently by firms > Limited real time data > Infrastructure to gather desired data
	Digital skillset	<ul style="list-style-type: none"> > Strong IT skills development > Good digital education available through strong 3rd level sector > Specific IT Skillnet for companies 	<ul style="list-style-type: none"> > Digital programme not yet sufficiently included in non digital courses > Retaining local IT talent > School and adult education in IT could be improved
	Companies' digital competencies	<ul style="list-style-type: none"> > Important IT, electronics, life sciences companies > Strong FDI > Companies have good access to IT Solution Providers 	<ul style="list-style-type: none"> > Modernisation of companies to the standards of Industry 4.0 > Gap between large companies and SMEs > Lack of digital competences in non tech firms
	Community	<ul style="list-style-type: none"> > Open, engaged and collaborative stakeholder ecosystem across the public, private, academic and community sectors > Work with SH to get the best out of tech we have 	<ul style="list-style-type: none"> > Lack of communication between digital and non digital communities, firms, organizations etc > Weak digital skills in some citizen groups
	Finance	<ul style="list-style-type: none"> > Availability of public supports > Business Angel and Venture Capital community > Banks with a business focus 	<ul style="list-style-type: none"> > Lack of alternative financial sources > Lack of funding of digital projects of non digital firms
	Support services	<ul style="list-style-type: none"> > High quality business location > Good start up/incubation/accelerator support > Private and public co-working spaces 	<ul style="list-style-type: none"> > Awareness of the advantages of digital developments especially in traditionally non digital firms > No FAB Lab or innovation hub
	Governance & leadership	<ul style="list-style-type: none"> > Strong local community > Cork Smart Gateway established > Strong leadership in government, academia and industry groups 	<ul style="list-style-type: none"> > Lack of agreed digital strategy and action plan > Insufficient resources > Clear governance structure for City wide digital transformation
		Opportunities	Threats
	Infrastructure	<ul style="list-style-type: none"> > To build a connected Docklands or future networks testbed > Improve physical infrastructure > Interconnected infrastructure 	<ul style="list-style-type: none"> > Future proofing city > Implementation problems due to funding and lack of national level support > Lack of digital infrastructure plan
	Access to data	<ul style="list-style-type: none"> > To share data through existing portal > Identify the 'right' datasets > Promote more productive use of data 	<ul style="list-style-type: none"> > Reluctance/fear due to data reliability, GDPR, legal concerns > Lack of data skills and accessibility of data > Could be further prioritised by stakeholders
	Digital skillset	<ul style="list-style-type: none"> > Further third level and industry cooperation > Engage digital skills of school pupils > Introduce digital courses for non digital industries 	<ul style="list-style-type: none"> > Migration of talent > Housing accessibility and cost of living for talent
	Companies' digital competencies	<ul style="list-style-type: none"> > Participation in R&D projects > Enhancing business-oriented capacities > Innovation increasing competences 	<ul style="list-style-type: none"> > Decrease in the competitiveness of firms > Speed of Technological Change
	Community	<ul style="list-style-type: none"> > Promoting collaboration culture > Increasing knowledge transfer and exploitation of results > Improve citizen participation 	<ul style="list-style-type: none"> > Not all stakeholders involved > Specialised interests of organisations > Exclusion of citizens without digital skills
	Finance	<ul style="list-style-type: none"> > New financial tools e.g. EIF > New tools (crowdfunding, social entrepreneurship) > Innovative procurement models 	<ul style="list-style-type: none"> > Other companies and cities will advance if investment isn't forthcoming
	Support services	<ul style="list-style-type: none"> > Promotion through case studies and mentoring for SMEs re. digitalisation > Identify specialised supports for different sectors 	<ul style="list-style-type: none"> > Identifying a leader for collaborative projects > Digital transformation not embraced by non digital companies
	Governance & leadership	<ul style="list-style-type: none"> > To develop a shared digital strategy for Cork with buy-in from many stakeholders > Embed the digital strategy into the existing city strategies and Development Plans. 	<ul style="list-style-type: none"> > Insufficient resourcing for new ideas > Competing priorities for resources

Digital Strategy Stakeholder Workshop Series

The Digital Cities Challenge (DCC) methodology is based on a collaborative and iterative approach to developing a digital strategy.

Three stakeholder workshops were held over a period of 5 months to help develop and define the scope and actions of the Digital Strategy.

In total there were 80 workshop participants engaged as part of this process from a variety of organisations across the public sector, private sector, community sector and education and research sector.

Phase 2: Developing the Digital Vision and Ambition

Cork City Council has a key role in promoting digital transformation across Cork through service innovation and coordination of the digital strategy implementation with other stakeholders.

The digital vision and ambitions for Cork were defined at the first stakeholder workshop. The vision was co-created by the workshop participants which was developed by considering the results of the digital self-assessment survey and digital SWOT analysis. These statements were submitted as part of an assessment report to the European Commission and

have been peer reviewed by 3 other DCC participating cities.

Phase 3: Co-Creating a Collaborative Strategy

The second workshop focused on the development of the strategy. This workshop was attended by 29 participants. The main objective of the second workshop was to review and collectively validate a consolidated vision and ambition statement which was developed at the first workshop. During this workshop participants developed a list of operational objectives that are linked to the ambition statements. Key success factors and KPI's were also identified as part of this work.

Phase 4: Developing a shared roadmap of Actions

The digital transformation strategy for the city of Cork will be implemented through a group of actions, identified in the framework of the Digital Cities Challenge. The roadmap of actions was identified at the final workshop, attended by 20 stakeholders, and support the outputs of the previous workshops. The governance structure for the digital strategy was agreed at this workshop and is presented in detail in section 4.

Additional Consultation following the DCC process

Following the third workshop additional consultation was undertaken across Cork City Council.

This consultation identified several additional actions that have been included in this digital strategy.

Additional stakeholder engagement in the form of one to one meetings and interviews were conducted to clarify actions proposed in the third stakeholder workshops.



4. Digital Strategy Governance

Proposed Governance Structure for the digital strategy:

Level 1: Coordination of the Digital Strategy

The coordination of the digital strategy will be undertaken by the Digital Officer, ICT Services, Cork City Council. This role will involve managing the overall strategy development and engagement with stakeholders to facilitate the progression of implementation actions.

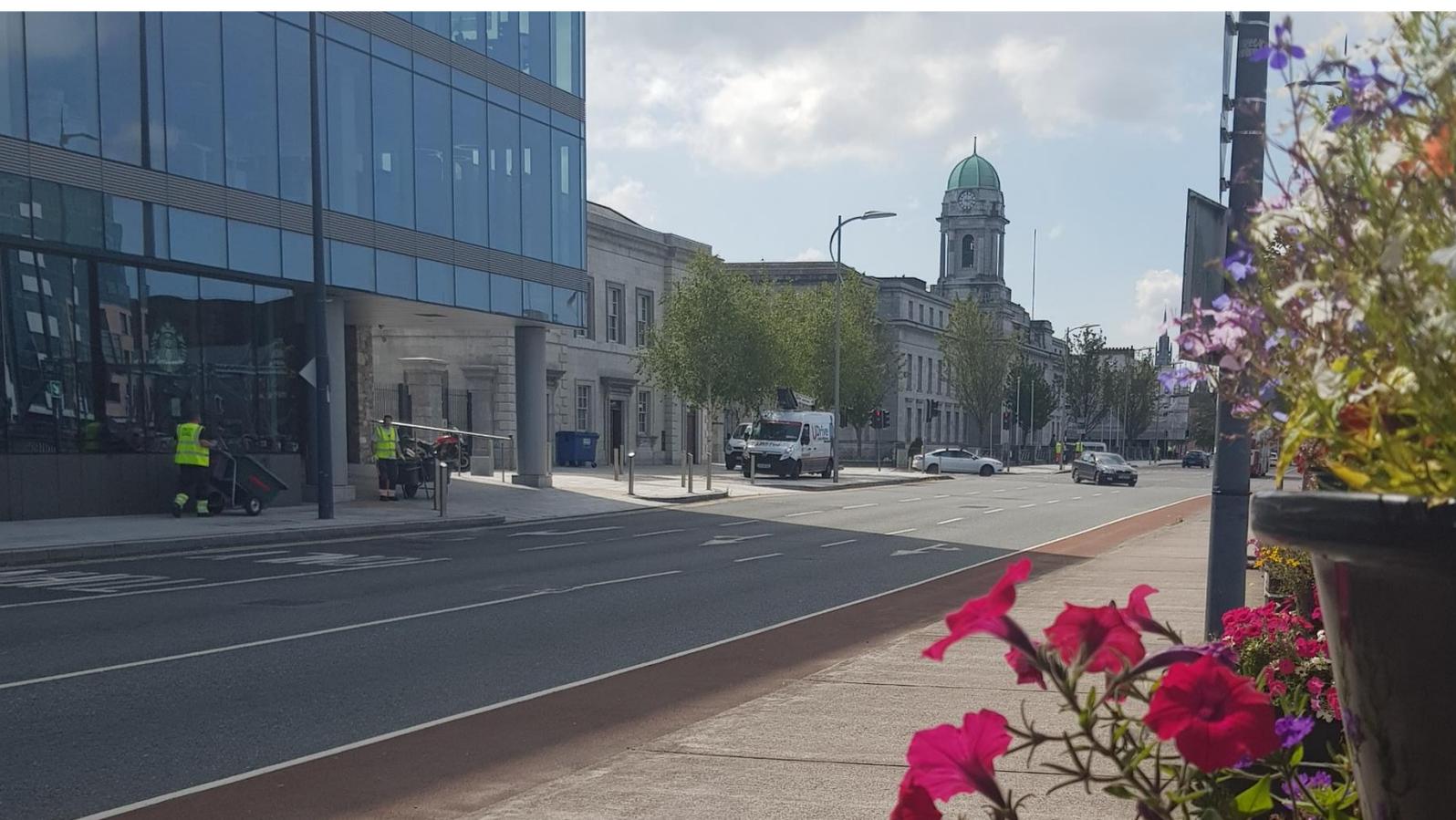
Level 2: Strategy Stakeholder Group

The stakeholder group will consist of city stakeholders who support the development of a digitally enabled city.

This group will guide the development and help with the implementation of the strategy actions. Nominations to become a member of the strategy stakeholder group will be sought from relevant Cork City Council directorates and external organisations.

Level 3: Project Groups

Implementation of actions can be achieved by single organisations or by project groups which will include relevant stakeholders. Support for the establishment of these groups will be provided by the Digital Officer if required.



5. Monitoring and evaluation of the Digital Strategy

Strategy implementation and results monitoring will be conducted by Cork City Council. The performance assessment framework will evolve as the city enters the full strategy implementation phase.

Table 9 Performance assessment framework

Aim	Expected result	Monitoring indicator	Baseline 2019	Target by 2023	Means of verification
1.	Improved Digital skills and digital engagement enabling businesses to participate in and Benefit from the Digital Transformation	Number of businesses embracing digital transformation and digital solutions	From national survey: % of Irish SME's with internet website [%] - 66% % of Irish SMEs offering online payment - 40%	Full implementation of established digital networking and mentoring initiatives	Further analysis from national sampling
	Improved Digital skills and digital engagement enabling citizens to participate in and Benefit from the Digital Transformation	# people engaging with CCC online	Number of consultations on consult.corkcity.ie 10 consultations in 2019	100 consultations between 2020 and 2023	consult.corkcity.ie
2.	Connected Services	# online services available from CCC	16	100	CCC Online Services
3.	Additional use of Open Data	# Real-time Datasets available	3	9	Data.corkcity.ie
		# Open Data events and attendants	0	3 events 100 Attendants	CCC
4.	Improved Connectivity Infrastructure	Public Wi-Fi availability	10 locations	20 locations	CCC
5.	Increase Cork City's Digital Maturity Level	Self-Assessment Score	2	Increase in all SAT sub dimensions	SAT Survey

6. Covid-19: Impacts and Response

The impact of Covid-19 has required organisations in every sector to embrace digital faster than anticipated to respond to the global pandemic crisis. The requirement to rapidly transform our places of work and education has placed technology at the heart of many decisions to enable organisations to continue to provide value and services in a new environment.

People and communities have been required to adapt quickly to living in a world where they are encouraged to stay at home and embrace digital solutions to interact socially and perform their daily tasks online where possible.

Consequently, solutions such as remote working, e-services and e-commerce have been accelerated in organisations and homes across Cork. Remote working, remote learning and online socialising have become the norm in the day to day routines of millions of people across the world. Fast-tracking digital transformation will be key to the future proofing of many organisations across the public, private, community and academic sectors.

There is a growing consensus that the rapid digital transformation that was necessitated by the arrival of Covid-19 will not be reversed when the virus is no longer a threat. Instead organisations across the world find themselves rapidly implementing digital solutions to enable this new normal.

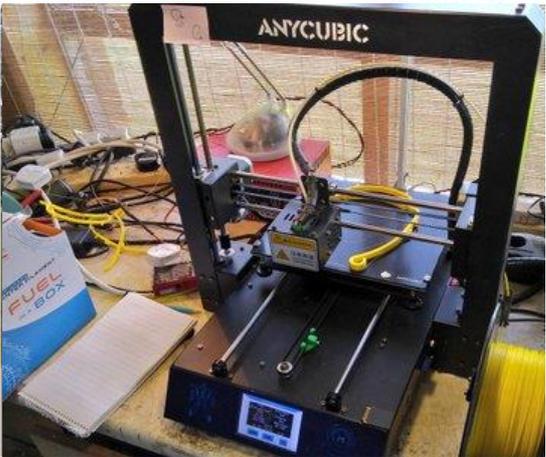
In Cork City Council, the response to the crisis has fundamentally changed the way we do business. Online services, e-consultations with citizens and online meetings have become ubiquitous across all departments. The CRM system has been a key asset in supporting the Community Response Forum and our most vulnerable citizens. This system centralised the management of requests but decentralised the response ensuring that the citizens needs were met efficiently and compassionately by local groups in their community.

Adapting the Digital Strategy post Covid-19

Reflecting the impact of Covid-19 on the actions identified in this strategy we can see that many actions have been fast tracked. This pandemic also presents a raft of new challenges for cities,

businesses and people including significant financial and operational challenges. Hard hit sectors such as retail, tourism, hospitality, and services will require additional support. There will be an opportunity for digital technologies to provide some of this support.

The status of the actions in this strategy have been updated to reflect developments during Covid-19. Innovative actions and creative thinking will be key to identifying new solutions and collaboration will be required to address these challenges.



7. Digital Strategy Local Ecosystem and Policy Context

Digital Disruption Requires Digital Transformation

The pace of Digital Transformation is changing the way we live, work, consume and interact with each other. Digital Transformation is driving what has been labelled as the 'fourth industrial revolution' and has already fundamentally transformed every sector of industry and is having a significant impact on society, the environment, and our economy.

Already the speed of digital transformation has disrupted many existing markets such as retail, telecommunications, and financial services. The acceleration in technology innovation is expected to continue at a fast pace and the ability to quickly respond to digital disruption is critical for all organizations.

Cities and governments are not immune to the impacts of digital disruption and they can also be a major enabler of digital transformation. Cities are in a unique position to facilitate collaboration between academia, industry and policy makers and play a leadership role in enhancing digital transformation.

Digital Strategy and Cork's Smart Agenda

Digital transformation and collaboration are key enablers to developing a smart and connected city.

In 2015, Cork City Council in collaboration with Cork County Council, CIT, UCC and Tyndall National Institute established a smart city and region initiative, the Cork Smart Gateway to develop and pursue a smart agenda for Cork. A smart city is one where traditional services are improved or made more efficient through the application of new innovations or digital technologies for the benefit of citizens and businesses.

Cork's smart agenda promotes the advancement of an innovation ecosystem in the region to increase economic activity, provide better public services, promote collaboration and engagement and enhance the quality of life for all who live, work and visit Cork.

Citizen engagement and collaboration are key components to developing and implement successful smart solutions in Cork. Cork City Council benefits from engagement in international initiatives such as the Covenant of Mayors, Open

and Agile Smart Cities, CIVITAS, ICLEI, Major Cities of Europe, Harvard Tech and POLIS and collaborates with many European stakeholders through related European projects.

At a national level Cork is also a founding member of the All Ireland Smart Cities Forum which comprises smart city representatives from all cities in Ireland and Northern Ireland. This forum provides an opportunity to exchange knowledge, collaborate and identify best practice solutions to common challenges.

There are a range of universal factors driving the smart city agenda globally. These include rapid urbanisation, climate change, economic competition, resource efficiency and advanced digital technologies. Increasing citizen expectations are a significant driving force, in terms of the quality of interaction with government and access to information and services. This digital strategy supports our smart city agenda and will build on these collaborations to underpin the reputation of Cork as an attractive place to live, work, visit and invest.

The Local Digital Ecosystem – Key Sectors of the Local Economy

Cork is well positioned to be a leader in the growth of Ireland's digital economy.

Cork has a diverse economy with a high level of overseas investment (150 overseas companies employ 30,000 people), innovative higher education and research Institutes and strong business representative organisations. Cork has a long history of collaboration between key stakeholders which has resulted in a thriving and innovative city.

Digital is not just a strong standalone sector or an important complementary to the tech sector in Cork. Digital is pervasive across the entire Cork economy and digital skills are increasingly required both by high-tech, low-tech, and traditionally no-tech companies across all industries.

The Cork region is home to seven of the world's top ten pharmaceutical companies and a Life Sciences sector comprising thirty-five International companies. It also has important Global Business Services and International Financial Services sectors with companies including Bank New York Mellon and Amazon. Cork is known for its strong technology sector which includes over fifty FDI Technology Companies including Apple, Johnson Controls, DellEMC, Amazon, TrendMicro and Malwarebytes.

Although FDI is important to the Cork economy it needs to be balanced by growth in indigenous companies. The emergence of strong industry clusters such as IT@Cork, Energy Cork and Cyber Ireland and increased links between businesses and research centres is helping to enhance the performance of innovative local companies. There is also a strong link between the Higher Education Institutes, including University College Cork and Cork Institute of Technology, Cork's Research Centres and industry supporting innovation and cutting-edge product and process development.

Start-ups and SMEs play an important role and Cork has a well-developed business start-up ecosystem supported by several accelerator programmes and by publicly funded initiatives e.g., Local Enterprise Offices. There are several Business Incubators in Cork which provide access to a wide range of Start-up Supports for Entrepreneurs who want to start, grow, and expand their businesses. Rubicon and Ignite are two such incubators which are located in Cork Institute of Technology and University College Cork, respectively.

Co-working spaces, innovation hubs and accelerators are also very valuable in supporting the wider business

ecosystem; for example, the Republic of Work and Glandore attracts innovative start-ups, SMEs and larger businesses for co-working and collaboration.

Growing the digital talent pipeline to support the expanding digital economy is a key component of the digital ecosystem. In addition to school-based initiatives there are many networks and programmes supporting digital skill development in young people. For example, CoderDojo and IWISH, both of which originated in Cork and are focused on inspiring and empowering young people to participate in the digital society.

Cork's Digital Connectivity

The growth of cloud computing, data analytics and other data intensive services means that tier one Telecoms connectivity is a key infrastructural requirement for Cork.

Cork is connected to high-capacity digital connectivity with the EU and USA via a tier one fibre network. This provides a direct connection from Cork to key technology and financial centres in the UK and the USA. A new sub-sea cable is planned that will connect Cork directly to mainland Europe via France.

The Cork Metropolitan Area Network supports high speed network connections across Cork's key business zones and can deliver virtually unlimited bandwidth to the areas it serves.

Additional free public Wi-Fi zones facilitated by Cork City Council and the WiFi4EU scheme will also help to improve the city's digital connectivity for all.

Supportive Policy Environment

National Policy Context

The National Broadband Plan (NBP) is a government initiative to deliver high-speed broadband to all premises in Ireland. This will be achieved through investment by telecom companies and a state intervention to bring access to high-speed broadband to locations where commercial investment is not guaranteed. It is an initiative between the Department of Communications, Climate Action and Environment and the Department of Rural and Community Development (DRCD).

Cork City Council is committed to the National Broadband process and to supporting its roll out at a local level. The Department of Rural and Community Development has several initiatives to

help the rollout of the National Broadband Plan and the implementation of local digital strategies is one such initiative to help to facilitate this implementation.

The National Planning Framework's National Strategy plans growth until 2040. The National Planning Framework places an emphasis on digital to support a strong economy and reflects the importance of digital for connectivity, enterprise and acknowledges the role of data innovation to drive the economy.

Local and Regional Policy Context

The key objectives in the digital strategy are reflected in key policy documents at City Level. These documents include the Cork City Development Plan 2015-2021, Cork City Council Corporate Plan 2020 - 2024; Cork City Local Economic and Community Plan (LECP) 2016 – 2021; Cork City Council Climate Change Adaptation Strategy (CCAS) 2019-2024; Cork 2050 (Joint Submission by Cork County Council and Cork City Council to the National Planning Framework (NPF)).

The Regional Spatial and Economic Strategy and South West Enterprise Plan both highlight digital connectivity and the role of smart cities and digital innovation in driving the regional economy.

The South West Enterprise plan (SWEP) focuses on leveraging the added value from regional and local actors working collaboratively, driving economic growth, and sustaining better standards of living. The SWEP first objective is to build capability and resilience in the region's enterprise base.

The digital strategy supports many of the actions under the SWEP which highlights

the need to ensure businesses are supported to manage the adoption of new and emerging technologies, and transition to a low carbon economy.

The digital strategy's focus on upskilling, showcasing, and leveraging smart technologies will also help to build resilience across the city and will support and benefit from the SWEP implementation.

Appendix 1: Detailed Self-Assessment Analysis for Cork

Cork's Self-Assessment Analysis across 8 different dimensions

- Dimension 1.** Governance and Leadership
- Dimension 2.** Digital Community
- Dimension 3.** Finance
- Dimension 4.** Digital and Physical Infrastructure
- Dimension 5.** Support Services
- Dimension 6.** Digital Skillset
- Dimension 7.** Digital Competences of Companies
- Dimension 8.** Open Data

Overall Digital Maturity Level

Digitally Transforming

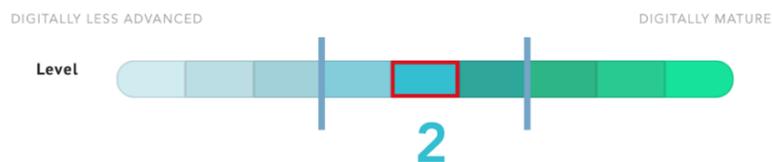
The City of Cork is on its way to becoming digitally mature according to the results of the Self-Assessment Tool.

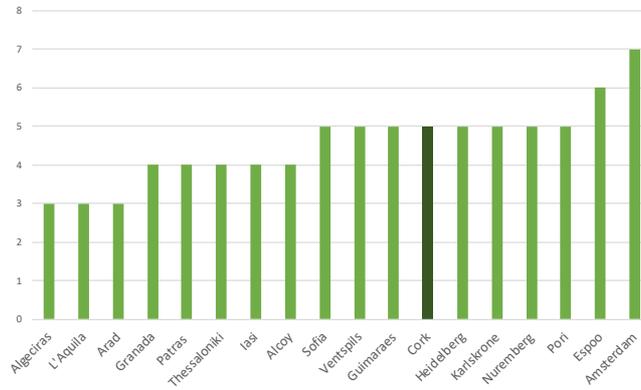
technologies and adjust policies and actions that can address digital challenges.

Overall, the City obtained a score 2 based on the aggregate perception of 51 stakeholders who participated in the SAT tool as presented in the diagram below. This indicates that the City is on a good trajectory to fully participate in and benefit from the global digital economy. This also indicates that we could do more to efficiently use digital

When comparing Cork to other cities that also participated in the Digital Cities Challenge initiative, the SAT scores of Cork are the same as for Heidelberg (Germany) or Karlskrona (Sweden), but they are lower than Amsterdam (Netherlands) or Espoo (Finland) and higher than the score of Granada (Spain) or Patras (Greece).

Overall score of the City of Cork on the SAT and its comparison to other cities participating in Digital Cities Challenge





These responses can also be examined based on different stakeholder groups. The SAT responses from stakeholders were organised into to three stakeholder groups

City: Public Bodies and Community Representatives¹

Industry: Private Companies and Business Representative Organisations

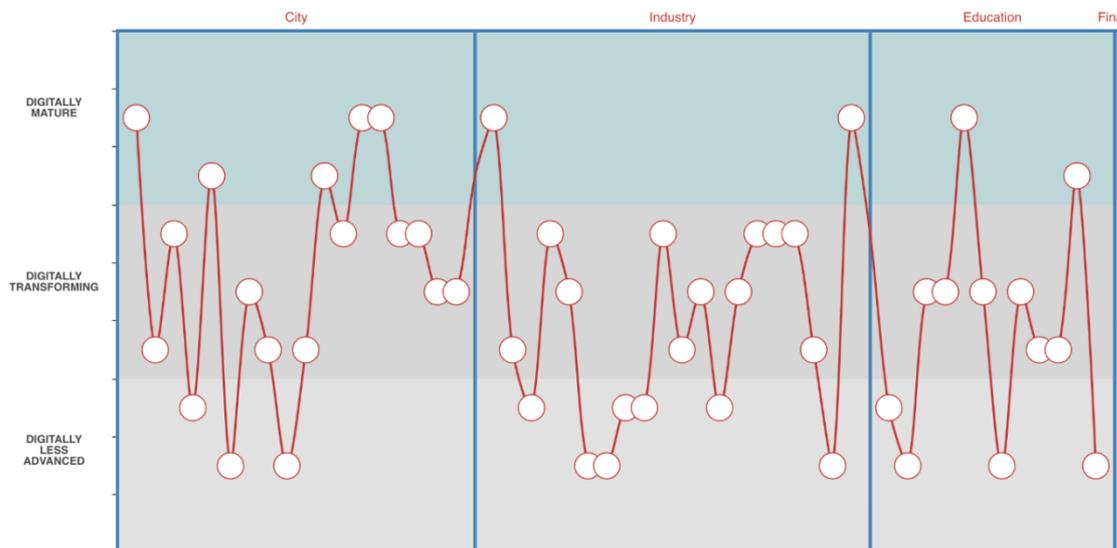
Education: Higher Education and Research Institutes

While there is a diverse distribution of scores, the results show that a majority of respondents agreed that Cork is in the Digitally Transforming range. City and education stakeholders have been more positive about rating the digital advancements than industry.

¹ Community representatives were asked to respond under the 'City' stakeholder group due to restrictions in the SAT.

Distribution of specific replies to the SAT according to stakeholder groups

SELECTION: All dimensions



The SAT results per dimension and sub-dimension provide further insights and are presented below. According to the perception of the city stakeholders, Cork is strongest in Digital Community and in the sub-dimensions 'Ecosystem collaboration', 'Networking and monitoring' and linked to this in 'Coordination'. These results reflect the efforts of the city to create a collaborative ecosystem and continuous dialogue among its key organisations and institutions.

It is relatively strong in terms of its Digital Skillset, although within this category it is stronger in education but has weaknesses in attracting talent. Another relative advantage is in the Digital Competences of Firms. Additional

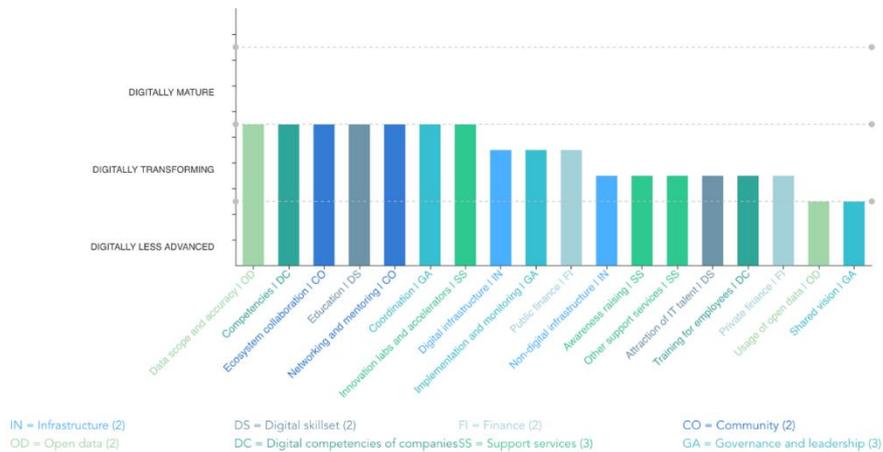
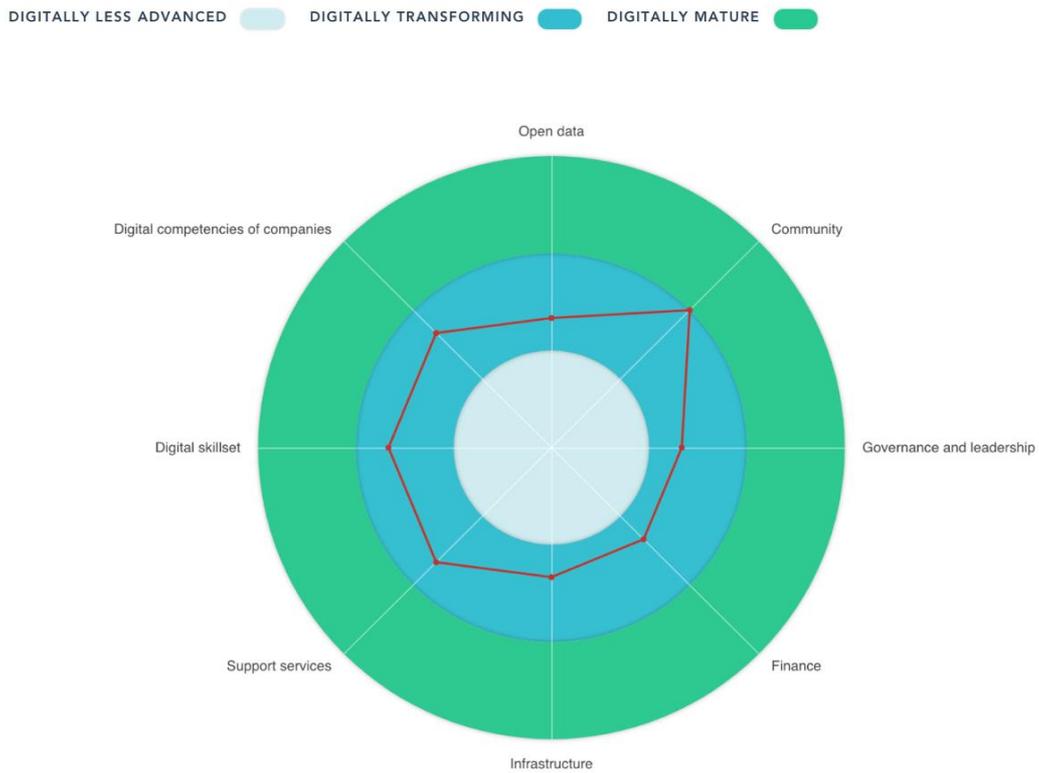
benefits in this dimension could be accrued from training of employees and further development of professionals. Finally, the importance of Support Services came to the fore and the importance of innovation labs, accelerators and clusters was highlighted.

The comparative weaknesses are Open Data; Infrastructure; Finance and Governance. Although the city offers access to public open data in several domains the usage and exploitation of the data is lacking. Provision of additional high value data sets could also be explored. The city has a strong commitment towards digital transformation; however, it lacks a coordinated approach with a long-term vision and comprehensive action plan.

The city has strong assets in the skill sets and competencies of firms, though it lacks some infrastructure investment and

funding schemes that would fully unlock the potential of digital transformation.

Performance of Cork on the SAT dimensions



Dimension 1: Governance and Leadership**Digitally Transforming**

The Cork region is governed by two local authorities, Cork City Council and Cork County Council. The councils regularly collaborate on projects in a number of areas and functions and have developed an initiative for the region called the Cork Smart Gateway which is a smart region initiative for Cork.

The Cork Smart Gateway Steering Group was set up to drive Cork's smart agenda and includes representatives from Cork City Council, Cork County Council, Tyndall National Institute, University College Cork, and Cork Institute of Technology.

Cork's success is characterised by strong inter-agency collaborative partnerships, the triple helix relationships that exist and the cross-community collaboration which all contribute to world class educational standards, good connectivity, strength in global business sectors, a growing start-up and SME sector and ability to attract talent and overseas investment. The entire region is economically, socially and environmentally diverse, offering business, entrepreneurship and

community choices for residents and visitors alike.

Cork City Council has established structures for joint initiatives with key stakeholders, internally across departments and with external stakeholders.

A weakness in this area is the lack of a formal shared vision on digital development in Cork. The DCC process and this resulting document aims to address this weakness.

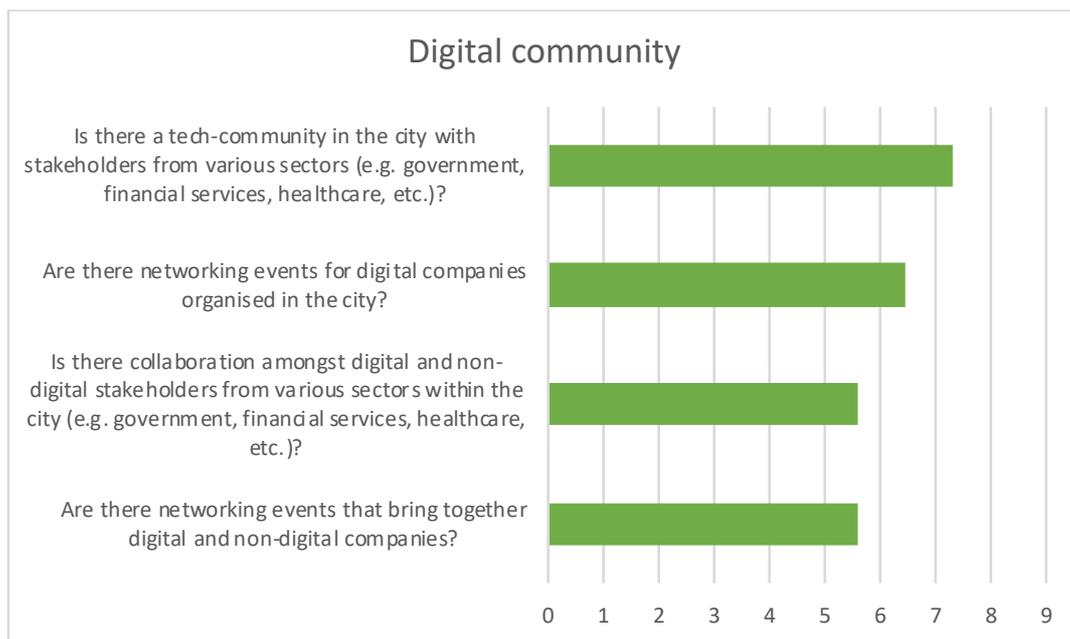
Dimension 2: Digital Community

Digitally Transforming/Mature

Cork has a very open, engaged, and collaborative stakeholder ecosystem across the public, private, academic and research sector and community sectors. Local academic and research institutions including Cork Institute of Technology, Nimbus Research Centre, International Energy Research Centre, Tyndall National Institute, University College Cork, National Maritime College of Ireland all have strong technology research centres and trialling facilities and partner closely with industry and local government in driving the smart city agenda. Strong Clusters in IT, Energy, Maritime and

Cybersecurity and longstanding industry associations in Digital and related areas provide additional mechanisms for industry collaboration and collaboration across the triple helix.

According to the SAT, Cork has a very important tech community and city stakeholders are well networked. However, there is a lack of connection between the digital and non-digital community, which points to all business sectors in the city not yet fully embracing the digital transformation paradigm. Manufacturing, tourism and retail sectors could benefit more from advances in digital technologies.



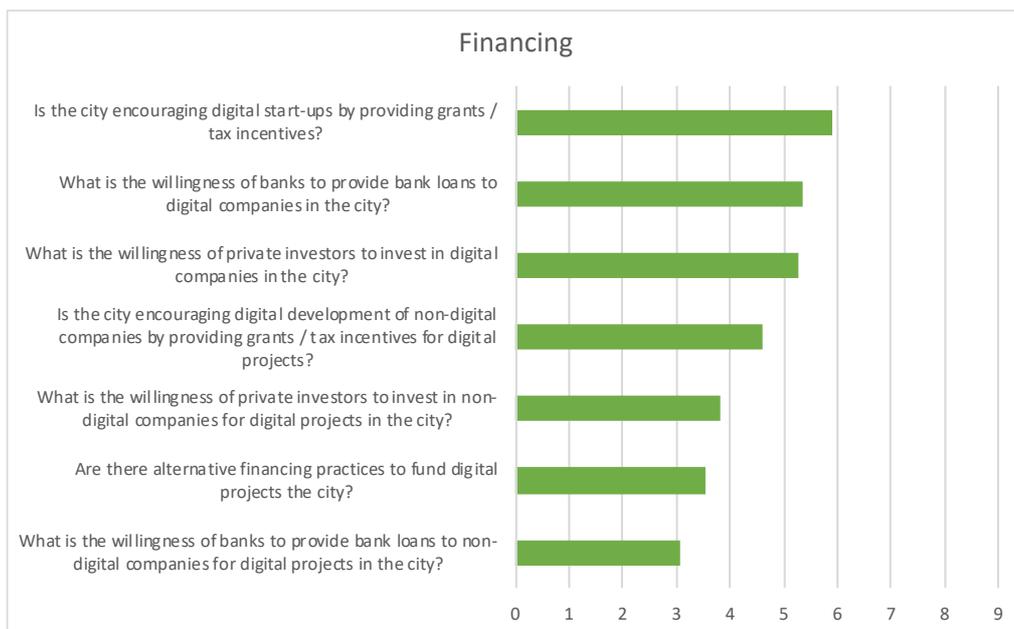
Dimension 3: Finance

Digitally Transforming

The SAT results indicate that while Cork offers relatively strong incentives to digital start-ups such as grants or tax incentives, it has a lack of alternative financing and somewhat weaker private sector financing schemes. From a public-sector investment perspective, the Local Enterprise Offices in Cork offer feasibility; priming or business expansion grants to start-ups and entrepreneurs that firms could investigate to help support their digital development. The scores also show that companies representing

sectors other than IT such as agriculture, electronics, tourism, and pharma have fewer resources available for their digital projects and this can impede digital innovations in these industries.

From a national perspective, new initiatives such as the Small Business Innovation Research (SBIR) programme, Digital Innovation Programme funded by the Department of Rural and Community Development and the Disruptive Technologies Innovation Fund run by the Department of Business, Enterprise and Innovation could be better used for the initiation of innovative digital projects.



Dimension 4: Digital and Physical Infrastructure

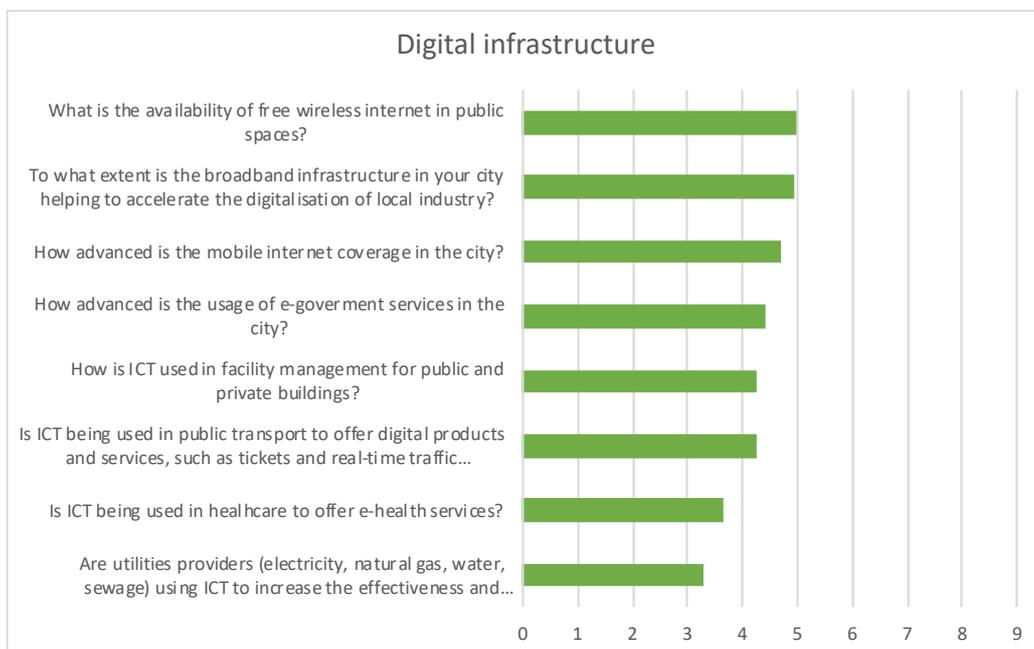
Digitally Transforming

Overall, the digital infrastructure of Cork is attractive to international companies. Cork is a digital gateway to Europe and has good international connectivity via a transatlantic undersea fibre cable which connects Cork with the USA and the UK and offers speeds of up to 100 Gbps. This connectivity facilitates big data, cloud, and media rich applications. Cork also has the second busiest international airport in Ireland connecting the city to

over 40 international destinations. Cork also has the second largest natural harbour in the world and is the key port in the South of the Country.

Nevertheless, there are several areas that need improvement such as mobile network coverage and high-speed broadband coverage.

According to the SAT, the most pertinent issue is to improve the Digital Transformation of public service providers such as utilities, healthcare, and public transport.



Dimension 5: Support Services

Digitally Transforming

Cork's business location is of high-quality as both the number of multinational companies located in the city and the feedback of key investors show. Cork has been ranked as number 1 for business friendliness among small European cities by FDI Intelligence in its 2014-2105 European Cities and Regions Futures Report.

Supporting entrepreneurship and the start-up community is a priority of Cork City Council through the local enterprise offices and support for start-up and incubation centres. Hands on supports in this area are offered by a range of organisations such as Ignite at the UCC, the Rubicon Centre, CorkBIC and the Local Enterprise Office.

Organisations such as the Cork Electronics Industry Association (CEIA) also support digital transformation. CEIA acts both regionally and nationally, representing the ICT sector in the Cork region.

Key cluster management organisations include the following:

IT@Cork: a business organisation for the cluster of IT companies in Cork and which represents 300 member companies with over 30,000 employees.

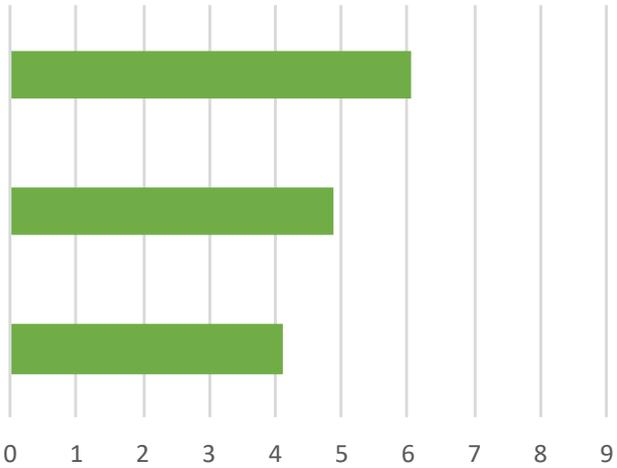
Energy Cork: an industry-driven cluster which aims to strengthen enterprise and employment in the energy sector in Cork, financially supported by Cork City and County Councils.

Cyber Ireland: Cyber Ireland brings together industry, academia, and government to represent the needs of the Cyber Security Ecosystem in Ireland. Cyber Ireland aims to enhance the innovation, growth and competitiveness of the companies and organisations which are part of the cluster.

According to the SAT results, support services offered to non-digital companies to foster digitalisation could be improved. More could be done also around awareness-raising and support to innovation labs that foster cross-sectoral digital innovations.

Support services

Are there innovation labs / accelerators / fablabs where non-digital companies can develop digital projects?



Does the city or its stakeholders create a wareness about the importance of digital development for SMEs through testimonials or case studies?

Does the city or its stakeholders provide support services to its non-digital companies to foster digitalisation?



Dimension 6: Digital Skillset

Digitally Transforming

Cork has a long tradition of independent learning, novel ideas, and contemporary innovation. It is well served by key Higher Education Institutes and international research centres. These centres not only perform cutting edge research but also support industry and academia in driving this research to market.

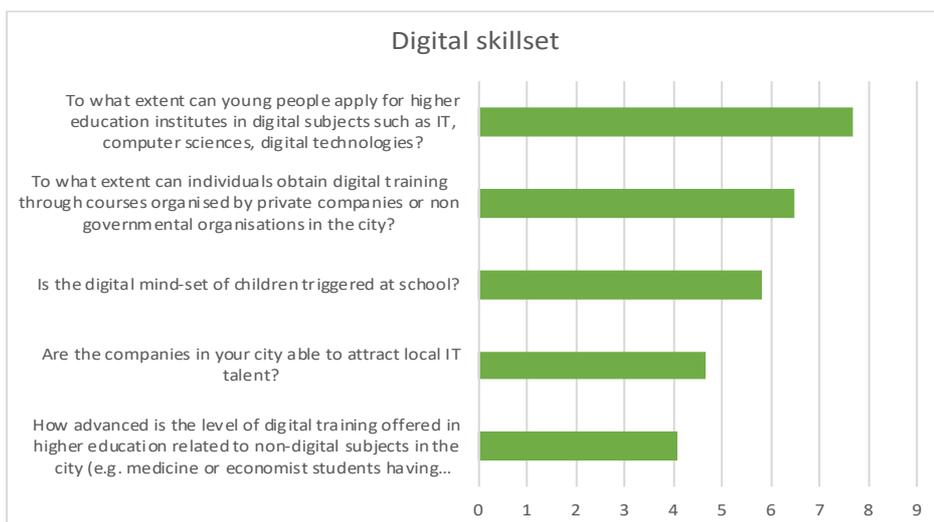
According to the SAT results, the city is relatively strong in skillsets related to IT, computer sciences and digital technologies; however, it has not yet managed to sufficiently spread digital education beyond the IT domain into other areas such as medicine, agriculture, economics or business administration.

The introduction of digital education across all courses offered in second and

higher education institutes in Cork could help to address the challenge of a continuous pipeline of emerging talent with high quality digital skill.

Respondents also highlighted the need for primary school education to trigger a digital mind-set in school. Such measures would also foster citizen engagement and participation by creating a new digitally skilled generation.

One further area for attention is the capacity of companies in the city to attract local IT talent. Interestingly, respondents from private sector organisations have been more positive about this question than those in the public sector. Despite the mid-rating of this question, Cork has been active in promoting the city and has seen consistent growth in numbers gaining employment across international companies in the past few years.



Dimension 7: Digital Competencies of Companies

Digitally Transforming

Cork has many important IT and Digital companies and has attracted significant foreign direct investment in the tech sector. Cork has a strong indigenous tech sector and enjoys innovative spin-out companies from the world class research institutions located in Cork. The SAT indicated that companies have good access to IT solution providers. However, it highlights that challenges exist in digital training and further skills development which is necessary to ensure that the workforce is sufficiently prepared for the digital age. While large multinational companies are more skilled in terms of digital technologies, the local SME base faces some challenges in this area.

The SAT highlights a weakness in the modernisation of some companies to the standards of Industry 4.0 such as mass customisation, smart products etc. According to Crunchbase², just 8% of Irish start-up companies related to Internet of Things (IOT) or 3D technologies are located in Cork.

Business services and the retail sector could also be better prepared for the changes being introduced by new digital solutions that are disrupting current operating model. In addition, robotic process automation, cognitive solutions, new analytics, big data will offer new opportunities for companies.



² www.crunchbase.com 2018

Dimension 8: Open Data

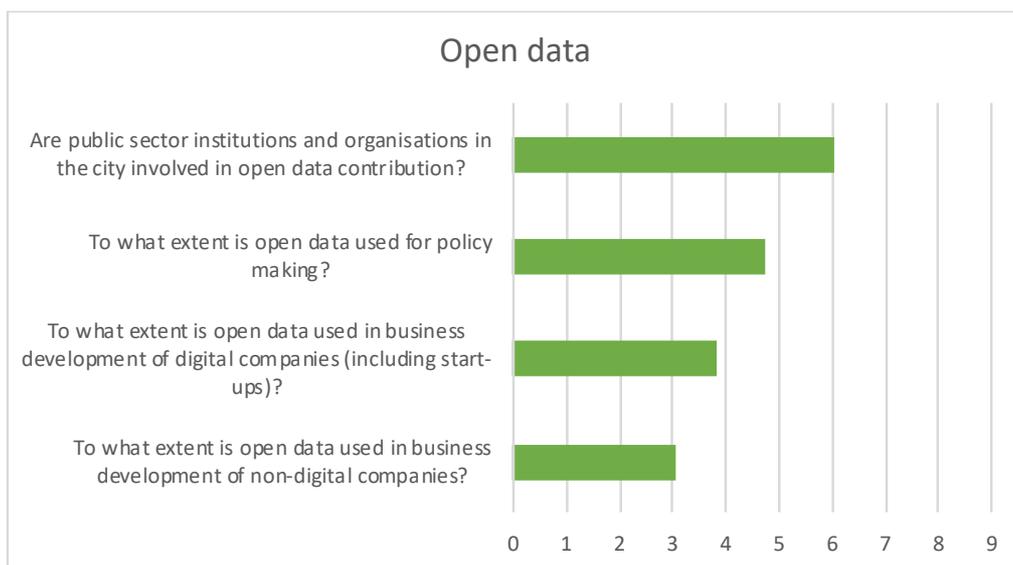
Digitally Transforming

Cork has made important strides forward in data driven innovation through the development of an open data platform called the Cork Dashboard³ that allows users to monitor a range of publicly available data at a glance – from real-time traffic and weather information to air quality and crime levels – all are available in one place and free of charge.

The portal offers real time and static data sets and was developed by Maynooth University through an SFI funded project called Building City Dashboards in collaboration with local stakeholders.

As is reflected by the SAT, this is a strong asset for the City; however, more needs to be done to promote the use and exploitation of such datasets.

Additional data sets need to be identified and released to facilitate the provision of an open test environment to develop Apps. In addition, the type of open data provided should be also reviewed and discussed with stakeholders to determine which data sets might be of interest or use in the future.



³ www.corkdashboard.ie

Appendix 2: Workshop Series Advisory Contributors

Brendan Tagney	ARUP
Sarah Bennett	CBA
Lawrence Owens	CBA
Tim O'Leary	Bus Eireann
Jerry Sweeney	CIX
Larry O' Donoghue	Cork BIC
Thomas McHugh	Cork Chamber
Denis Barrett	Cork City Council
Ruth Buckley	Cork City Council
Seamus Coghlan	Cork City Council
Colette Cronin	Cork City Council
Claire Davis	Cork City Council
Ann Doherty	Cork City Council
Claire Grenville	Cork City Council
Deirdre Kerins	Cork City Council
Cllr. Kieran Mc Carthy	Cork City Council
Paul McGuirk	Cork City Council
Denise Murphy	Cork City Council
Sarah O'Donovan	Cork City Council
Aidan O'Riordan	Cork City Council
Claire O'Sullivan	Cork City Council
Con O'Donnell	Cork City Council
Thomas Rogers	Cork City Council
Ian Winning	Cork City Council
Adrienne Rodgers	Cork City Local Enterprise Office
Antonio Santos	Cork City Public Participation Network
Siobhan Finn	Cork Innovates
Zahid Aslam	Cork Institute of Technology
Lorenzo Bruni	CSO
Eoin McCuirc	CSO

Kieran Lettice	Energy Cork
Sophie Crosbie	IBEC
Beth Massey	International Energy Research Centre
Carlos Ochoa	International Energy Research Centre
Piyush Verma	International Energy Research Centre
Eamon Curtain	IGNITE
Gabriel González Castañé	Insight Centre for Data Analytics
Stephen Hackett	Irish Rail
Eoghan O'Mahony	IT@Cork
Eamonn O'Brien	Johnson Controls
Alan McGibney	Nimbus Research Centre
Susan Rea	Nimbus Research Centre
James Sugrue	Over-C
DC Cahalane	Republic of Work
Mike Hayes	Tyndall National Institute
Patrick Fitzpatrick	UCC Academy
Mathias Reckmann	UCC Academy
Gerard Cully	University College Cork
Barry O'Sullivan	University College Cork
Dirk Pesch	University College Cork
Debbie Power	Vodafone

With Additional Support From:

Prof. Brian Donnellan, Vice President of Engagement and Innovation and Dean of International Affairs, Maynooth University. Chair of the All Ireland Smart Cities Forum; www.smartcitiesireland.org

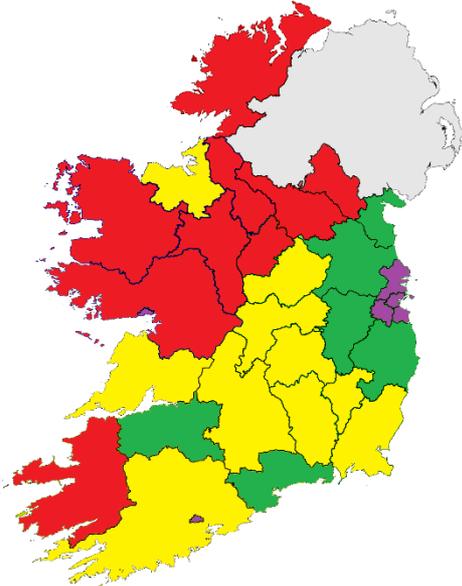
Niall Connolly, Research Fellow with LERO, the Science Foundation Centre for software and Technical Lead of Maynooth University's Technology Adoption Research Group.

Appendix 3: Digital Readiness

In 2018, The Department of Rural and Community Development engaged Indecon Global Economic Consultants to prepare a local digital readiness assessment for all local authority areas. Among the themes examined were levels of digital literacy, training, qualifications, and use; availability and use of online local government resources; and rates of ecommerce and innovation. This work was conducted as part of a drive to develop local digital strategies for each local authority area.

The national average of local digital readiness provides a summary of progress achieved to date and clusters local authorities into peer groups to reflect the various stages of digital development that exist amongst local authorities.

Local Authorities were classified into 4 groups which are explained in the table below. Cork City's group include local authorities in urban areas where the percentage of rural population is less than 30%. The map below highlights Cork City's peer group in Purple.



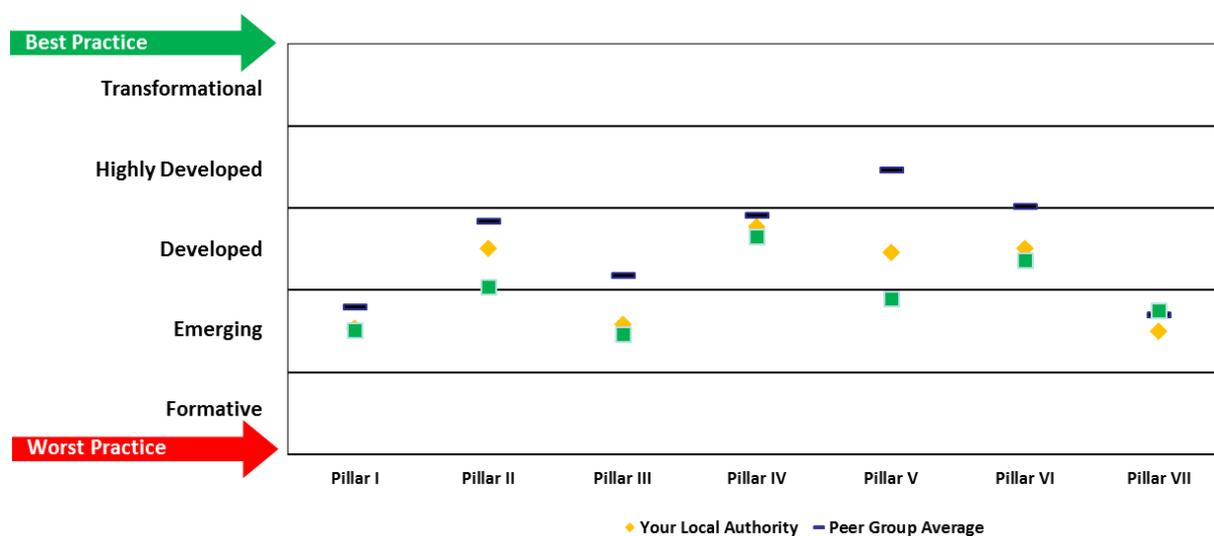
Group 1 (Purple): Urban areas where % of rural population <30%
Group 2 (Green): Mixed areas where % of rural population >30% but <45%
Group 3 (Yellow): Mixed areas where % of rural population >45% but <60%
Group 4 (Red): Areas where % of rural population >60%

The report sets aside a seven-pillar approach to digital maturity. The seven pillars identified are:

Pillar I: Transitioning to Digital
Pillar II: Infrastructure
Pillar III: Digital Economy & Employment
Pillar IV: Digital Services
Pillar V: Digital Skills
Pillar VI: Innovation & Entrepreneurship
Pillar VII: Community & Culture

The following assessment is based on the response to a questionnaire in Q1 2018.

The assessment shows that Progress is possible in Cork City across all Pillars, particularly relative to its urban peer group performance.



	Cork City Council
	Peer Group of Urban Local Authorities
	Local Authorities in Mixed Areas

Since this assessment Cork City Council has advanced on many of the pillars of digital maturity. Through the development and implementation of this digital strategy, Cork City will continue to improve on each one of the 7 pillars of Digital Maturity.

Appendix 4: IVI Smart City Maturity Assessment

In 2017, Cork City Council worked with the Innovation Value Institute and researchers at LERO – the Irish software Research Centre at Maynooth University to develop an initial assessment into Cork’s Smart City Maturity. Following this assessment Cork City was deemed to be at level 2 – Basic Maturity at the time of the assessment.

Maturity Levels	Digital Access & Skills Proficiency	Building Ubiquitous City Network	Leveraging Urban Data	Fostering Digital Services Capability	City Impact Realisation	Digital City Governance
5. Optimising (Transformative Digital City Platform)	Digital savvy pervasiveness & creativeness	Ubiquitous high-speed, secure & intelligent networks	Industry, Academia, Municipalities/Gov & Citizens sharing trusted data	Bottom-up entrepreneurship & open-innovation digital city services	Carbon negative city, automation of city operations, triple bottom line value	Shared governance across municipalities & citizens
4. Advanced (Proactive Digital City Platform)	Personalised & integrated digital access, digital skills proficiency > 90%	Autonomous network QoS and QoE self-healing intelligence	Mega data-pattern processing, crowd-sourcing initiatives	Pockets of citizen prosumerism driving service innovation	Carbon neutral City, predictive city operations management	Pervasive citizen participation, cross-department digital city management positions
3. Intermediate (Progressive Digital City Platform)	Quadruple-helix initiatives for integrated digital education & access	Near real-time network sense & respond management	City data platform, data mash-ups from diverse sources	Integrated city-wide digital services platform, citizen feedback loops present	Managed use of city resources, informed city operations management	Centralised digital city vision, policies & resourcing
2. Basic (Developing Digital City Platform)	Discrete digital skills & access initiatives	Varying levels of instrumentation, connectivity & field data capture	Data policies for regulatory, privacy, security & sharing, small scale data integration	Pockets of digital city services innovation, limited citizen engagement	Carbon-rich behaviours changing, partial monitor & control city operations	Decentralised city involvement, some cross-department collaboration
1. Ad Hoc (Unmanaged Digital City Platform)	Limited expertise and access	Manual detection, response & recovery across network(s)	Proprietary, no data integration	Independent city service strategies	Unfettered city operations driving carbon-rich use	Little engagement, no interest in digital city

Appendix 5: Glossary of Terms

Augmented Reality (AR): an enhanced version of reality created by the use of technology to overlay digital information on an image of something being viewed through a device (such as a smartphone camera)

CIVITAS: CIVITAS is a network of cities for cities dedicated to cleaner, better transport in Europe and beyond

CoderDojo: CoderDojo is an international community of free, open and local programming clubs for young people

ICLEI: Local Governments for Sustainability is a global network of more than 1,750 local and regional governments committed to sustainable urban development

Internet of Things: Any system with the ability to transfer data over a network without requiring human interaction

IWISH: IWISH is an initiative to inspire, encourage and motivate young female students to pursue careers in Science, Technology, Engineering and Maths

Mobility as a Service: is the integration of various forms of transport services into a single mobility service accessible on demand. To meet a customer's request, a MaaS operator facilitates a diverse menu of transport options, be they public transport, ride-car- or bike-sharing, taxi or car rental/lease, or a combination thereof. For the user, MaaS can offer added value through use of a single application to provide access to mobility, with a single payment channel instead of multiple ticketing and payment operations.

Open Data: Open data is data that anyone can access, use and share

POLIS: POLIS is the leading network of European cities and regions working together to develop innovative technologies and policies for local transport.

SME: an enterprise employing up to 249 persons



Comhairle Cathrach Chorcaí
Cork City Council