



# What Is A Smart Region?

A Region is Smart when investments are made in physical capital, human capital, social capital and ICT to fuel sustainable economic growth and improve quality of life.

## Key Points:



**Digital transformation** in Regions is a **journey**, not a destination

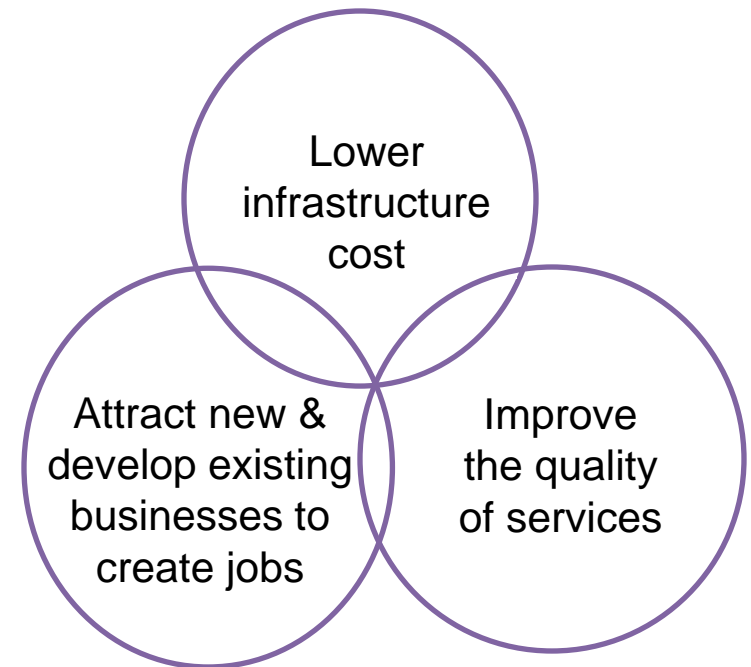


It is not just about technology, it is about the **people**



How do you deliver a better community to the **residents**?

## Aim of Smart Initiative:



# Motivation

## Urban Population

1950 – 30%

2008 – 50%

2050 – 70%

Impact of urbanisation on resources, infrastructure and rural areas.

Increasing competition with other regions for talent, trade and investment

Ambition to enhance productivity and economic prosperity

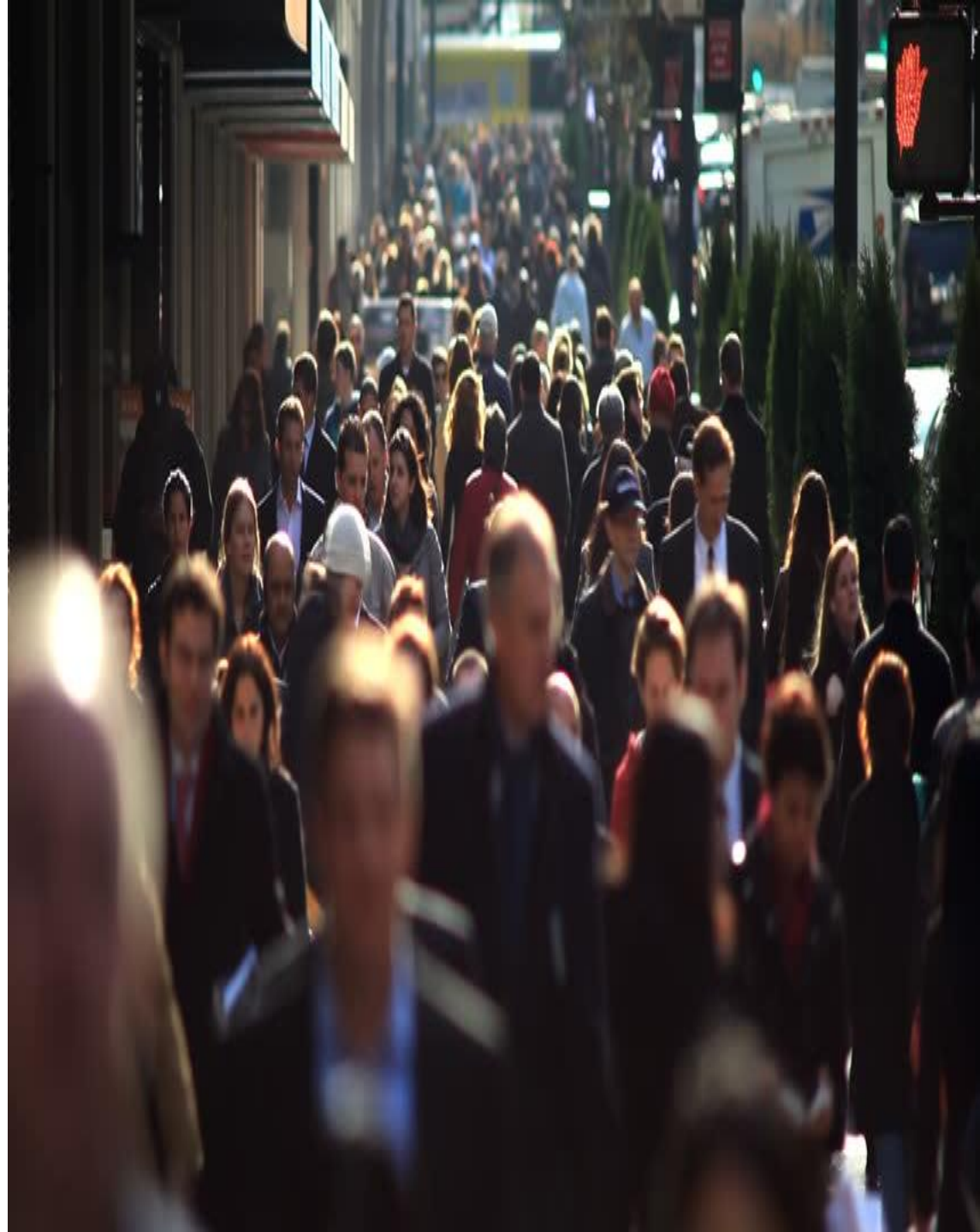
33% Energy Savings for Local Authorities

## Exponential IOT growth

Connected Devices :

2016 – 22.9bn

2020 – 50.1bn



# New Approach Required

In the next 30 years

$\times 1.5$

Energy consumption  
will grow by 50%

$\div 2$

CO<sub>2</sub> emissions  
need to be halved

$\uparrow 3 \times$

We have to become  
3 times more efficient

Source: Schneider Electric, 2016



In the year  
**2050**

World  
**population**  
will require



**70%**

More **food**, and



**70%**

Of this food must come  
from efficiency-improving  
**technology**<sup>3</sup>

# Global Movement Towards Smarter Cities and Regions



BRISTOL IS OPEN  
open programmable city region



Israel Smart Cities Institute

+ 14,000 Visitors      590 Exhibitors      + 600 Cities      + 400 Speakers

Innovative Opportunities exist across all sectors to Improve Efficiency and Competitiveness in a Sustainable Manner.

**Smart is NOT just about technology BUT Smart solutions can use technology as an enabler to solve real problems**



Traffic Management



Public Safety



Lighting



Water Management



Pollution/  
Environment



Waste Management



Agriculture Management

Smart Grid/  
Smart Energy



Smart Agriculture



Internet of Things



Smart Retail



Smart Health



Smart Mobility



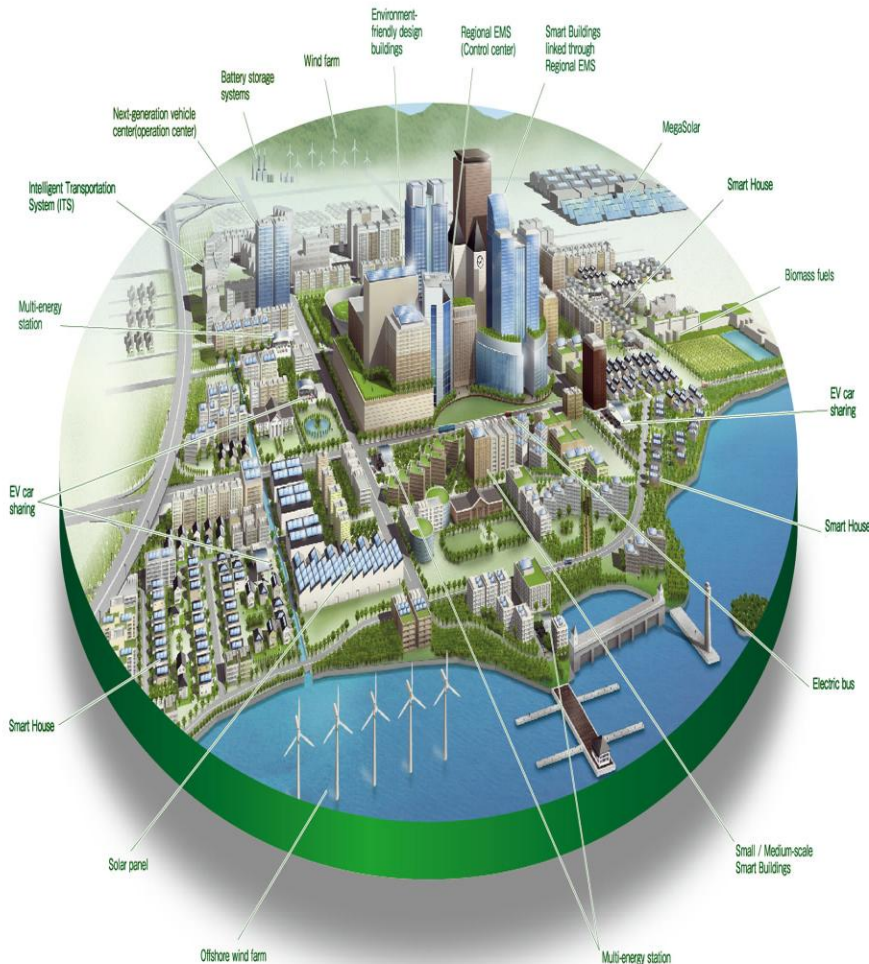
Smart Home



Open Data



# Translating the Smart City Vision



Source: [http://www.districtofuture.eu/uploads/imagenes/imagenes\\_meetinpoint\\_smart-city\\_2b637ab6.jpg/](http://www.districtofuture.eu/uploads/imagenes/imagenes_meetinpoint_smart-city_2b637ab6.jpg/)

# Cork Smart Gateway Steering Group



**James Fogarty**  
Cork County Council



**Mike Hayes**  
Tyndall



**Dirk Pesch**  
Nimbus



**Ruth Buckley**  
Cork City Council



**John Forde**  
Cork County Council



**Claire Davis**  
Smart Programme Co-ordinator



**Aidan O'Riordan**  
Cork City Council



# Cork Smart Gateway: Vision & Objectives



The Cork Smart Gateway works to identify and deploy smart solutions to solve regional challenges, seize emerging opportunities and enhance the reputation of Cork as an attractive place to live, work, visit and invest.

## Vision:

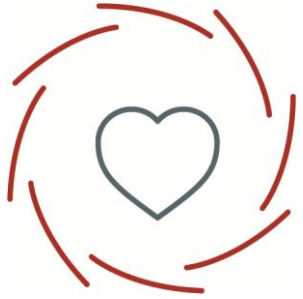
The Cork Smart Gateway aims to enhance the reputation of Cork as an attractive region for people to live, work, visit and invest

## Objectives:

The Cork Smart Gateway will achieve this vision by:

- **Engaging** with citizens to identify the evolving challenges and opportunities that impact on their quality of life
- **Identifying** suitable and achievable smart projects through a collaborative multi stakeholder approach
- **Encouraging** an open and innovative ecosystem that supports start ups and SMEs through the facilitation of test beds to pilot new technologies
- **Promoting** Cork as a Smart destination internationally

# Strategic Focus Areas



Citizen Engagement

Assisted Living

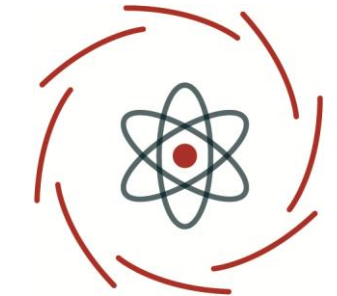
Mobility



Open Data

Energy & Resource Efficiency

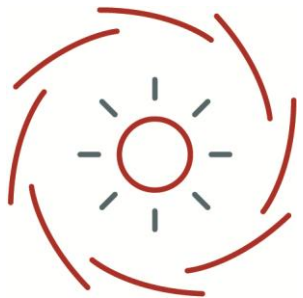
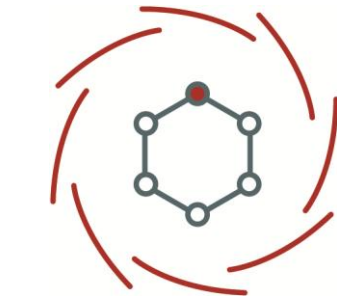
E – Governance



Food & Agriculture

Economic Development

Communication



# Some Smart Local Projects

## County Hall Campus Beyond 2020:

- Achieved National Energy Efficiency Action Plan of 33%
- Energy saving projects, technology & building user participation
- ISO 50001 in May
- 30% Energy Savings in libraries via Insulation & Heat upgrades

## Bandon Flood Early Warning System

- Approx 5 hours warning time
- Scale of flood can be estimated
- Citizen communication via text and email

## Civic Offices – Geothermal

- Heat Pump tapping into the aquifer
- 160kw Heating/175kw Cooling
- Secondary Heating to Natural Gas System

## Upgraded Wastewater Treatment

- Protection of water quality
- Environment and Economic benefit
- Nereda® technology

## Mallow Swimming Pool:

- 6% reduction in electricity usage at Mallow Swimming Pool
- CHP Project this year will achieve additional savings



## Electrical Vehicles

- Network of EV charging points
- Converted vehicles (including first responder van) to electric.

## LED Lights in County and City

- Upgraded all of the public lighting on 7 inhabited islands off Cork coast.
- Reduce maintenance time & cost
- Energy Saving & Reduction in CO2 Emissions in excess of 30%

## Tourism Technology at Spike Island

- Self guided tours are facilitated through next generation technology by Cork based Company In Hand Guides

## Housing Initiatives

- Glen District Heating Scheme
- Ground Heating Hollyhill Library
- Solar Heating – Knocknaheeny

## Tramore Valley Park

- Living Laboratory for the co-creation of solutions to urban challenges in the renewable energy field

## Automated municipal bike rental

## Mix your Mode

- Public transport, cycling and electric vehicle journey Planner
- Carbon Calculator to inform decision

## Water Systems and Services Innovation Centre

- Centre for applied research and technological innovation for Irish water sector companies
- WSSIC helps companies make innovative 'smart' water systems, turning ideas for new water-sector products and services into reality, for increased sales, jobs and exports.
- 35 Projects since 2013
- Innovation focused projects with SMEs
- Trialling projects in real-world sites
- Promoting new Irish technology internationally
- Major added-value recognised by Companies
- Direct Employment Creation



Cork  
County Council  
Comhairle Contae Chorcaí



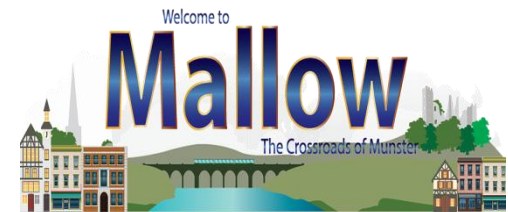
Cork  
City Council  
Comhairle Cathrach Chorcaí



# Mallow Innovation Centre

**Aim:** To drive economic development and increase the region's ability to absorb innovation

- Test & Assessment Programmes to trial new products and services
- Innovation Gateway for Local Companies
- Education and Training
- Engage with Industry locally to help create new products & services
- Engage with schools and support new community programmes on innovation, technology, maths and science
- First Town in Cork to have free public Wifi



# All Ireland Smart Cities Forum

**Aim:** To advance smart city programmes across Ireland by working together to explore common challenges related to implementing smart city policies and projects and share insights

- Local authority representation from Cork, Dublin, Limerick, Galway, Waterford, Belfast and Derry who together will explore common challenges related to implementing smart city policies and projects.
- The forum will work to share best practice solutions and collectively drive Ireland's smart agenda.



# GROWSMARTER

## 3 Lighthouse cities

Stockholm, Cologne, Barcelona

will be using an integrated approach to roll out.....

## 5 Follower cities

... and Valetta, Suceava, Porto, Cork and Graz will follow the progress & create their own replication plans..

## 3 targets

... to achieve 3 targets based on the 3 pillars of sustainability:

- improve the quality of life
- create growth in local enterprises
- save money for the municipality

## 12 smart solutions

..., in partnership with industry, solutions in 3 areas:

- low energy districts,
- integrated infrastructure
- and urban mobility....

### Low energy districts



Smart building shell refurbishment



Smart building logistics



Smart energy-saving tenants



Smart local electricity management

### Integrated infrastructures



Smart street lighting



Waste heat recovery



Smart waste collection



Big data management

### Sustainable urban mobility



Sustainable delivery



Smart traffic management



Alternative fuel driven vehicles



Smart mobility solutions

# Cork Smart Gateway Role:

## Supporting Cork Companies

## Informing our Citizens

## Identifying Smart Solutions



07 NOV 2016 / BY CLAIRE / 0 COMMENT / BLOG

### AND THE WINNER IS ..... VCONNECTA

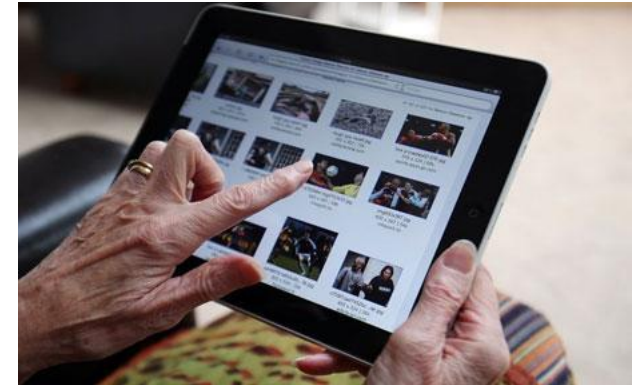
The #@cork Leader's Awards is an annual event recognising the leading companies in Cork's IT community. From



21 JUN 2016 / BY CLAIRE / 0 COMMENT / BLOG

### CORK COUNTY COUNCIL IS IRELAND'S FIRST LOCAL AUTHORITY TO RECEIVE ISO50001 ACCREDITATION

Cork County Council has become the first Local Authority in Ireland to be fully accredited to ISO50001, the international standard for energy management, and in achieving this accreditation has now reached the milestone



## Representing Cork's Smart Agenda at National level

## Creating a forum for Collaboration







## Developing, Promoting and Supporting Events









# Some CSG Projects:

## Cork Citizen Engagement Survey

 Representative	<b>950</b>	 Senior	<b>141</b>
 Non-Representative	<b>1301</b>	 Youth (15-18)	<b>768</b>
 Mallow	<b>87</b>	 Official	<b>352</b>
<b>3599 respondents</b>			

Impacts	
	High volume of reliable data for project prioritization and implementation
	Cost: from 3 to 10 times cheaper than using service providers
	Awareness of the CorkCitiEngage 20K on Twitter      2.5K+ face to face 14K on LinkedIn      30K students (UCC + CIT)
	100+ students trained in households interview skills => National Census

51% Male

76% living in Cork for over 10 years

63% living in City Centre and Suburbs and 37% living in Commuter Towns and Rural Areas

# Open Data Portal



## Data Streams:

- Real time car parking availability in the 7 car parks around the city
- Planning Applications
- River Lee Water Levels at Anglers Rest and Lee Road
- Coca Cola Bikes API

# Cork Demonstrator Brochure

*17 Snapshots of Key Smart Demonstrators, Projects and Test Beds from the Cork Region*



## On Farm Testing for Bovine Disease Diagnostics



Poor animal and welfare can be a major source of economic loss for Irish Farmers. For example, Bovine viral diarrhoea (BVD) is one of the world's most costly bovine diseases with an estimated annual cost of €102 million to Irish farmers prior to the eradication scheme. Other loss making illnesses include IBR and Johnes' disease. Due to the highly contagious nature of these diseases, early identification and diagnosis is critical for herd protection to prevent costly outbreaks. Current detection mechanisms rely on commercial laboratories which can be costly with significant wait-time for results.



### Solutions

The availability of a cheap and effective on-Farm test, using milk or serum, would allow vets and farmers to rapidly diagnose different diseases and allow them to implement treatment early in order to prevent costly outbreaks. Tyndall National Institute in collaboration with colleagues in Teagasc are using nanotechnology to develop a cost-efficient nanowire chip sensor, to provide on-site disease testing in cows within 15 minutes. The sensor works in a similar fashion to existing glucose tests for people with diabetes. They place a drop of blood or milk from an animal on the sensor and get a positive or negative response for BVD - right there, on the farm.



### Contact:

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### Benefits

- Total test time <15 minutes
- Suitable for both milk and serum samples
- Up to 10 sensor channels to allow testing of multiple diseases simultaneously
- Control sensor correct for noise and drift

[www.tyndall.ie](http://www.tyndall.ie)

Tyndall National Institute,  
Lee Maltings Complex  
Dyke Parade,  
Cork

This work recently won the gold medal at the 2016 Innovation Arena Awards for most Innovative Research Emerging from 3rd Level at this year's National Ploughing Championships.

# Procurement through Open Challenge

- Open Challenges allow public bodies to define problem statements and invite creative and innovative solutions from researchers and businesses including SMEs and Start Ups.
- Benefits include establishing a dialogue with businesses, access market research, explore a variety of solutions and stimulate the market by incentivising the development of new ideas, prototypes and pilots.
- Participating in an EI Small Business Research Ireland call
- Pre Procurement Process:
  - Identify Challenge, Call for Solutions, Market Engagement and Research, Prototype/ Pilot
  - Full Procurement
- Challenge: How can we help Cork citizens maintain a good quality of life and enable them to remain and feel secure in their home
- Focus on preventing isolation, addressing vulnerability in the context of problems arising from severe weather and also enable communication if in distress



# Opportunities to develop Cork's **SMART** Region

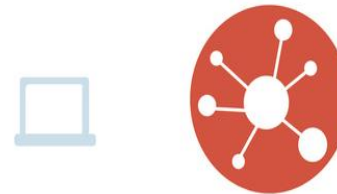
Smart Grid/  
Smart Energy



Smart Agriculture



Internet of Things



Smart Retail



Smart Health



Smart Mobility



Smart Home



Open Data



## European Funding Ambition Cork's Smart District

### Lighthouse projects

- *Low energy districts*
  - *Integrated infrastructures/ICT*
  - *Sustainable urban mobility*
- 
- 3 Lighthouse districts
  - 3 follower cities (min)
  - 8-10 partners per lighthouse
  - IA Project: 70% funding + 25% overheads
  - Budget EUR 12 to 18 million
  - Competitive call at National and International Level

**Cork is in a good position due to its role as a follower city**



Aim is that Lighthouse Cities/Regions will become the **most advanced** in Europe and act as exemplars for their region by paving the way for replication of these solutions.

# Smart District

Our ambition is to work with residents, businesses, academics and local authority staff to identify a test site and demonstration site to trial and test smart solutions that solve specific challenges for the identified area.

These solutions will be trialled and tested in a real environment to identify their effectiveness and the impact of such a solution on the area.



# Vision for Cork's Smart Region

Becoming a smart region means that innovative and creative ideas are encouraged and realised through collaborative activities, citizen engagement, technology application and data-driven decision-making.

This approach will drive continuous improvement throughout the region and will promote concrete benefits in economic opportunity, sustainability, safety and quality of life for all Cork citizens.







# Thank You

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