

NICHES+ Champion City City of Cork

Implementing Smarter Travel



The City and NICHES+

The project

NICHES+ is a FP7 co-ordination action aiming to network key actors actively engaged in developing **innovative urban transport concepts** and to facilitate the co-ordination of their activities across Europe. The project duration is from 2008-2011.

Cork is a NICHES+ Champion City that aims to implement a range of initiatives that will contribute to Smarter Travel. These include real time passenger information (RTPI), upgrades of the existing Urban Traffic Control (UTC) system, and softer measures designed to influence traveller behaviour. These measures are linked to the concept Mobile Travel information Services for the Public (MTIS). This document summarises an **implementation scenario** that gives advice on how to realise the given concept in the specific context of the city. This also provides an example to other cities interested in the uptake of the measure.

The city

Cork is Ireland's second largest city, located in the south-west of the country with a population of 119,418 (270,000 in the wider metropolitan area). It is the principal city and administrative centre of County Cork.

The broad economic situation in Cork is one of **reduced budgets**. Despite these economic conditions, Cork is still prioritising its planning objectives to provide a smart, effective and efficient transportation system.

Traffic control within Cork currently comprises a number of stand-alone deployments. The existing UTC system includes signal management, whilst the Jack Lynch tunnel possesses its own management which has control over signage and CCTV in the tunnel and on approach roads. The police have CCTV at key road junctions (for security and crime rather than traffic surveillance) whilst the bus company has its own fleet management system.



Traffic Congestion in Central Cork

Photo: Cork City Council

The innovative concept

Smarter Travel (ST) measures will encourage uptake of public transport and sustainable modes through integration of intelligent transport systems (ITS) with a range of softer measures including **travel plans, promotions and education**. Specifically, Smarter Travel will be achieved through:

- Implementation of real time passenger information (RTPI) on the bus network
- Implementation of bus priority (Green Routes), and ITS on national and major arterial routes
- Upgrade of the existing UTC including SCOOT, and implementation of a common database
- Roll out of the National Intermodal Journey Planner (NIJP)
- Further Smarter Travel measures

"Cork will implement a scheme to provide real time travel information services for the public. This should make public transport more attractive and ensure reduced car use in the city centre."

Ian Winning, Senior Executive Engineer, Cork City Council (Traffic Division), Cork, Ireland

The Challenge

Geographically, Cork is a reasonably compact city yet analysis of mode split shows that in 2006 approximately **half of all journeys in Cork were made by car**, and only 9% were made by Public Transport. 80% of commuting journeys into the central area are made by car.

Cork faces a number of **transport challenges**:

- A congested city centre and central business district (CBD)
- Excessive dependence on the private car
- A need to prioritise public transport systems
- Heavy Goods Vehicles (HGVs) travelling on routes adjacent to the city centre

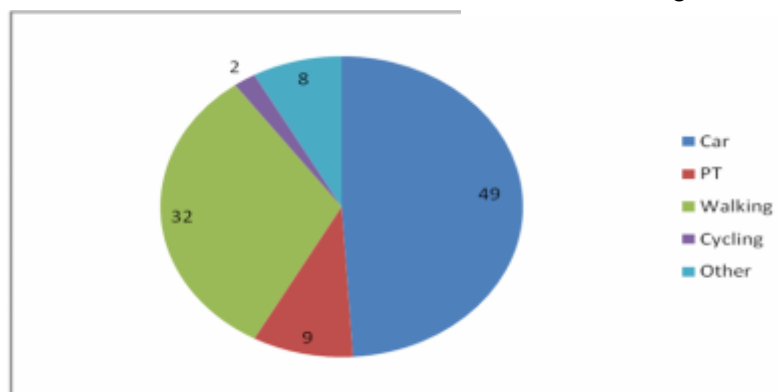
Cork plans to encourage Smarter Travel through implementation of state-of-the-art UTC, RTPI on the bus network, and the National Intermodal Journey Planner. Additional measures, referred to as the **Smarter Travel Initiative (STI)**, will provide the means by which travellers are encouraged to give up their cars in favour of more sustainable modes including public transport, cycling and walking.

The Vision

The vision and strategy of the Cork City region is defined in the **Cork Area Strategic Plan (CASP, 2001-2020)**, whilst the **Cork City Development Plan (2009-2015)** provides an overall strategy for planning and sustainable development in Cork.

The overriding goal for Cork is to enhance public transport and sustainable mode patronage by improving their attractiveness and efficiency. The **vision and objectives** are as follows:

- To specify and develop the existing UTC to create a "Mobility Management Centre"
- To prioritise public transport systems, especially the bus network
- To facilitate the provision of an integrated transport system for Cork, catering for future expansion of population and employment
- To provide real mode choice
- To provide high quality cycling and pedestrian facilities in the city
- To introduce programmes that influence changes in road user behaviour
- To enhance the quality of the environment and encourage emission reduction
- To provide a safe, enjoyable system for travelling



Mode Split in Cork (2006)

Source: Cork City Council

The Good Examples

MTIS in Edinburgh

Context

Edinburgh's **urban traffic management control (UTMC) system** includes mobility management and innovative application of ITS technologies.

The implementation takes place within the framework of the city's **Transport 2030** vision which seeks to make the transport network:

- Environmentally friendly by reducing the impacts of transport
- Healthy by promoting Active Travel, with an emphasis on walking, cycling and public transport use
- Accessible and connected to employment, amenities and services
- Smart and efficient, providing reliable journey times for people, goods and services
- Part of a well planned, physically accessible, sustainable city that reduces dependency on car travel, with a public transport system and walking and cycling conditions to be proud of
- Safe, secure and comfortable
- Inclusive and integrated
- Customer focused and innovative
- Responsibly and effectively maintained

History

In 2008 a new traffic control room was opened with **functionality** including:

- Automatic number plate recognition (ANPR)
- Enhanced CCTV coverage
- Strategic variable message signs (VMS) for parking and Park & Ride
- Management of "interface roads"
- Crash reduction cameras

Key Feature

A key feature of Edinburgh's system is a route and **car park guidance system** linked to a common database, enabling operators to provide car parking status to motorists via strategic VMS. It comprises 20 car park information signs within the historic City of Edinburgh plus 11 strategic message signs across the Edinburgh area.

A control suite includes:

- Accident, event, incident and roadwork management
- Car park management
- Strategic VMS control
- Strategy integrator
- Fault management
- Asset management
- Car park queue detection

(<http://edinburgh.cdmf.info/public/map/map.htm>)



Car Park Guidance in Edinburgh

Photo: Mott MacDonald

(<http://www.transporttech.mottmac.com/sampleprojects/edincpgs/>)

The user needs

'Users' are those people who actually benefit from a transport service. In Cork, a user needs identification workshop was held on 1st June 2010 to identify specific needs relating to travel information services:

- **Car users** need comprehensive, and reliable trip information on car park capacity and availability, and Park & Ride arrangements
- **Public Transport users** need comprehensive and reliable trip information, but tailored to their specific needs and journeys, including the mapping of bus routes and stops
- **Cyclists** need infrastructure improvements, including a fully mapped cycle network
- **Pedestrians** need mapping for safe and easy access walking routes
- **Freight operators** need comprehensive and reliable trip information for suitable routing, taking into account flexible delivery times, local considerations (e.g. night time only delivery windows), physical limitations of loading/unloading bays, access roads, bridges and tunnels, all based on vehicle size
- **Local authorities and transport operators** need comprehensive, and reliable trip information to address policy and planning initiatives, operational issues, emergency service co-ordination, traffic management and enforcement
- **Emergency services** need priority of access to incidents and emergencies, co-operating with the local authorities and transport operators, whilst retaining a degree of autonomy in their operations

The key stakeholders for implementation

The stakeholders in a project include those responsible for delivery, that is, the core project team.

Stakeholders also include the target end users and co-operation partners or outside influencers. In Cork the following groups are involved:

The core project team will oversee preparation, implementation and operation, and includes:

- Local authority (traffic division)
- Technical specialists
- Data providers
- Politicians
- Emergency services

Support is provided by **Co-operation partners**, namely:

- Transport user groups
- Other transport authorities
- Freight interest groups
- Environmental interest groups
- Health Services
- Application developers

The Media are also crucial in helping to promote and market the RTPI and ST initiatives.

End user groups are important as they benefit from the services provided and ultimately define the success and justify the investment. They include:

- Travelling public (private and public Transport)
- Transport operators
- Emergency services

To help achieve Smarter Travel Cork will establish geographically-based **Smarter Travel Fora** to 'take ownership' of the programmes and be self-sustaining in the long run.

The key issues for implementation

The measure implementation

Smarter Travel will be achieved in Cork through:

- Implementation of **real time passenger information (RTPI)** on the bus network
- Implementation of bus priority (**Green Routes**), and ITS on national and major arterial routes
- Upgrade of the existing UTC including SCOOT, and implementation of a **common database**
- Roll out of the **National Intermodal Journey Planner (NIJP)**
- Further **Smarter Travel** measures, (the STI) which focus on raising awareness of non-car travel options through education and promotion, and provision of enhanced facilities

Funding is available for the first four measures. Cork has been required to adopt a flexible approach to implementation based on the availability of funding, a challenge that is resolved through a strategic step-by-step approach, in particular relating to the STI measures which are subject to a separate funding bid.

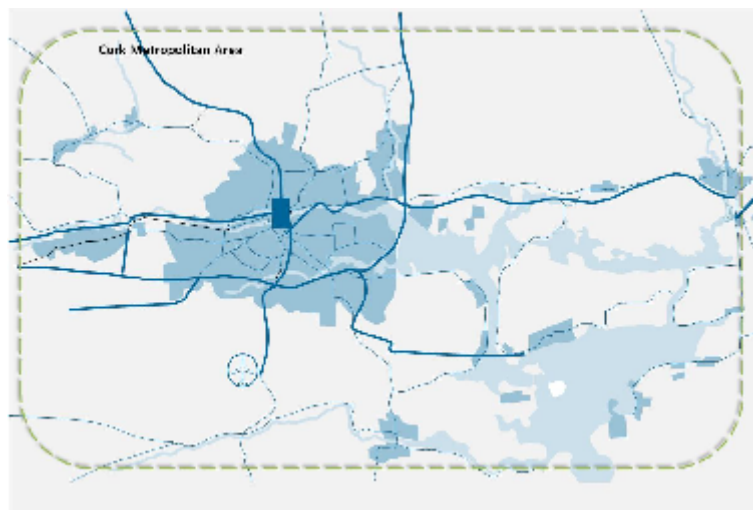
Barriers and success factors

The implementations planned for Cork are closely aligned to the NICHES+ innovative concept Mobile Travel Information Services for the Public (MTIS). MTIS focused on delivery of travel information through static platforms (e.g. VMS and on-bus systems) and to personal mobile devices such as Smartphones. At the present time Cork is concerned with the former definition.

NICHES+ identified six success factors and barriers for MTIS which relate to both definitions. Four of the six are **success factors**. These are:

- Dedicated marketing
- User friendliness
- Response time of the system
- Political support

The two **barriers** are: the problem of scale for the service provider and bandwidth/capacity challenges.



Map of Cork Metropolitan Area
Image: Cork City Council

The measure justification

A study conducted as part of the **ST bid** suggests the following **targets** can be achieved through implementation of the Cork measures:

- Mode switch in the metropolitan area of 7% for single car use
- Reduced journey-to-work car flows of 40 million vehicle kilometres
- Decrease in CO₂ emissions of 6500 tonnes over 10 years
- Health benefits worth €21M over 10 years

Real Time Passenger Information

RTPI is being implemented on Cork's bus network by Cork City Council and Dublin City Council. The €400K scheme is financed by the National Transport Authority (NTA).

The scheme delivers in-vehicle mobile data terminals (MDT), mini-controllers for plasma screens, LED displays, software installation, and wireless communication ports. Overall, RTPI provides:

- Essential information for users
- Enhanced operational efficiencies
- Potential for **future** improved service delivery **to mobile** devices

UTC Upgrade and Green Routes

The existing SCOOT system is being upgraded to incorporate bus priority (Green Routes) on the Ballincollig corridor and a common database by Cork City Council, Peek Traffic and Traffic Solutions. The €263K scheme is financed by the Department of Transport.

Taken together with the RTPI these initiatives will improve bus operation and service delivery, leading to increased uptake and enhanced economic activity.

National Intermodal Journey Planner

The NIJP is being developed and funded by the NTA. It will provide transport users with a door-to-door journey planning service covering buses, trains, trams, ferries, flights, taxis, park & ride, and cycles. The services will be appropriate for people with special needs. Cork City Council will facilitate the roll-out as appropriate.

Smarter Travel Initiative

The Smarter Travel Initiative bid was submitted to the Department of Transport and is worth €15m over 5 years. Its main focus is traveller behaviour.

Breakdown of 5-year Costs



The STI includes:

- Improved infrastructure for pedestrians, cyclists and bus users
- Travel plans for workplaces and schools
- Lift share schemes

The STI targets the city centre as a workplace, three radial corridors for household and school travel, and the promotion and marketing of sustainable travel modes in the metropolitan area.

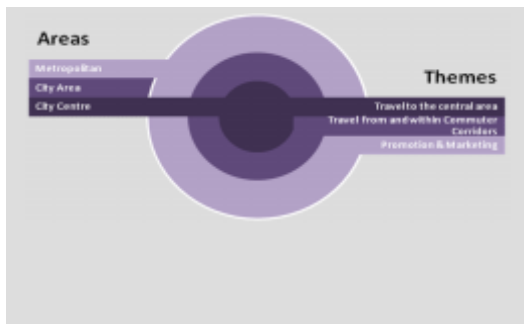
Overall, a Benefit-Cost Ratio of approximately 3:1 is forecast for the scheme.

The Implementable Measure

The finances

Cork's implementation of the described initiatives, and involvement in the NICHES+ project, comes at a time of reduced funding from central government and developers, reduced planning income, restrictions on recruitment, and the redefining of priorities by the City Council in the face of adverse economic conditions.

Despite this, funding is available for the UTC upgrade, the common database, the RTPI and the NIJP. Funding is not yet available for the Smarter Travel Initiative measures. These are dependent on the National Competition budget of €50M remaining in place and Cork winning its share.



Cork Smarter Travel Areas and Themes

Image: Cork City Council

The timing

The wider programme of the STI work comprises a number of activities, scheduled over a period of 5 years. The **preparation phase** is approximately 2 years, with a further year for **implementation** before a full rollout of **operations** can begin.

The long-term perspective

Long-term sustainability of Smarter Travel in Cork will involve the **monitoring and evaluation** of a number of criteria including the measurable benefits identified on the previous page and the following wider benefits:

- Improved 'quality of life' and personal health benefits
- Better access to important destinations
- Improved end-to-end journey experience
- Greater satisfaction with public transport
- Improved personal well-being and work-life balance

Future ambitions include:

- Further integration of emergency services/ incident management, rail and air modes
- Delivery of 'Mobility Management on the Move' to new generations of mobile devices.



Cork Park and Ride

Image: Cork City Council

Cork, along with most other European cities, currently finds itself in a difficult position due to **uncertain economic conditions**.

Bringing Smarter Travel to Cork should be relatively easy provided capital funding from central government is forthcoming for the STI component.

The city's **step-by-step approach** towards an **integrated package of measures** can be seen as representing a possible approach for other adopting cities, although it is important to be aware of, and give full consideration to, a range of funding options.

Stakeholder involvement in Cork is well organised. Users are well represented through the **Smarter Travel Fora**, while many of the stakeholders are represented on the core project team or as co-operation partners.

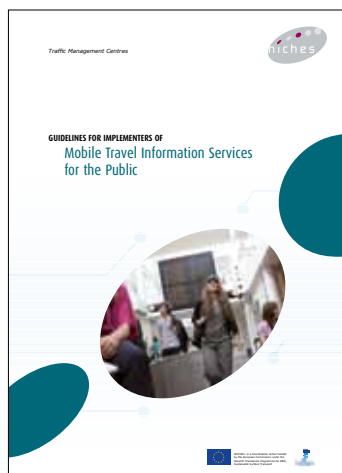
Check list

The following check-list summarises key aspects for implementing MTIS or components of such systems. It advises the reader whether the concept is suitable in their own context.

Check list	
City size	Citywide, but should be compatible with any nationwide scheme (e.g. the NIJP)
Key conditions for implementation	<ul style="list-style-type: none"> • Understanding of end user needs and requirements • A viable business model • Identification of appropriate technologies and outputs • Strong political support
Resources	Economic conditions have led to uncertainty in terms of funding all components. This requires a step-by-step approach to implementation as funding becomes available, within an overall long-term strategic framework
Implementation time	2-3 years between planning and system implementation. In the case of the STI a 5 year timescale is set out
Stakeholders involved	<ul style="list-style-type: none"> • Local authorities and Government departments • Public transport operators • Technology suppliers (e.g. network operators, computer specialists) • Passenger groups • Data owners • Emergency services
Undesirable secondary effects	None identified



Airport Corridor Bus Park & Ride
Image: Cork City Council



For further details on how to implement MTIS please see the **NICHES+ Guidelines for implementers** (available from www.niches-transport.org).

The more detailed **full version of the Implementation Scenario** for Smarter Travel in Cork is also available on the NICHES+ website.

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Airport Corridor Bus Park & Ride:
Cork City Council
Traffic Management Centre: QinetiQ

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