All Ireland Smart Cities Forum

Input to the National Planning Framework
March 2017

The All Ireland Smart Cities Forum welcome the publication of *Ireland 2040 Our Plan: Issues and Choices* (February 2017). Having a long-term vision for the growth of Ireland is essential – particularly as the country emerges from recession and there are already signs of significant pressures on existing infrastructures.

2040 is a long timeline in the context of technology innovation. One just has to look at the past decade and the rapid nature of change in how we utilise and embrace new technologies for example the rise of the smartphone and the emergence of some of the world's biggest companies such as Google and Facebook. The disruption of traditional business models has been dramatic, including how we book accommodation (Airbnb), the sharing of cars (Uber), growth in video on demand (Netflix), the consumption of music (Spotify). Banking, government and cities are next in line for disruption as technology allows non-traditional models of service delivery emerge.

The way we conduct business, interact and engage with each other has also changed dramatically. Some commentators argue that we have only touched the beginning of a digital change that will transform our societies. This will have immeasurable benefits; however, if not managed properly it could also create a growing societal divide and be detrimental for our personal privacy and indeed, the security of our nations and cities.

The Internet of Things (IOT), or how we connect every-day things to the Internet, offers a real opportunity for cities and countries to deliver more efficient and responsive services while also allowing for much better engagement of citizens. It is being suggested that we are on the verge of a fourth industrial revolution as we embrace this new 'connected everything reality' as technology changes how we live and work.

Technology enabled urban services

The National Planning Framework (NPF) recognises that over the next twenty-five years the population of Ireland will increase by one million. Current policy is to direct this growth to regional cities as a way to balance economic and social growth. This is understandable as cities have always been the engine for regional economic prosperity, as cities prosper so does the region in which they serve.

In order to grow and meet the expectations of citizens and users, cities need to be both efficient in the use of their scarce resources and provide a high(er) quality of life in order to attract investment and sustain growth. A greater use of information and communication technologies is one part of the solution that will (i) allow for greater interaction with citizens, (ii) be the basis for new data-driven urban services and, (iii) be that basis for the efficient management of city assets, i.e. smart cities. Cities of the future will typically use the data collected from their own monitoring systems to offer improved transport options, react to environmental change, match energy production with consumption, while also engaging with its citizens on public service design.

This vision will be more successful the more cities are capable of managing the complex ecosystems of service providers, infrastructure suppliers and entrepreneurial activity enabled by city assets. The All Ireland Smart Cities Forum argues that for this vision to materialise, greater support and resources must be given to cities so they can build the competencies needed to manage this complex ecosystem.

The All Ireland Smart Cities Forum acknowledges the references throughout the Issues and Choices Paper of:

- the need for effective growth to "positively interact with technological change and improved connectivity" (p.32);
- the common issue across both jurisdictions of the "requirement for fast and effective broadband, especially for business users" (p.36);
- the role of strategic national infrastructure such as broadband/telecommunications influencing "the spatial pattern of development" and contributing "to national objectives" (p.48); and
- the need for activities such as online trading to have a reliable communications network "in place to support the requisite quality of connectivity.

It is recognised that there are significant disparities across Ireland in terms of access to broadband. This is well understood in terms of the urban-rural divide; less well so in terms of the internal urban disparities that exist. The National Broadband Plan (NBP) is seen as playing a key role in regional development – underpinning job creation, promoting social inclusion and reducing travel needs (and consequently contributing to the low carbon agenda). It is envisaged that the NBP will utilise fibre technology to insure against early obsolescene – and such a move is welcomed. However, the recent ComReg figures (9 March 2017) raise a number of concerns around the poor take-up of fibre broadband to date – both in terms of the potential reasons behind this and the broader implications for regional development and economic growth in our second tier cities and satellite centres. With over 40,000 premises passed by fibre technology to date, less than 8,000 businesses and homes have actually benefitted from the fibre connectivity.

Challenges

Irish cities, like most cities in the world, are at an early stage in their digital development. In order to reach the next level of maturity we assert that the following obstacles need to be overcome and that due consideration is given in the early implementation phases of the NPF:

- Irish cities must develop managerial competencies in the areas of change, collaboration and technology management. City personnel are the focal point for smart services and are expected by a large array of stakeholders to be able to coordinate internal city and external private and public resources that collectively enable smart cities.
- Data driven services are dependent on network infrastructure. Many services, such as environmental monitoring, require low cost, low power networks, while high volume data service, such as CCTV, require access to high quality broadband.
- Cities own or control a myriad of assets, such as lamp-posts and buildings, which are essential to the implementation of smart services. Policies which regulate and simplify the use of such assets need to be drafted.
- The procurement of smart services using traditional and highly regulated practices are often inappropriate. As the intent is to use new and emerging technology and implement the service in a highly contextual setting (each city is different in terms of digital readiness, managerial competencies and infrastructure), new pre-procurement practices are needed to allow cities interact with technology developers and service providers in a confidential manner without fear of sanction. Confidential interaction is needed so that cities can understand the potential of technology before they draft final service specifications.
- Smart services are implemented for both service efficiency to improve quality of life in order to support economic development of the city and the region. Appropriate measures which take into account social, economic and spatial benefits are needed in order to more completely understand the impact of smart service proposals.

There are numerous reports that articulate the challenges and opportunities of these new technologies. The 2040 National Planning Framework should seriously consider how Ireland as a country embraces these trends to create a more competitive country with a higher quality of living regardless of where you live. Cities will continue to dominate the world's economy. However, there will also be greater opportunities to pursue a more balanced regional economic development approach delivered though new communications and connectivity infrastructures.

Key points to consider include how future work will change dramatically as set out in the report by McKinsey consultants –'A FUTURE THAT WORKS: AUTOMATION, EMPLOYMENT, AND PRODUCTIVITY'. For example "advances in robotics, artificial intelligence, and machine learning are ushering in a new age of automation, as machines match or outperform human performance in a range of work activities, including ones requiring cognitive capabilities". The timeline for much of these developments will be the next decade.

Furthermore a report by the Future of Work – 'WHAT WILL THE 2040 WORKPLACE LOOK LIKE?' also speculates on the impact that a more connected society will have on the future workplace and suggests that mobility and commuting patterns will radically change[1].

[1] http://www.futureofwork.com/article/details/the-role-of-computer-memory-in-digital-transformation-ai-vr-mobile-and-iot

The World Economic Forum sums up the scale of change that is ahead in the 2015 report: Six technology mega-trends shaping the future of society[2]: "The developments in digital technology of recent years are truly dramatic and their implications far-reaching. And while no-one understands all the changes these developments will bring, most individuals, many business and governmental leaders, and society as a whole, are not really cognizant of or prepared for the shifts to come" (see Appendix 1). The speed of various aspects of the transition are hard to predict, but it is not difficult to see that our world will function quite differently 10-15 years from now.

Whether its 2030 or 2040, it is clear that the world as we know it is in for change – the pace may not be as sensational at the above commentary; however, Ireland has always positioned itself as an innovation nation/island and as such we need to step up and embrace these future trends to secure the economic future of our Island. We need to be able to attract the right type of talent and to ensure that we have some of the best quality of living conditions in the world regardless of whether we choose to live in a city or a rural part of the country.

Key Questions

The Smart Cities / Smart Regions concept, while evolving, is undoubtedly going to play an instrumental role in shaping hope we live and work for decades to come. As acknowledged above, Irish cities and their hinterlands are at an early stage in their digital development. The possibilities, however, are immense: from bike/car sharing to smart parking; from river level sensing to flood management; from smart lighting to smart signage and city dashboards providing real time information; and from smart buildings and smart appliances to assisted living.

Capitalising on these opportunities requires ongoing investment in broadband and fibre technologies – together with a programme of ensuring economic access for businesses and households alike. Better use needs to be made of the existing MAN infrastructure – as well as its extension to additional areas. The quality of broadband in our cities and centres of regional growth must be further assessed – just how 'blue' are those areas defined as 'blue'?

The quality of broadband and its widespread availability has implications for future investment (internal and external) and regional patterns of growth and development: through, for example, the revitalisation of rural and peri-urban communities, and the retention of people and businesses in non-city locations.

In terms of making best use of existing infrastructure, there is a need for inter-agency collaboration on the best uses of assets – for example, public infrastructure such as lighting should be used for the rollout of IOT and smart initiatives.

There is a need for the joint marketing of Ireland – indeed the island as a whole – as a smart county; there are many opportunities for this. For example, the Smart City Expo World Congress which takes place in Barcelona every November. This is an opportunity for Ireland Inc. to highlight what it has to offer – with companies, local authorities and government agencies working together to highlight the advantages of doing business in Ireland. To this end, the appointment of a smart initiatives team within a government department such as

[2] https://www.weforum.org/agenda/2015/09/6-technology-mega-trends-shaping-the-future-of-society/

the Dept. of Housing, Planning, Community and Local government or the Dept. of Communications, Climate Action and Environment, or a junior ministry, focusing on the smart agenda would be welcomed.

Emerging digital ecosystems will necessitate a rethink in how we plan our settlements, how we work, and how we live on a daily basis. Ireland is currently lagging behind in this debate –and the opportunities it affords. The All Ireland Smart Cities Forum would be happy to meet with representatives from the NPF team to discuss further the opportunities presented by digital developments, and the implications of such development to how Ireland could grow and develop over the next 20 years, and to the wider place-making agenda.

Some select considerations for the National Planning Framework (NPF) include:

- We need a cross-cutting plan on how we can better embrace a smart technology-led future for Ireland - ensuring that we have the right infrastructure, policies and regulations to enable the right type of connectivity to deliver on a smart future for Ireland.

- We need to better consider how we move around our cities and country – there is an opportunity to optimise our mobility/transport assets by embracing 'Mobility as a service' (MaaS) transport solutions. This will allow the sharing or grouping of mobility services under a common payment / aggregator framework across the island http://maas.global/

- Consideration must be given as to how we better connect infrastructure through Internet of Things (IOT) and collect relevant information. We then need to determine how we process this into real intelligence to enhance our capacity to better plan and manage our cities.

- We must support our ageing population with new technologies that empower people to live longer, healthier and happier while also removing some of the constraints on our health system.

- We must teach the right skills to ensure that we maintain a competitive labour force.

- We must decide how best we can use technology to deliver a more sustainable future and embrace smarter energy usage and solutions.

- How can we better embrace technologies to enhance the current planning system so all citizens can better understand, visualise and respond to the planning process. This may involve the more effective use of Building Information Management (BIM), development of real time 3-D models, virtual reality simulations, etc.

In planning for the next twenty years, it is essential that the implications of any development on infrastructure is considered – especially digital ecosystems – and that this, in turn, is aligned to the Capital Investment Plan for Ireland.

All Ireland Smart Cities Forum

The All Ireland Smart Cities Forum is a community of practice focused on the advancement of cities in both the Republic of Ireland and Northern Ireland through the deployment of, and value creation from, technology enabled urban services (i.e. smart programmes). It is characterised by practitioners with a common sense of purpose who agree to work together to solve problems, share knowledge, cultivate best practice and foster innovation. The cities involved in the Forum are:

- Dublin (represented by the four local authorities)
- Waterford City and County
- Cork City and Cork Smart Gateway
- Limerick City and County
- Galway City
- Derry City and Strabane
- Belfast City.

Each city is represented by one senior official from the relevant local authority and/or a representative from their smart city programme office or equivalent. Contributions from the smart city teams is presented as Appendix 2.

The use of technology is viewed as an enabler of social and economic good and, as such, city participants will, through this Forum, represent their perspectives irrespective of their own functional expertise. It is recognised that there is a diversity in cities across the island of Ireland in terms of urban and or regional responsibilities.

The main principle of the Forum is to be citizen-focused. All objectives and tasks originating from the Forum will adhere to the principle of: *city users as customers*.

Contact Point:
[redacted]

Appendix 1:

World Economic Forum 6 Tech Trends:

1) **People and the internet –** people's association and interaction with the web as a mental, social and physical extension of themselves
2) **Computing, communications and storage everywhere** – the ability to interface with digital technology, data and the web anywhere, anytime on any device
3) **The "Internet of Things**" – the digital linking of inanimate objects, or, as my colleague Chris Rezendes so nicely puts it, "the instrumentation of the physical world"
4) **Artificial intelligence and big data** – the ability to access and analyse vast and disparate data, along with the ability for computers to make decisions based on this data
5) **The sharing economy and distributed trust –** digitally-enabled transparency and trust mechanisms that allow direct exchange of goods, services or money between parties outside of traditional establishments such as stores and banks
6) **The digitisation of matter –** 3D-printing and the creating of physical materials on the spot (personalised or on a small scale) based on digitally transmitted parameters

Appendix 2: Contributions from Smart City Teams

Cork Smart Gateway – Driving Cork's Smart Region

Developments in information and communications technology, in particular wireless and mobile Internet access, the Internet of Things (IOT) and smart devices have fundamentally changed the way that economies operate. Meeting the demands, pressures and expectations created by rapid globalisation and urbanisation is becoming increasingly challenging for both cities and regions which cannot rely on traditional methods to ensure economic prosperity, environmental protection and a high quality of life. However, regions can remedy these challenges by adopting new approaches to working while embracing innovative solutions and smart technologies to not just manage these pressures, but to enhance sustainability and competitiveness.

Responding to these global drivers, Cork is pursuing a smart agenda which will build on the existing assets, attributes and experiences and help position Cork as a 'World-Class Smart Region'. The Cork Smart Gateway (CSG) initiative was established by Cork City Council, Cork County Council, Nimbus Research Centre and Tyndall National Institute to drive this smart agenda. The CSG, through its programme office, collaborates with key industry, academic, public and citizen stakeholders, who are united by a collective vision to enhance the reputation of Cork as an attractive place to live, work, visit and invest. This vision is translated into reality through innovative uses of technology, new ways of working and identification and co-creation of smart solutions to address Cork's challenges.

Launched in May 2016, the CSG has identified a number of focus areas including energy, mobility, assisted living, e-governance, economic development, open data, food and agri-tech. The CSG also promotes citizen engagement to drive strategic decision-making. CSG believes that an essential element of a successful smart programme is to focus on citizen needs, embrace citizen-centric design and identify projects that will directly impact on a citizen's quality of life.

The CSG welcomes the progress to date by the **Department of Housing, Planning, Community and Local Government** in advancing the new National Planning Framework – 'Ireland 2040 – Our Plan'. The CSG appreciates the opportunity to input into the All Ireland Smart Cities Forum's submission as part of this consultation period.

The CSG strategy is fully aligned with the Cork 2050 strategy which sets out an ambitious strategic vision for the future growth of Cork focussed on realising the shared goals that readily affect the lives of its people, building on the successes of its communities and its wider society. Cork 2050 provides the framework for the future sustainable development and prioritisation of strategic infrastructural investment for Cork across key sectors including transport, housing, jobs, education, health, environment, energy and communications. The CSG works with key stakeholders across public sector, private sector, academia and society to identify challenges and co-create smart solutions to improve the quality of life for those living, working and visiting the Cork Region. The CSG targets a number of key strategic areas to realise this vision which relate closely to some of the core objectives of the NPF. These include implementing smart solutions to meet the needs of the growing population,

supporting our aging population and supporting sustainable economic development of cities and rural areas.

The CSG and its associated smart agenda is part of a global group of smart initiatives addressing the current and future resilience of cities and regions in the face of growing pressures and opportunities presented by climate, population, energy and resources. One of the objectives of the CSG is to support industry and research to utilise Cork as a test bed to trial new solutions. It is hoped that this will aid the NPF objective of stimulating economic growth and drive regional development whilst also promoting rural regeneration. The CSG supports place-based policies encouraging environmentally responsible development in the most suitable area to ensure escalated returns on capital investment.

A key feature of many smart solutions implanted in regions is that they create efficiency. Well-designed technology tools can benefit government agencies, the environment and residents. Through the sharing of best practice solutions the CSG will share Cork's accomplishments and challenges in delivering its smart agenda. The CSG works collaboratively with other regions through the All Ireland Smart Cities Forum and through international smart city and region collaborations to solve common challenges and promote Ireland's smart agenda.

The NPF is a valuable tool to achieve more balanced regional development and realise the potential of all areas across Ireland. The CSG will be a vehicle to support and promote the economic development, infrastructural, connectivity and environmental ambitions of Cork 2050 and the NPF strategies. The CSG looks forward to working towards the shared goals of a prosperous and sustainable Country.