Rialtas na hÉireann
Government of Ireland

Report of the Grand Canal Innovation District Advisory Group

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1.1 Why an innovation district for Ireland?

In the current environment where technological advances are transforming entire industries we need to ensure that Ireland is recognised as a location of choice for innovation and talent development. This is also needed to support Irish companies and global businesses investing in Ireland.

A globally competitive innovation district for Dublin is a necessity to support and grow an international reputation for Ireland as a top tier location globally for investment.

Ireland has enjoyed sustained economic success over the last number of years. Over 600,000 jobs have been created since 2012 and the country is moving close to full employment.

Many of these jobs are associated with the record levels of foreign direct investment that Ireland has successfully attracted. Ireland has many positive attributes which draw in international firms, including a skilled, diverse labour force and an environment conducive to growth.

Even in times of success like the present, a small open economy like Ireland must ask itself about future sources of prosperity and productivity.

Technological advances like automation and artificial intelligence are altering occupational roles. And the imperatives of climate action call for the radical reshaping of industrial sectors.

Government launched its Future Jobs strategy in 2019 to prepare the country for the changes and challenges of tomorrow's economy and move toward more high-value jobs.

There are also external risks and challenges, not least those arising from international trade and taxation changes, which may impact on an Irish economy heavily dependent on foreign direct investment concentrated in a small number of sectors.

We must also recognize the importance of our education system and ensure that our universities are equipped to play their part in sustaining innovation. We must remain focused on the importance of supporting enhanced ambition for our start-up companies and to help them scale globally from Ireland.

Successfully adapting to these challenges depends on sustained innovation and the incorporation of new technologies into commercial practice which raises productivity.

Internationally many other cities and jurisdictions are accomplishing this by developing 'innovation districts'. These involve the physical co-location at scale of start-up and SME companies, large innovative corporates and world-class research within anchor institutions such as universities in a vibrant urban setting. Close proximity of all these actors encourages interaction which can be amplified through programming to connect talent, drive innovation and benefit local communities.

Many countries and cities are forging ahead with measures like these in an effort to be at the forefront of innovation development. They realise that the source of high value jobs lies in the intensive development and application of new ideas across disciplinary boundaries and sectors and that an innovation district is one of the most successful ways of doing this.

Unlike many other countries, Ireland, in the Grand Canal Area, already has many of the essential ingredients to establish a first-class innovation district: global firms at the leading edge of technologies; highly-rated research universities; an enabling environment for start-ups and a dynamic city location. With a clear strategic ambition and associated policies we can lead in this era of innovation transformation.

Establishing an ambitious innovation district in Ireland can help position Ireland for future investment in an unsettled post-Brexit environment. It will help us face and leverage the recent challenges thrown up by digitalisation as well as more long-standing issues of developing linkages between large multi-nationals and smaller Irish firms and scaling firms to achieve global prominence.

It can provide an internationally visible statement of Ireland's commitment to innovation and a representation of our ambition to have the most innovative companies globally, Irish and international, operating for our capital city as well as from the regions.

An economic cost benefit analysis, carried out by Indecon on behalf of Trinity College Dublin, calculated total economic benefit of €3.2 billion from the development of the proposed innovation campus at the heart of the Grand Canal Innovation District. This was based on a government contribution of €150m towards the total expected cost of capital of €1.1bn – resulting in a greater than 20: 1 return from the state investment.

However, transitioning from the current status quo to a globally leading innovation district will require leadership and commitment from government, universities, local communities and businesses. An innovation district will best succeed when a shared vision and ambition across all stakeholders and a patient commitment to the long-term goal is in place.

1.2 What will the Grand Canal Innovation District deliver?

The Grand Canal Innovation District (GCID) can *provide transformational and additional benefits to Dublin and Ireland* including:

- An internationally visible reference point for excellence in innovation in Ireland – something that currently does not exist. A reference point that will connect together the significant assets we already have – globally leading businesses, world class research in our universities and a thriving start-up ecosystem. GCID can change Ireland's story just as Station F has transformed the international view of Paris as a location for start-ups or the Crick Institute has established London as the global leader in Life Sciences.
- A new university innovation campus in the centre of our capital city that will co-locate at scale world-class researchers from Irish universities with each other and with the world's most innovative companies. The innovation district can create a scale of research activity that is significant enough to influence and attract global partners. It can also make Dublin more competitive in attracting European and international research funding and enhance Ireland's ability to attract world leading faculty.
- A large scale (> 10,000m2) shared working environment for Irish start-ups and a landing space for young high growth FDI companies. Developing enhanced innovation capability within our SMEs and enabling economic spill-over between FDI and Irish companies is a critical marker of success to be measured through movement of talent, new collaborations and partnerships and effective value chain integration.
- A narrative for Dublin as an innovation city – that has a dense node of excellence and connectivity within the GCID but connects to other recognised nodes of excellence in the

north of Dublin (DCU and DCU Alpha), the south (UCD), the centre (Trinity College Dublin) and to the west (TU Dublin). In addition GCID will create a network to regional centres of scale in our other large cities – connecting them to talent, innovation and capital and to international innovation hubs.

- A location for world leading multi-nationals to develop an enhanced R&D mandate within Ireland. International innovation hubs at this scale have become locations of choice for multinationals to evolve their mandate as they connect them to new ideas, new talent and new research capability e.g. Square, Boeing or MasterCard at Cortex Innovation District (St. Louis, Missouri), Ford and BT Sport in Here East (London).

- The unlocking of the latent innovation ambition within Dublin. Grand Canal Quay is home to over 50,000 graduates working for global firms, Dublin is home to many of Ireland's venture backed start-ups, Dublin universities are recognised as our top ranked universities internationally. This campus will provide a place where researchers, entrepreneurs, workers for global firms, venture capitalists and the local community can meet, connect, ideate and take action.

- The development of a range of educational, cultural and social programmes that will ensure the innovation district evolves in a way that is respectful of and meets the educational, employment and space needs of the local community. The district should improve the quality of life and the breadth of opportunity for all who live within it.

- The development of a cultural and creative hub that connects our artistic community with our technology community. In locations such as Austin or Portland this has created a vibrant environment to attract talent, investment and diversity. An innovation district can play this role in Dublin.

Figure 1. Grand Canal Innovation District showing the Innovation campus (green) at the centre with surrounding industry, commercial and community amenities

1.3 What is required to enable the GCID?

To successfully achieve these significant and necessary additional benefits for Ireland will require all stakeholders to work to a shared vision and commit to the overall strategic goal of establishing a globally relevant innovation quarter in our capital city. Trinity is developing its site to enable a project for the country as a whole and needs funding and support from multiple parties. To be specific this will require:

- Government to provide a commitment to co-fund the plan for GCID and provide continued strategic leadership across its departments and agencies to make the vision a reality. A 15% commitment of the total budget is required. Public and consistent support is needed from the State to enable a vision of this scale and complexity.
- Large corporates to actively participate in early activation strategies targeted around innovation enhancement, place making and deeper collaboration between companies, sectors and researchers. In addition they must make a deeper and better coordinated community engagement commitment and support the longer-term ambition to co-locate on the innovation campus alongside start-ups and universities.
- Universities to co-locate world class researchers in a new research institute, participate in building a new innovation story for Dublin with deeper linkages to industry and to design and develop new programmes in partnership with the local community.
- The local community acting as a partner in developing the innovation district in a way that is congruent with their needs and that will provide benefits to local residents.

Such an investment from key stakeholders would allow for the creation of a much bigger and compelling innovation district. This district would have the most comprehensive mix of ingredients that define and differentiate innovation districts globally. Dublin can provide a district with the density, proximity and scale of global businesses, high potential start-ups and internationally leading researchers all co-located in a city centre innovation campus with excellent transport linkages. This district will be on the water, beside other key districts of the city – finance, government and cultural– and have access to over 100,000 university students within a five mile radius. We have so many of the right ingredients, a proactive and committed approach can ensure they connect together in a manner that will position Dublin as a top tier global city for innovation.

It is recognised that a plan of this ambition carries risks and uncertainties. There will be legitimate concerns about escalating costs in relation to any major infrastructure project. If not properly structured, it could lead to overdevelopment within Grand Canal Quay and it may not deliver the intended benefits. It could accentuate accommodation pressures and could displace investment from other parts of Dublin and Ireland. These risks are not underestimated and must be mitigated and managed to ensure this initiative economically, culturally and strategically serves the country as a whole and does so in a manner that creates new opportunities for those people living in the district and beyond. These issues are addressed within this document alongside the express belief that this vision can enhance Ireland and indeed serve to protect us from another set of risks linked to loss of competitiveness, reduced attractiveness to international investment and the need for enhanced growth of our indigenous innovation companies.

This plan is not a panacea. It is a strategic and ambitious vision that can build on the benefits of 30 years of economic growth. It can leverage the many economic, cultural and educational assets we have as a country and use them to build an internationally visible and recognised innovation platform that will position Ireland for 30 further years of growth and competitiveness. It is a vision that responds to the challenges of our time and brings international best practice in establishing a competitive

innovation ecosystem for Ireland. It is centred around enhanced collaboration, an alignment of objectives and a viable plan to make Dublin a top tier location for innovation growth and investment.

Summary of recommendations:

1. The Advisory Group formally recommends the development of the Grand Canal Innovation District (GCID) with a university innovation campus at its physical centre. It believes that the innovation district will enhance Ireland's economic and societal well-being, and in light of risks arising from international technological, trade and tax developments as well as Brexit, help to futureproof Ireland's continued economic growth.

2. The cost of delivering the GCID should be shared across the various stakeholder groups who are interested in its development and will benefit from its presence. The investment from all stakeholders will be modeled on the successful formulas used in other innovation districts such as that in Kendall Square with funding used to drive programming, early activation and community initiatives as well as helping to ensure appropriate governance structures are in place.

   The financial model provided by Trinity projects that Government support of 15% of the overall cost of €1.1bn, spread out over a number of years, would be required to realize the innovation district campus and to underscore the importance of the project to the country while also unlocking support from private sector investors. Any decision regarding Exchequer funding will be taken in compliance with the Public Spending Code. The remaining investment can be raised from multiple sources including commercial investment, debt and philanthropy.

3. A new multi-institutional research centre, drawing from several Irish universities, should be established that would provide an opportunity to bring together Ireland's leading scientists and research institutes specialising in technology to tackle many of the world's most challenging problems in a cross disciplinary manner and in partnership with academic partners – both national and international – in a building that will also host Ireland's and the world's most innovative companies.

4. A large start-up hub should be established as part of the innovation campus creating the opportunity for Ireland to have an internationally recognised start-up cluster, much like that of Station F in Paris, with shared research infrastructure enabling scientists and companies progress developments in the areas of digital technology and associated applications.

5. The Government should continue to develop its entrepreneurial and innovation policies to ensure they remain internationally competitive, so that Ireland can attract entrepreneurs from outside Ireland as well as provide the right support to help nurture indigenous start-ups, helping them to grow and scale internationally and strengthen links with larger companies in Ireland.

6. Early activation of the site should commence immediately with the development of a vibrant innovation hub that should be completed by the end of 2020. The hub programmes will work collaboratively across higher education, companies and the local community. It will house new start-ups, host accelerator and incubators, be a venue for innovation meet ups and a new vibrant location where entrepreneurship, research, innovation and the arts can connect.

7. A cultural hub should be a core part of the innovation campus – connecting technology, art and creative industries with research and the local community. This is critical to successfully activating the area, enabling effective place-making, attracting new visitors to the area and supporting the research ambition to connect technology in a meaningful way with the local community and society.

8. A GCID community special interest group should be established which would explore, in concert with existing organisations serving the community, how the needs of the local community can best be met, subject to funding. This would focus on strengthening and building on existing training and cultural programmes based on needs and interest, with the aim of improving education and economic opportunities as well as quality of life for local residents.

9. To ensure that its benefits are felt across Ireland an innovation hub network should be established to provide strong regional connectivity. This will connect Ireland's leading innovation centres on an all-island basis and will link GCID to the existing large innovation hubs globally. The GCID should not just benefit the city of Dublin – it also needs to be an asset for the rest of the country.

10. A governance group should be established, consistent with international best practice including representatives from across all stakeholders, to manage activation and development of the wider innovation district and to market the delivery of a new innovation quarter for Ireland.

2. Why an innovation district for Ireland now?

2.1 The rise of innovation districts globally

How we live, work, study and create is changing. Earlier models of economic growth relied on natural resources or labour to produce wealth. Today we rely on knowledge and the intensive application of ideas and information. Many countries are responding to these trends by developing a form of urban centre known as an innovation district.

The development of an innovation district involves clustering research-oriented institutions, high growth companies and tech and creative start-ups in a concentrated urban environment. Think of a site where large and small companies, university researchers, theatres and arts institutes, restaurants and shops are all co-located. A place where employees from a large multi-national company will meet workers from small start-ups and local residents. Where visitors can learn about new technologies and stop for a coffee. Unlike science parks, innovation districts don't just co-locate businesses in a specific suburban location but deliberately orchestrate and enable productive engagement between people and organisations through events and programmes. They also don't operate on a 9-5 basis like some of the science and business parks of old.

There are many examples around the world of successful innovation districts such as Cambridge MA in the US, Barcelona, Toronto, London, Rotterdam and Eindhoven. These districts demonstrate high concentrations of workers in the knowledge economy and are drivers of new discoveries and patents. They have attracted further investment to their regions, provided homes for local entrepreneurs, facilitated connections to capital and customers and provided education and training opportunities for local students and senior leaders. The co-location of these key stakeholders - large and small companies, universities, cultural institutions and local community organisations - and collaborations between them are what drives innovation and transformation within the district. Figure 2 below shows Kendall Square in Boston before an innovation district was developed there and what it looks like today. The difference is indicative of progress that can be attained in a relatively short timescale.
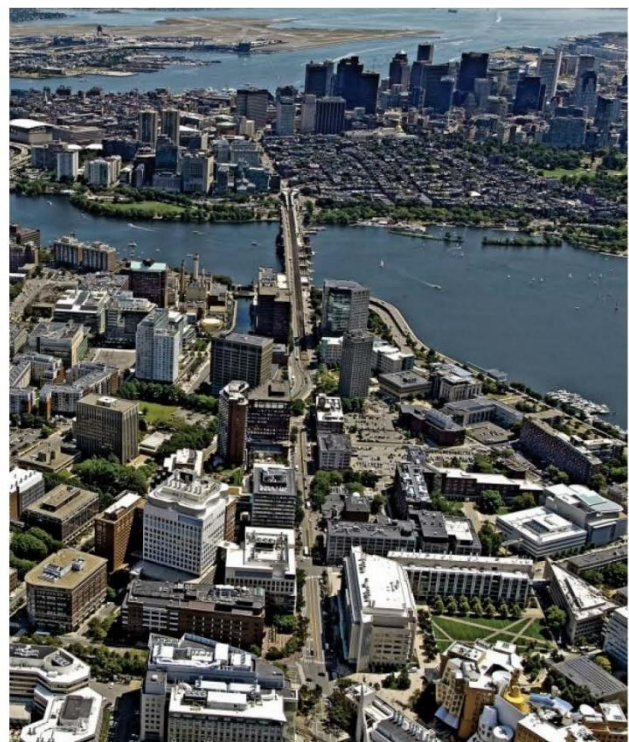

Image top,
Kendall Square 1981

Image top right,
Kendall Square present

Figure 2 Kendall Square 1981 and present day

One characteristic that the most successful innovation districts share is a dynamic interaction between communities, researchers, companies and investors.

In many cases universities act as the anchor tenant physically located in the centre of the district and a catalyst to drive these enhanced interactions. Universities provide stability to innovation districts; a connection to a deep talent pipeline of graduates; an innovation-thought engine through faculty and researchers and a social and cultural centre. Universities also act as a bridge between all the different players in a district – entrepreneur, VC, local community and established industry – providing a space to bring everyone together to collaborate and to drive an innovation agenda.

In turn, innovation districts provide a means for universities to enhance their research capabilities and to ensure the research outputs are translated more quickly to create impact and jobs for society.

Another important characteristic is a focus on human interaction which points to the need to design public spaces and offer a mix of activities and programmes that support connecting local residents and the community with the district.

That said, success is not guaranteed. Disconnect between different facets of an innovation district can occur even though they are meant to be different from more siloed science or industrial parks traditionally located in the suburbs. Best practise in how this risk is managed has three components and has been reviewed in detail by organisations such as the Brookings Institute.[1]

- Firstly a shared vision for the strategic benefits of an innovation district is required across industry, government, local community and academia. This can be achieved by a charter for the district which all sign up to and the establishment of inclusive governance.

- Secondly a shared commitment to the activation of the district through programming and events. Programming is the driver for promoting interaction and creates the opportunity for people to meet, engage and collaborate.

- Thirdly, ensuring the district is based around long term anchor tenants that will provide strategic alignment not over months but decades. The best type of cornerstone tenant are world class universities. Complementing this approach there is a need to protect the place of start-ups within the district to ensure that the opportunity for the district and its companies to reinvent itself is always present.

2.2 How Ireland needs to respond and differentiate itself

As one of the world's most open economies, Ireland has been successful in attracting investment from abroad. Our cities and regions are home to many of the globe's most innovative companies yet we should not take their active and successful presence here for granted. The pace of change can undercut leading firms and ongoing technological development may lead to functions becoming obsolete and disrupt what was thought to be secure employment. There are significant global developments in areas such as tax and trade which pose risks to Ireland's continuing economic development. To maintain our status as a leading location for investment, we must keep ahead of international trends.

Developing an innovation district means deepening Ireland's relationship with the multinationals located here. Properly structured and led it will also strengthen the links between these companies and Ireland's universities and start-ups and ensure that they flourish together.

Grand Canal Quay is already home to some of the most globally-renowned technology companies, Ireland's largest theatre and Ireland's largest convention centre. The social environment has been

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[1] https://www.brookings.edu/essay/rise-of-innovation-districts/

revitalised in recent years and continues to develop. It is home to vibrant communities that would help to give an innovation district a living presence. Trinity College Dublin also has a 5.5 acre campus at the heart of the Grand Canal neighbourhood for which it has ambitious redesign plans as an innovation campus. The proposed split between various uses on this site is 40% research, 40% commercial (including SMEs, growing enterprises and multinationals) and 20% retail, social, cultural and accommodation.

Figure 3. Innovation campus within Grand Canal Innovation district (outer circle)

Based on international experience in many US, European and Asian cities, the development of an innovation district results in a number of benefits:

- The establishment of an internationally visible and nationally strategic innovation quarter serves as a beacon for inward investment.

- Improved quality of life for those living and working in the area.

- Creation of a vibrant, "go-to" location in the city for residents, workers and visitors.

- The creation of a location with a critical mass of start-ups that will enable enhanced flow of venture funding, talent and connections to and from multinational industry, benefiting both sectors.

- Greater investment into the region and the creation of long term sustainable jobs based on high rates of productivity.

- Development of new innovative research and education programmes through collaboration of multiple HE institutions affording them prominence at a global level.

- The programming, curation and activation of a capital city that results in enhanced engagement between industry, universities and local communities.

- An opportunity to make SMEs stronger and more productive and link them better to the multinational sector.

- Help in preparing the economy to deal with disruptive technologies of tomorrow.

Ireland and Dublin are in a global competition to attract companies, investment and talent. Establishing an innovation district can help in differentiating our story but in light of the concept's growing popularity and endorsement by many leading global cities a pressing question is how will Ireland and Dublin differentiate itself? How can the Grand Canal Innovation District (GCID) set itself apart from competitors in Barcelona, Rotterdam, Milan and elsewhere further afield?

In answering this question we must not discount many of the strategic advantages Ireland already offers that will remain in place and in addition appreciate the additional benefits that will come from implementation of this vision. The differentiating characteristics of the GCID include the following:

- The unique mix of leading global firms co-located with the density and proximity we see at Grand Canal Quay. This remains highly unusual at an international level and it is not a coincidence that many of the world's most successful innovation districts have this as a starting point e.g. Knowledge Quarter in King's Cross in London or Kendall Square in Cambridge, MA.

- A world leading university campus at the centre with the physical presence of multiple HEIs. All innovation districts strive for this component but not many cities have globally recognised universities based in the city centre. In the case of Dublin within a five mile radius of the GCID we will have over 100,000 higher education students. The new university campus proposed would literally define the centre of the district.

  Furthermore the proposed research focus linked to engineering and computer science and the globally critical research areas they can impact including AI, big data, smart cities, machine learning and climate change to name some is highly important. Many of them are also identified in Government's designated research priorities up to 2023. The presence of so many tech companies whose core strengths lie in many of these areas reinforces this rationale.

  This strategic statement sends a strong message internationally and the benefits of this can be seen by the success of the Crick Institute and Alan Turing Institute in London.

- It is critical not to underestimate the value of location. The presence of GCID physically located in the centre of a capital city is also a huge benefit and a differentiator. It ensures exceptional transport linkages, it leverages other national investments like the convention centre, and it provides proximity to other related business quarters like the International Financial Services Sector. GCID is based beside the water, adjacent to Ireland's largest theatre, close to the shopping district and the culture and government quarter of Merrion Square. Projects such as Here East or the White City Development in London are establishing recognised world class innovation districts but without the city-centre location benefits of GCID. Place making is essential in positioning an innovation district and the location of GCID that leverages the many city-centre assets should allow Dublin to accelerate the benefits and international visibility of our strategic vision.

- Dublin and Ireland have an exceptional reputation for culture and the arts. Culture and innovation are strongly synergistic and positively feed off each other. This works in a number of ways. From the creative side where the interface of innovation and creative industries is now critical for technological success e.g. through design and the development of content - to the social and cultural impacts of new technology and innovation. GCID has an opportunity

to be a world leader in how we connect technology with culture and society. Culture and the arts also provide a 24/7 energy to the district, enhancing place making, liveability and connecting the district to the local community.

- The GCID will have a density and critical mass of interdisciplinary research and innovation, inter-sectoral companies and enterprise of varying levels of scale.

- It will fulfil Government's ambitions articulated within *Project Ireland 2040* of achieving more brownfield development by utilising existing urban sites and building on them to their full potential.

- The GCID can also benefit from the existing positive differentiators that has already added to the attractiveness of Dublin – English-speaking and a gateway to Europe.

2.3 The benefit of GCID to Dublin and Ireland

There is an economic rationale for establishing an innovation district in the Grand Canal Dock area. Trinity appointed Indecon, an economic research organisation, to undertake a cost benefit analysis (CBA) of the development of a proposed new innovation campus located in the area and the establishment of a wider GCID.

As part of the analysis, Indecon sought the views of sixty firms on the potential impact of a new campus and innovation district on start-up enterprises. Figure 4 below shows that 94% of respondents believed that the proposed development would have significant, or very significant, impact on start-ups in the technology sector. Additionally, technology companies surveyed indicated that the proposed development would promote the development of an innovation culture in Ireland to support knowledge-based enterprises. A similar percentage of respondents expressed their belief that such a development would have a significant, or very significant, impact on Ireland's ability to attract FDI (figure 5 below).

The GCID could encourage existing firms to expand their operations or to shift their focus towards potentially higher value added activities with a focus on R&D and innovation. The potential positive impact on existing firms is illustrated by the responses to the Indecon survey of existing technology firms. The survey findings suggest over 50% of technology firms already operating in Ireland foresee the impact of the GCID as resulting in an increase in employment of between 20% and 60%. Indecon estimates that, at its peak during the construction phase, the project will support over 1,300 construction jobs. There will also be 7,400 people employed on the campus once complete, from research staff to people employed in start-up enterprises and larger corporate office spaces.

Most of the technology firms surveyed suggested that the GCID would have a positive impact on R&D expenditure. Over 50% of respondents judged that there will be an increase of between 20 and 60% and 19% suggesting that the increase will be even higher. Over half of respondents outlined their belief that the proposed investment would result in an increase in exports of between 20 to 60%.

The vision for the district, endorsed by the survey of companies, is that it would create an international draw for the best talent, venture funding, innovation investment and higher education research faculty and funding.
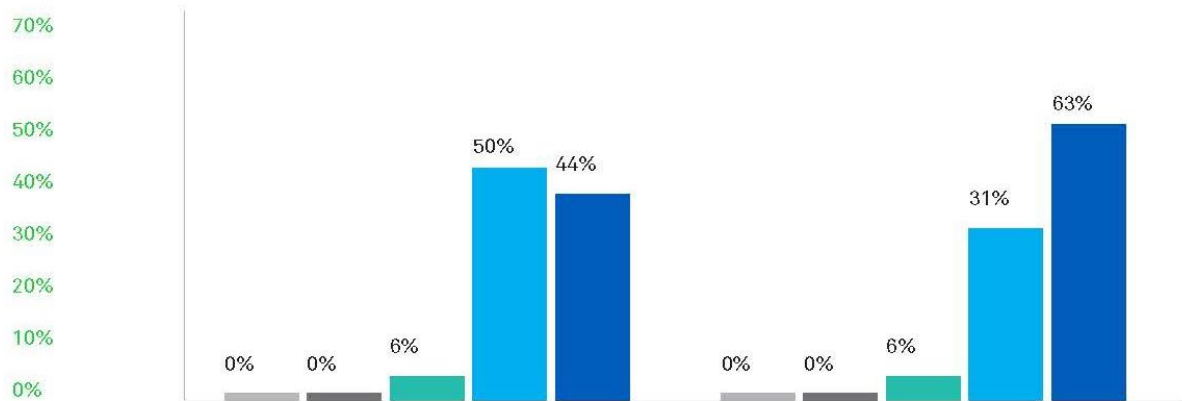
Figure 4. Impact of GCID on encouraging Irish start-ups

Very significant negative impact	Significant negative impact	Neither significant nor insignificant
Significant posotive impact	Very significant posotive impact	**Source:** Indecon survey of technology companies

Figure 5. Impact of the GCID on the reputation of Ireland as a location for FDI

Indecon calculated total economic benefit of €3.2 billion from the development of the proposed innovation campus within the Grand Canal area. This was based on a government contribution of €150m towards the total expected cost of capital of €1.1bn – resulting in a greater than 20: 1 return from the state investment (see Figure 6).

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The Grand Canal Innovation District

€1.1 Billion capital investment in the Grand Canal area

Up to 1,300 jobs during construction

2,450 jobs created on campus by TCD
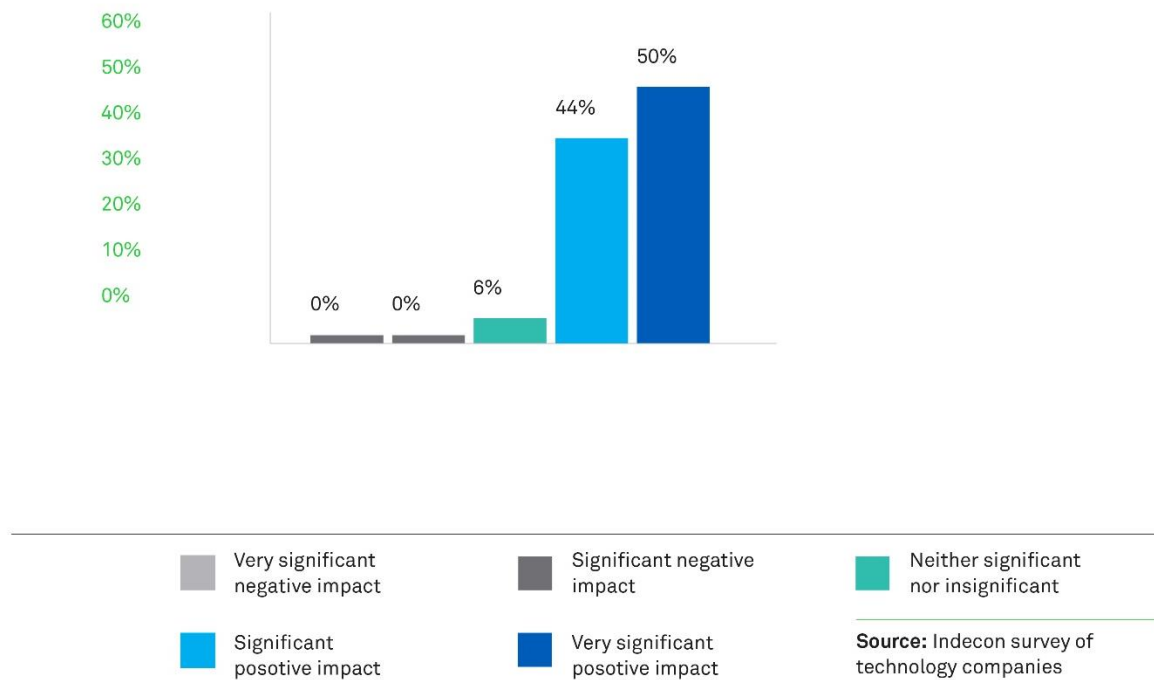
Commercial office space for additional 3,200 jobs

400 start-ups on campus supporting up to 2,000 jobs

Benefits over the 30 year appraisal period include:

€1.1 Billion

R&D Income & Spillover Benefits

€990 Million Additional GVA in Grand Canal Area

€232 Million in income tax receipts

1,500 students

€365 Million in lifetime graduate incomes

Cost-Benefit findings indicate:

Gross Benefit to the Economy of	Net Benefit to the Economy of	Benefit-Cost Ratio
€3.2 Billion	€910 Million	BCR: 1.4

Figure 6. Benefits of Grand Canal Innovation District **[Source: Indecon Report]**

Of course, tangible commitments are required to realise these projections by companies. Confidence can be obtained by benchmarking with global innovation districts that have succeeded both in attracting new companies and having those companies develop a stronger research mandate. During the period of the advisory group meetings a number of global innovation districts visited Dublin and reinforced the evidence of the Indecon survey.

If the innovation district can create and curate the right mix of early stage companies, world class university research and global business then increased investment will flow. Critically it is important that the existing companies at Grand Canal Quay have all supported the vision to date and through the Indecon survey have highlighted what they see as the potential benefits.

The next step is for these companies to commit to becoming involved in the governance of the district, in the early activation programme that is planned for 2020 and to sign up to a charter for the district.

In addition a key element would be the engagement and active involvement of the local community and residents in the area. The aim is to create an enhanced urban environment with additional training, internships and employment opportunities, amplified economic activity and improved quality of life. It will support direct community benefits in the area, from jobs to education and training opportunities, as well as for the wider city and indeed the country.

2.4 Risks associated with the Innovation District

As with any major venture, there are risks that have to be considered.

Any major infrastructure project faces risks around funding and costs. The projected financing of the project may not correctly estimate the true costs or may under-estimate factors like construction inflation, leading to a shortfall. With a project drawing on funding from multiple sources, there is a risk of some sources not being able to raise or deliver their project amount. If this occurs, there is a risk that other partners may be asked to make up the deficit or that aspects of the original plan are curbed.

Indecon's cost-benefit appraisal of the GCID has been undertaken with regard to the relevant provisions of the Department of Public Expenditure and Reform's Public Spending Code. Indecon's model utilises that latest guidance on the discount rate, the shadow cost of public funds, the shadow price of labour, the treatment of VAT and accounting for deadweight.

Another risk is known as the 'disconnect' problem whereby the different parts of an innovation district do not combine together to form a greater whole even if they are located physically close to each other. This risk arises from what is known as programming or more specifically the lack of it. It is not enough to construct an innovation district. It requires on-going active management and oversight in order to cultivate enduring bonds between different kinds of organisation and ensure that these links receive sufficient attention and support so they are vibrant. This report details what such programming requires in Section 5.4. As a means to mitigate this risk Trinity post a tender process has appointed Cambridge Innovation Centre (CIC), the world leader in innovation district activation, as an innovation partner to enable the development of the innovation campus including the early activation activities.

Another risk relates to balanced growth. It might be asked why could an innovation district not be located in another city of Ireland or even on a green-field site to help ensure more balanced regional development in line with Government's own plans in *Ireland 2040.* A cogent response is that Dublin has the necessary concentration of companies to make an innovation district a success; other parts of the country and innovation initiatives elsewhere could benefit from it. It is intended that the GCID

would form regional links with other enterprise centres and hubs to ensure that the country as a whole will benefit.

A different kind of risk arises from success. What will happen if too many businesses want to congregate at the site at Grand Canal Quay? Can it contain them all and what would happen if there is insufficient capacity? The campus site is just 5.5 acres, with limited further development potential close by. Is there a danger that small, dynamic enterprises might be squeezed out and that the district would lose some of the entrepreneurial dynamism that it is trying to cultivate? This risk can be managed by ensuring space on the proposed new innovation campus is dedicated to start-up and scale-up companies. This approach, in partnership with city officials, has been used in St. Louis with Cortex and has resulted in a continuing dynamic environment.

Another issue which concerns many relates to housing and accommodation. With so many companies locating in the Docklands area, this can lead to pressures in terms of people finding suitable, affordable accommodation. It is also clear that the more successful the GCID becomes, the greater the pressure this will put on transport and access. In this context it is important to note that the Grand Canal part of Dublin is developing in any case. The number of companies locating is increasing. The opportunity here is to place a strategic focus on the area, to manage the growth in a way that aligns with our national ambitions, to connect this growth in a dynamic way with our universities and start-ups and to build a concerted effort to ensure linkages between enterprise, education, culture and the local community.

In essence these are problems associated with success. Even the most successful innovation areas such as Kendall Square in Boston have to grapple with these issues. If they arise, it would mean that the GCID had fulfilled its primary function of becoming a desired location for the community, higher education, and businesses. This emphasises the need for the innovation district to have a mechanism to discuss and solve these issues in concert with a wide range of actors from community representatives to city planners. It will also be necessary to keep the issue of accommodation under review as the recommendations in Chapter 6 underline, whether it be in the form of augmenting current housing policies or ensuring that transport links are adequate so that commute times are not unreasonable.

It must also be acknowledged that there are risks in maintaining the status quo. The Government's National Risk Assessment (NRA) for 2019 documents the particular risk of an over-reliance on multinational corporations (MNCs) which 'disguises the majority of underperforming firms where productivity growth is stagnant or falling', leaving Ireland vulnerable to firm or sector-specific shocks. In his launch of the GCID proposal in 2018, the Taoiseach noted that it is about Ireland deepening its relationship with the MNCs already located here and ensuring more sustained linkages between them and smaller firms thus lessening the kinds of risks raised in the NRA.

The Irish economy, like others, is also facing risks such as the rapid revolution in robotics, artificial intelligence and automation. Roles and tasks carried out by people can be transferred to technology and firms can thus be left behind by the pace of change. The Government is responding to these issues through its Future Jobs initiative which is about enabling the creation of highly productive, sustainable jobs. This is to be achieved, in part, by increasing investment in research, development and innovation and exploiting the opportunities afforded by such investment. The GCID can play its part sustaining these efforts and act as a component to how we communicate Ireland's innovation story globally.

3. The Grand Canal Innovation District – Building on Success

3.1 Local Assets

Unlike many other countries or cities that set out to build innovation districts, Ireland already possesses many of the assets that make up a well-functioning innovation eco-system. We are not beginning from a blank slate.

Many of the world's leading technology companies have already located themselves within a short distance from the proposed site for the new innovation campus at Grand Canal Dock (the blue circled area in Figure 7).
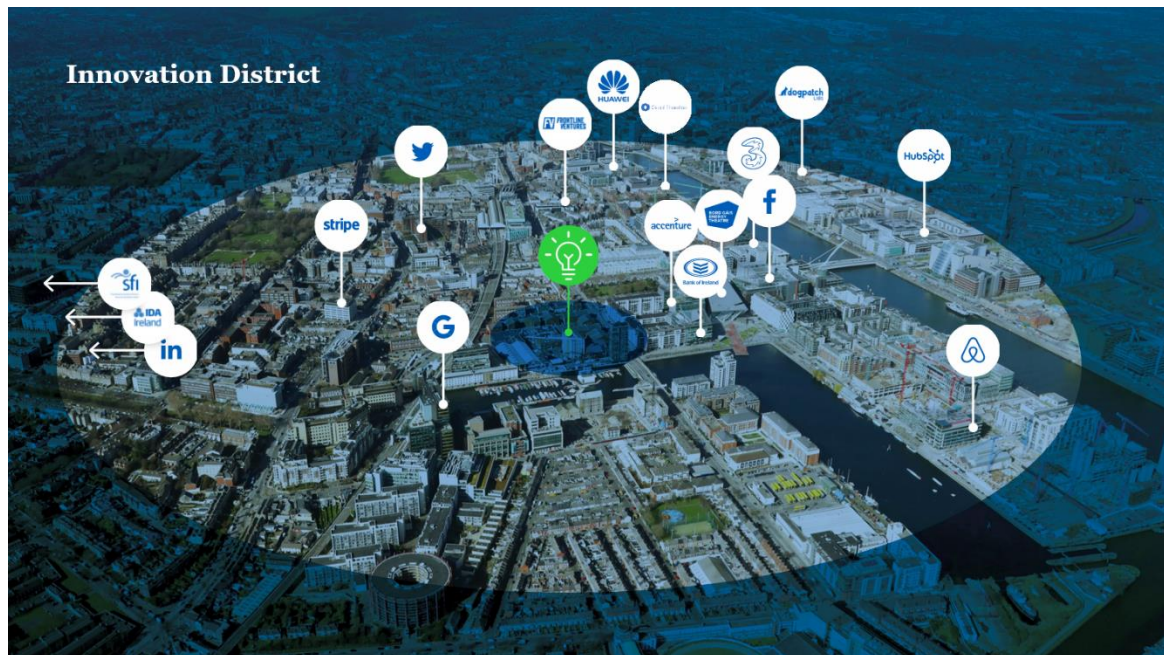

Figure 7 Aerial view of Dublin

Dublin also has some of Ireland's leading universities - University College Dublin, Dublin City University, Technological University Dublin and Trinity College Dublin - which fare well in global university rankings. Ireland is now 11th in global scientific ranking for overall quality of scientific research. This is an impressive upward trajectory from a position of 48th just 13 years ago.

However, although Ireland has developed capability and competence we still lack the scale to compete internationally. The GCID vision can enable Ireland develop an internationally visible scale by providing a dedicated innovation campus to co-locate university researchers, start-ups and mature global innovation businesses.

Ireland has one of the highest third level participation rates in the European Union and also scores highly in terms of completion rates with nearly 80 per cent of students finishing their studies and qualifying. This availability of skilled graduates has been a draw for employers and is particularly demonstrated in the jobs' profile of people in the Docklands area, highlighted in the graph below.

Employment in the Grand Canal area has a high concentration in the high-value added sectors of information and communication, financial, real estate, professional, administration and support service activities compared to the Greater Dublin area and Ireland as a whole. In short, Grand Canal is the densest location of educated talent in Ireland.

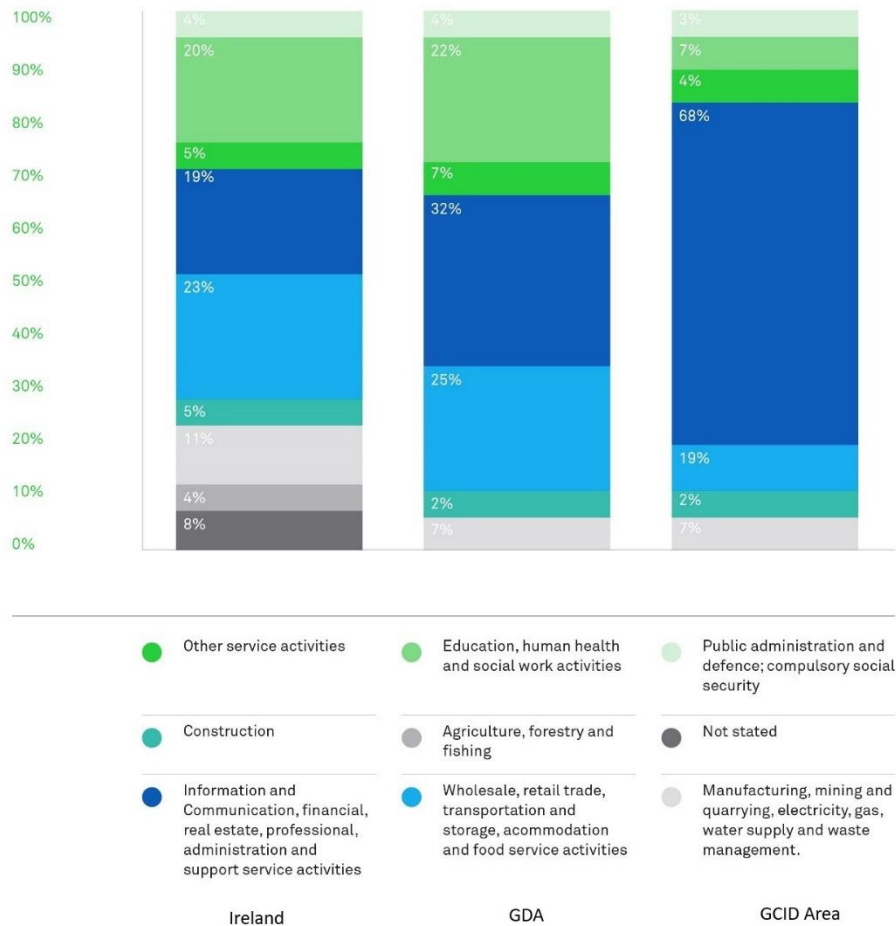**composition of employment in grand canal dock by sector**

Legend:
- Other service activities
- Education, human health and social work activities
- Public administration and defence; compulsory social security
- Construction
- Agriculture, forestry and fishing
- Not stated
- Information and Communication, financial, real estate, professional, administration and support service activities
- Wholesale, retail trade, transportation and storage, acommodation and food service activities
- Manufacturing, mining and quarrying, electricity, gas, water supply and waste management.

Ireland | GDA | GCID Area

Figure 8: Employment in Grand Canal Dock by Sector

3.2 Unlocking Dublin's potential

Efforts to develop the innovation potential of Dublin and the Docklands are already underway. For example, Smart Dublin is an initiative of the four Dublin Local Authorities to engage with smart technology providers, researchers and citizens to solve city challenges and improve city life. It aims to combine with the existing eco-system of multinationals, start-ups, SMEs, research institutions, city and state agencies and citizen/community groups to address challenges like sustainable mobility or extreme weather events through successful projects. There is also an ambition to make Dublin an ideal place for testing smart cities solutions and a champion of open data sets.

Work is also ongoing to develop the Docklands area to make it more attractive for residents and tourists. The Dublin City Tourism Statement of Strategy and Work Programme 2017-22 contains a commitment to promote the Docklands as one of the city's core economic generators, including as a destination for tourist/visitors and international conferences. Fáilte Ireland is developing a Visitor Experience Development Plan through the formation of a cluster group, the Docklands Tourism Development Group, to encourage visitors to spend more time in the Docklands.

With partners and stakeholders in Dublin Docklands, Waterways Ireland has prepared a vision statement for the Dublin Docklands area with the working title "Dublin's Water Quarter". This aspires to making the area an internationally recognised, vibrant, accessible, self-sustaining and 'must go to' destination for both locals and visitors.

These developments align well with the plans for the development of the innovation campus space at Grand Canal and the wider Grand Canal Innovation District. Furthermore, the redesign of the area is congruent with several prominent national policies (see Table 1).

Table 1: National policies supportive of an innovation district

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Future Jobs (2019)

Future Jobs focuses policy on more productive, sustainable jobs which will be resilient in the face of technological, climate-related and other global trends.

National Strategy for Higher Education to 2030 (2011)

The Strategy supports the regional collaboration between clusters of geographically proximate institutions, to ensure that individual, enterprise and societal needs are addressed in a planned, coherent and efficient way.

Innovation 2020 (2015)

Ireland aspires to be a global Innovation leader underpinned by, inter alia, a coherent joined-up innovation ecosystem, delivering enhanced impact through the creation and application of knowledge.

Project Ireland 2040 (2018)

Project Ireland 2040 supports compact growth which will be assisted through an Urban regeneration and Development fund. This will encourage economic development, by creating conditions to attract internationally mobile investment and opportunities for indigenous enterprise growth.

Enterprise 2025 Renewed

Aims to harness the distinctive characteristics of our foreign and Irish owned enterprise mix through collaboration and clustering; place a spotlight on innovation and talent and leverage our strengths in disruptive technologies.

Ireland for Finance (2019)

In the future, there should be greater collaboration between fintech firms (and IFS companies in general) and these global technology giants. In effect, this can be a 'digital bridge' from Silicon Docks to the International Financial Services Centre.


It is important also to place the opportunity at Grand Canal Quay in the context of the broader Dublin area. In recent years, there has been exciting and important developments outside the city centre that have provided enhanced innovation energy, capacity and capability to the city. Dublin City University

has developed a new Innovation Campus, DCU Alpha, in Glasnevin. This 8.5 acre campus now hosts over 80 high-tech companies with over 800 employees. In 2018, more than 15% of all VC funds raised in Ireland was achieved by DCU Alpha companies. University College Dublin has continued to invest and improve its Nova UCD facilities, in tandem with further developing its enterprise offering through the Nexus campus. The Technological University of Dublin is currently continuing with the development of its new campus at Grangegorman which will also provide space for innovation and enterprise activity. In addition to these significant developments, business parks in City West, Sandyford and others now host major technological and innovation firms.

These are all exciting developments and represent a firm basis on which to advance an innovation district. A successful district depends on many features: an engaged community; collaboration between HE research institutes; a place for start-ups and buy-in from established industries; sufficient presence of venture capital; attention to innovation policies; and active management of the district itself. Each of these is considered in the next two chapters and actions to realise them outlined.

It is important to view the proposed innovation district at Grand Canal Quay through this filter of the broader Dublin and Ireland opportunity. The GCID can provide a high density hot spot in the centre of our city that will act as a nucleus and beacon for Ireland's innovation story. It will also need to build and manage clear connections and activities with already existing nodes of research and innovation both in Dublin and beyond.

Figure 9. Greater Dublin innovation landscape
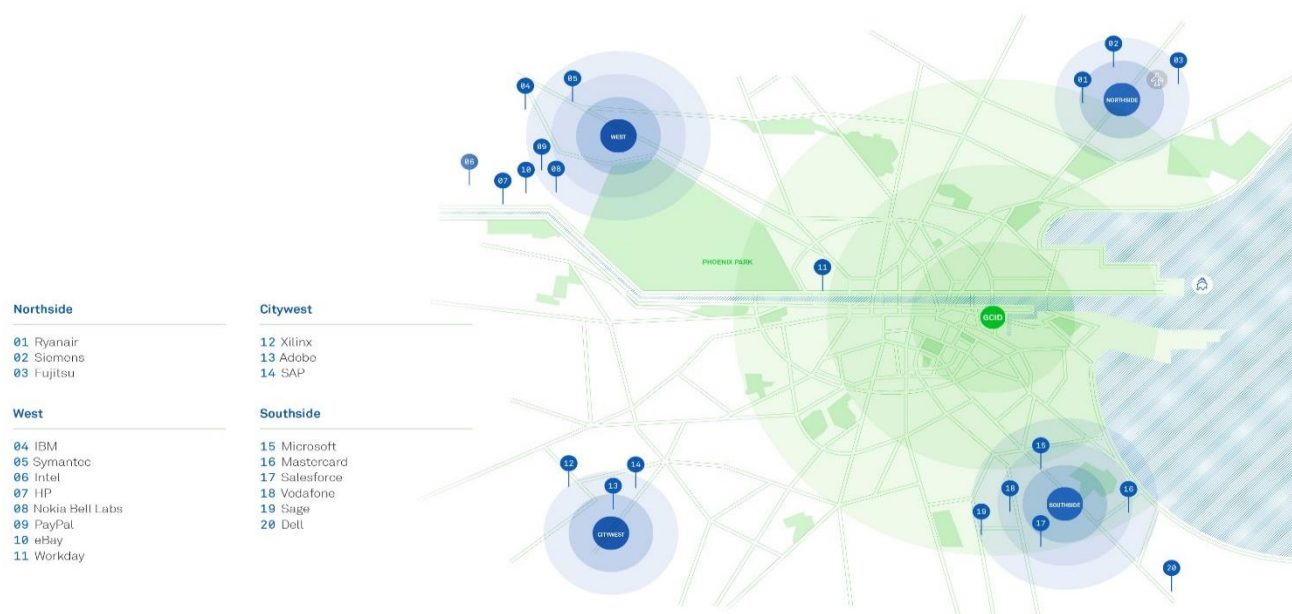
Recommendation 1:

The Advisory Group formally recommends the development of the Grand Canal Innovation District (GCID) with a university innovation campus at its physical centre. It believes that the innovation district will enhance Ireland's economic and societal well-being, and in light of risks arising from international technological, trade and tax developments as well as Brexit, help to futureproof Ireland's continued economic growth.

Recommendation 2:

The cost of delivering the GCID should be shared across the various stakeholder groups who are interested in its development and will benefit from its presence. The investment from all stakeholders will be modeled on the successful formulas used in other innovation districts such as that in Kendall Square with funding used to drive programming, early activation and community initiatives as well as helping to ensure appropriate governance structures are in place.

The financial model provided by Trinity projects that Government support of 15% of the overall cost of €1.1bn, spread out over a number of years, would be required to realize the innovation district campus and to underscore the importance of the project to the country while also unlocking support from private sector investors. The remaining investment can be raised from multiple sources including commercial investment, debt and philanthropy.

4. Building an innovation district

4.1 Higher Education

Higher education in Ireland has long played a role in national economic and social development. Expanding opportunities at third level has been crucial in generating a supply of skilled graduates that has contributed to a rise in economic growth and productivity, and improved the well-being of many people.

As Ireland is competing at a global level, the development of a knowledge-based economy will be crucial to sustaining growth and prosperity. Higher education institutions have a significant role to play in terms of generating new knowledge and assisting in its dissemination and application. This kind of practical innovation is taking place in cities and regions all over the world. To be relevant at a global level requires Irish HE institutions to collaborate in new and ambitious ways and to be involved with international networks outside of Ireland.

This has been Government policy for some time and has been encouraged through different policy instruments. The Programme for Research in Third-Level Institutions (PRTLI) was the first Irish government programme that provided integrated financial support for cross-institutional strategies and programmes. It was launched in 1998 and up to the end of 2006, €605 million was allocated to third level institutions under this competitive programme. The National Strategy for Higher Education (2011) highlights the potential for the creation of regionally-based clusters of collaborating higher education institutions.

The SFI Centres model - where funding is allocated to key research areas, bringing together scientists across institutions and working with industry partners - has seen the growth from six national centres in 2013 to 17 in 2019.

In recent years UCD and Trinity partnered to establish Ireland's first venture capital fund targeted exclusively at higher education research commercialisation – the University Bridge Fund.

These initiatives have encouraged a culture of collaboration across the HE system. The Dublin universities all rank amongst each other's top research collaborators. The table below demonstrates through publication data for the last five years how deep collaboration is across the Dublin universities and highlights how this provides an important platform on which to build. For example Trinity's largest global collaborator is UCD – with twice as many collaborations as any other institution. The Technological University has the three other Dublin universities in its list of its top 4 collaborators. The opportunity now is not about commencing new research collaborations but finding ambitious new ways to collaborate that enhances our research competitiveness at an international scale.

This vision of enhanced university collaboration is consistent with the HEA strategy and has significant industry support. It also is in line with best practise that has seen other countries create institutes of scale with a critical mass of research that is not just nationally distinct but is internationally visible and leading. A best in class example is the establishment of the Alan Turing Institute[2] and the Crick Institute[3] in the UK. Both of these research institutes are multi-institutional and they have been located in the Knowledge Quarter Innovation District located at King's Cross in London. The KQ is fast becoming home to the global leading firms across ICT and life science – aligned fully with the research interests of the two institutes.

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[2] The national institute in the UK for data science and artificial intelligence - **https://www.turing.ac.uk/**. Located at the British Library at Kings Cross, London the founding members are Universities of Cambridge, Edinburgh, Oxford, University College London and Warwick and the Engineering and Physical Sciences Research Council.

[3] The Crick Institute is located at Kings Cross, London and is the biggest biomedical research facility under a single roof in Europe. It is an independent organisation with the its founding partners being the Medical Research Council (MRC), Cancer Research UK, Wellcome, UCL, Imperial College London and King's College London.

The new campus at Grand Canal Quay is an opportunity for universities and other higher education institutions to adopt and evolve this model of inter-institutional co-location and enhanced industry collaborations.

Co-publications	Trinity College Dublin	University College Dublin	Dublin City University	Technological University Dublin
Trinity College Dublin		Ranked 1st collaborator globally. 1316 co-publications.	Ranked 15 collaborator globally. 302 co-publications.	Ranked 17 collaborator globally. 287 co-publications.
University College Dublin	Ranked 2nd collaborator globally. 1316 co-publications.		Ranked 263rd collaborator globally. 394 co-publications.	Ranked 309th collaborator globally. 210 co-publications.
Dublin City University	Ranked 2nd collaborator globally. 302 co-publications.	Ranked 1st collaborator globally. 2394 co-publications.		Ranked 9th collaborator globally. 109 co-publications.
Technological University Dublin	Ranked 1st collaborator globally. 287 co-publications.	Ranked 2nd collaborator globally. 210 co-publications.	Ranked 4th collaborator globally. 109 co-publications.	

Table 2: Global collaboration ranking and scale of internationally peer reviewed publications across all four Dublin universities (Scopus 2015-2018)

Trinity has already committed to locating its innovative new research institute E3 – Engineering, Environment and Emerging Technologies - on the campus. This institute will be aligned with the research and innovation requirements of the leading technology firms and will bring together the Trinity component of national research institutes such as ADAPT, CONNECT, AMBER, iCRAG and Learnovate that already work across multiple higher education institutions.

Between them, these research centres have a focus on many of the technological challenges that will shape our future – artificial intelligence, imaging and video processing, big data and personalisation, telecommunications and future networks, smart cities, internet of things, sustainability and the environment, material science and bio-engineering and educational technology. These technology areas also overlap strongly with the current start-up and mature business base in Dublin.

The vision behind GCID creates an opportunity to enable deeper partnerships across higher education institutions, enabling collaboration in new and ambitious ways that will provide enhanced international visibility. International evidence is compelling. Co-location of research activity at scale

drives new collaborations, new interdisciplinary research opportunities and new partnerships. The benefits of co-location of researchers has already been demonstrated in the few short years since the Crick opened, with research citation impact measurements within the field of Medicine higher for the institute as a whole compared to the individual impacts across the component institutes of King's, University College London and Imperial.

The opportunity available is to create a new research institute that will have a scale that moves beyond national significance to being internationally significant. To co-locate our leading computer scientists, engineers and scientists in a new research institute that will bring together the best of our university researchers would help to transform how we position Ireland as a location for innovation and investment. It would be a symbol of our commitment to research and evidence of our ability to collaborate.

However, the opportunity is not just about enhancing how our existing researchers can collaborate. A new research institute of scale can also support Ireland's ambition, and the ambition of our leading universities, to attract new world leading faculty and students. This is required as we face a demographic bubble which will result in 25% more school leavers wanting to enter university by 2030.

Furthermore, the dynamic of these collaborations can also be transformational as there is a unique opportunity to co-locate this inter-institutional research institute with some of the world's leading innovation companies and adjacent to the proposed large start-up hub. This opportunity for our best research to be co-located with industry is an international differentiator.

This research institute can also, because of scale, help position Ireland more competitively for European research funding and to lead collaborative European research consortia.

A further opportunity is to incorporate shared research infrastructure within this research institute that is available to the enterprise community, lowering the barrier for companies to become more innovation active.

In addition to a new research institute and infrastructure, it will be important to develop and strengthen a functional network which can leverage synergies between the GCID innovation and co-working spaces with similar spaces across the other universities e.g. DCU Alpha, UCD Nova. There are very significant benefits to be achieved from this including enterprise relationships and shared programming activities.

Evidence for the success of these co-location and collaborative policies can be seen in many locations but a telling example are the A-Star institutes in Singapore that have supported the increased competitiveness and international rankings of the leading Singapore universities over the last decade and have underpinned the successful foreign direct investment model operating in Singapore.

The Dublin universities have signed an MOU agreeing to work together to establish the GCID and are in active discussions on the scale, scope and ambition of this proposed research institute. The discussions to date have focussed on Dublin based higher education institutions but there remains an openness that this proposed research institute can and should connect with all our universities and institutes of technology nationally. Discussions with the other universities will begin imminently.

It is imperative this institute complements our universities existing research strengths but is additional and focused. It must work in tandem with the research on-going on existing campuses and be connected to the student bodies, faculty and infrastructure that each institution has to offer. The new research institute must not compete with current campuses but add scale, ambition and new opportunity. In addition it should act as a focal point for the city – a reference of best in class on a global scale – but also ensure that it supports a broader innovation narrative for Dublin that respects and connects to the enterprise and academic hubs to the North, South and West of the city.

This vision is bold and disruptive. It requires not just leadership from the academic sector but leadership from government and industry. Government must support the concept of research co-location, the ambition of excellence in research at scale and must encourage and incentivise this level of enhanced collaboration through its strategies, capital investments and recurrent spend in research.

Industry must embrace this vision and develop new ways to collaborate including co-location of researchers within the building, sponsoring of students and infrastructure, connecting our researchers with the global research locations of the relevant businesses, providing an enhanced presence of corporate venture funding and an openness to engage with the talent graduates who will work in this environment.

Recommendation 3:

A new multi-institutional research centre at the heart of the innovation campus, drawing from several Irish universities, should be established that will build enhanced inter-institutional collaboration through the co-location of university researchers and industry – both start-up and large corporates – in a single innovation building. This institute can transform how we do research in Ireland by creating a unique scale of world class researchers across multiple disciplines, establishing new inter-institutional relationships, enabling direct co-location of industry, maintaining a strategic focus on connecting with entrepreneurs and start-ups, building a deep public engagement and activation programme and through a cutting edge new building attracting the best researchers to Ireland.

Actions for delivery:

Short-term (12 months)

- Establish a GCID University Special Interest Group, comprising the Presidents and Deans of Research from the four Dublin Universities, as well as further relevant personnel to pursue the development of a new inter-institutional centre.

- Develop a detailed proposal for a new digital technology research institute that will build on the strengths of Ireland's higher education institutes and set out how this could be funded.

Medium term (12-36 months)

- Develop the operational and governance structures for a new inter-institutional research institute e.g. branding, allocation of space, funding.

Long-term (36 months onwards)

- Co-locate a range of Irish university researchers and personnel within a new inter-institutional building at GCID

4.2 Industry and start-ups

One building block of a successful innovation district has already been detailed, namely a collaborative university sector. Two more crucial parts are an ambitious start-up sector and a co-operative, outward-looking corporate sector.

As the picture in Figure 7 demonstrates, there is already a significant number of influential tech companies in the GCID. And the start-up ecosystem for new businesses is developing consistently in Dublin with a significant number of start-ups located in the capital.

It is recognised that the opportunity provided by the presence of so many tech companies in a relatively small area of Dublin has not been fully realised and this is one of the fundamental reasons for establishing an innovation district. Start-ups and SMEs in Ireland could thrive much more readily if given more assistance at an early stage, be it in the form of mentoring, sourcing capital or helping them to secure suitable premises or research facilities.

Ireland has rightly developed a reputation for being a global leader in attracting the world's best companies. We now need to develop the same focus on establishing and scaling our own globally competitive businesses. Recently published survey data[4] on established micro-businesses with 1-9 employees in Ireland has revealed growth ambitions by business owners, with one in four micro-businesses in Ireland wanting to build a national or international business. Micro businesses play an important role in stimulating innovation, employment and growth with a quarter of a million micro-businesses in Ireland, employing almost 400,000 people.

The ability to scale requires access to global capital, the best technical and entrepreneurial talent and an innovation ecosystem that supports interdisciplinary research and enables disruptive thinking. The GCID vision can help deliver on all of these attributes. This is in line with the Government's ambitions of increasing the productivity of small and medium sized enterprises by 1% per year to 2025, with one of the five pillars of the Future Jobs Ireland 2019 strategy dedicated to improving SME productivity.

To make this work, companies, both established multinationals and those who have recently landed, must commit to supporting the development of the innovation district through active participation in the activation of the eco-system, direct support of the marketing and branding of the district and a shared sense of ownership of building a compelling innovation story for GCID and Ireland. Already over a dozen firms have committed to working to develop and implement this vision.

As the innovation campus is developed, the companies need to then move to the next step of committing to taking space and placing research and innovation teams onto the campus to engage with researchers, students, start-ups and other companies.

To ensure this apparently "simple formula" works, a mix of enterprise types needs to be actively curated and managed. A culture and charter for the district needs to be established which has buy-in from companies, higher education institutions, individual entrepreneurs and the local residential community.

Actions for delivery:

Short term (12 months and then on-going):

- Enterprise community to help develop and sign up to a charter for the innovation district including supporting local community engagement, providing mentoring opportunities for start-up entrepreneurs and SMEs, and assisting in the marketing of the GCID and its likely future development.

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[4] *Micro-Businesses in Ireland: From Ambition to Innovation*, Dr. Jane Bourke and Prof. Stephen Roper, Cork University Business School, April 2019, https://www.ucc.ie/en/media/projectsandcentres/srerc/Micro-BusinessinIrelandReporte-version.pdf

- Enterprise community to explore the feasibility of developing a technology visitor attraction on the innovation campus or within a company space in the GCID.

Medium Term (12 – 36 months)

- Enterprise community to actively support the early activation strategy at the innovation campus by hosting events and working in partnership with the innovation hub that will be established.

- Enterprise community to engage with the venture community and enhanced supports for start-up companies.

Long-term (36 months onwards)

- Enterprise community to co-locate personnel and research facilities in GCID.

- Enterprise community to develop sustained relations with local SMEs.

The GCID will also provide a new focus on and supports for start-ups and SMEs. It will act as an incubator for many early-stage companies and offer co-working spaces, help to source seed capital and provide enhanced networking and mentoring opportunities.

In order to foster collaboration between companies of similar size and facing similar challenges, it is important that between 10-15% of space within the new campus is protected to support start-up companies, "recently-landed" FDI companies (each of 15 - 30 people) and SMEs.

Providing assistance to start-ups and SMEs will be crucial as both have the potential to grow significantly to scale, enabled both by policies and financial supports. Furthermore, if we can connect small but scaling multinational companies into this mix we create an opportunity for building collaboration into their mode of operation as they begin to scale in Ireland. Multinational companies are at their most open when they first arrive in Ireland – open to research partnership, open to collaboration with Irish SMEs, open to engagement with the talented workshop within the ecosystem. GCID should be a home for these innovation global businesses and can support the development of the right linkages and relationships at a time in their growth cycle where they are more susceptible to the benefits of ecosystem engagement.

In addition, Dublin is still in the early stages of developing shared research facilities which lower the barrier for companies to become innovation active by providing access to infrastructure that would otherwise be out of their reach. At present, there is limited shared lab, prototyping space and other facilities and these should be developed in the first phase of the innovation campus development.

It is proposed that the GCID will support the establishment of a 12,000m^2 shared working space on the innovation campus. The proposed commercial cornerstone is a large scale co-working environment e.g., a similar model to CIC in Kendall Square, Cambridge MA or Plexal in London's HereEast that will house in the region of 300 start-up companies and SMEs. In addition, it is proposed that there will be standalone office and research units that will house some new FDI companies landing in Ireland, companies that have out grown the co-working space, scaling Irish businesses and the innovation teams from the globally leading technology, ICT, medical device and biopharma companies in Ireland.

Speaking to both the needs of research institutes, start-ups and SMEs is the vision of public research infrastructure that will be open access and available to all users and will enable enhanced innovation activity and capability across the different stakeholders in a manner like Lab Central or Mass Robotics in Boston[5].

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[5] https://www.massrobotics.org/.

Recommendation 4:

A large start-up hub should be established as a part of the innovation campus creating the opportunity for Ireland to have an internationally recognised start-up cluster, much like that of Station F in Paris, with shared research infrastructure enabling scientists and companies progress developments in the areas of digital technology and associated applications. This start-up hub should be also available to and benefit from the participation of SME and new FDI organisations.

4.3. Policies to enhance start-ups and scale

Ireland has developed a global reputation as a leader for foreign direct investment. One of its challenges is finding a balance in our enterprise development strategy that sustains the important role of international business while building a more innovative and globally connected indigenous industry base.

This is not a challenge unique to Ireland. Europe has been struggling with ways to drive more effective translation of innovation into enterprise and impact. This is the rationale behind the establishment of the European Institute for Innovation and Technology (EIT) and the plans for the European Innovation Council.

In the context of this innovation challenge for Europe, Ireland has a unique opportunity to thrive and be differentiated.[6] In 2016 Dublin was ranked fourth in Europe for attracting venture capital and the top two per capita[7]. Ireland has the largest European cluster of global innovation firms located here and we continue to have the advantages of language, tax and connection to the European market that makes our country an excellent place to start a business.

However, Dublin and Ireland must continue to focus on building an environment that remains competitive not just to start a business but also to scale a business. In addition, we need to ensure we are creating businesses that have an innovation capability at their heart – these are proven to be more internationally competitive, more investable and more sustainable businesses.

The challenge of enhancing indigenous innovation can be approached from three objectives:

1. How to create an environment that supports innovation driven enterprises at an early stage?

2. How to support the development of these businesses at an accelerated pace and encourage talent to choose to work for these businesses?

3. How to ensure growing businesses have sufficient access to capital allowing them to grow to a considerable size?

Innovation districts can play a strong role in supporting all three of these demands by building a critical mass of talent, attracting finance, building innovation linkages and by proactively managing and curating the ecosystem to connect companies, talent and innovation potential. This aligns with the ambition in Government's *Future Jobs* policy to strengthen the linkages between SMEs and multinational enterprises and our tertiary education institutions. In addition to supporting the innovation district, another way in which the Government could support small businesses with growth potential in the district is through the establishment of a Local Enterprise Office if there was sufficient scale of enterprises there.

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[6] For a recent analysis of possible future actions in this area, see Avolon (2019)
https://www.avolon.aero/newsroom-and-thoughts/avolon-releases-thought-leadership-paper-project-i
[7] https://www.siliconrepublic.com/start-ups/europe-venture-capital

In relation to the first objective, the most renowned support models provide access to initial seed capital and mentoring to allow entrepreneurs to develop and operationalise their initial thoughts about innovative breakthroughs. To accomplish this, Government could improve access to angel capital for early stage companies through an enhanced and simplified Employment, Incentive and Investment Scheme (EIIS). The GCID will also endeavour to link up early-stage entrepreneurs with established mentor figures who have experience of pioneering businesses and who could provide appropriate advice. Many of these mentors would be sourced from existing businesses within the Docklands area and from alumni of the universities.

In relation to the second, developing businesses to stimulate their growth is often achieved by what is known as an accelerator program. This usually involves several start-ups, who are given some initial capital – in exchange for equity - and who work through a structured program for a set period of time of between 3-12 months, often at the same facility. During this time, they receive intensive mentoring and training, and they are expected to develop rapidly. Virtually all accelerator programs end with a demonstration whereby every start-up presents to investors.

What distinguishes the renowned global accelerator programs is the quality of mentors relied upon and the pace at which start-ups are expected to scale. Establishing such a program at the GCID would serve as a beacon to start-ups, both nationally and global, and would also help to draw on the many Irish people who have excelled in business overseas and who would be willing to act as mentors. A network of mentors sourced from within Ireland would also be constituted.

As to the third objective, the availability of adequate VC funding will be a crucial determinant of businesses' capacity to grow and take market share. This will be a key metric of success for the innovation district and achieving it will require liaison with international VC firms with a view to them having a presence in the Docklands area.

Another important feature to encourage the growth of start-up firms is the availability of talented potential employees. Future Jobs 2019 commits to implementing the 2018 Review of Economic Migration Policy to ensure that our systems continue to be efficient and effective. And the Start-up Entrepreneur Programme ("STEP") is a program that gives non-EEA entrepreneurs the right to live in Ireland and to establish their business here. The business must be classified as high-potential and have secured €50,000 of funding. It may be worth considering extending this scheme to key employees and not just founders as this would emphasise Ireland's openness at a time when some countries are seeking to restrict immigration.

One more important factor to aid the development of start-ups is the existence of incentivisation schemes, usually through share options. In this regard, the Key Employee Engagement Program (KEEP) was introduced in 2017 to help SMEs attract and retain talent in a highly competitive labour market by offering employees share options in a tax efficient manner. Uptake by start-ups should be kept under review and if insufficient should be adjusted accordingly.

Recommendation 5:

The Government should continue to develop its entrepreneurial and innovation policies to ensure they remain internationally competitive, so that Ireland can attract entrepreneurs from outside Ireland as well as provide the right support to help nurture indigenous start-ups, helping them to grow and scale internationally and strengthen links with larger companies in Ireland.

<u>Actions for delivery:</u>

Short-term (12-24 months)

- Develop a charter for the innovation district to progress its development. Companies and public agencies would be invited to make a number of commitments over a prolonged period of time.

Medium to long term (24 months on)

- Provide assistance to start-ups through mentoring and sourcing capital from an early stage.

- Provide that start-ups, SMEs and recently-landed multi-nationals shall be allocated 10-15% of the space at GCID to ensure that it retains an entrepreneurial dynamism.

- Develop shared research facilities for small companies.

- Ensure from an early stage that venture capital firms locate within the innovation district and ensure the district is visible to international VC firms and that the increasing availability of VC investment is a key metric.

- Help to enable access to capital for later stage companies that seek to scale up.

- Monitor Ireland's economic migration system to assess whether changes would assist in the growth of start-ups and entrepreneurism, thus assisting the development of the GCID and other projects.

4.4 Active management of the district

An innovation district has several distinct components; academic research, fledgling businesses, established corporates and a local community. Having them all physically close to each other is the basis for beneficial interaction but it is no guarantee of success.

A crucial lesson from benchmarking innovation districts internationally is the paramount importance of programming. Programming has been defined as the connective tissue of a district that binds different parts together. It is the "software" that allows the physical infrastructure of the city – "the hardware" – to be optimally utilised. It encompasses a range of activities to establish social bonds, build networks, provide guidance and assistance and support individuals and organisations. It includes activities and events from evening workshops to daytime food trucks.

Social interactions between workers, researchers and residents—essential to collaboration, learning, and inspiration—occur in concentrated "hot spots." A handful of social hot spots in a district will likely punch far above its weight in terms of building community. To accomplish this, GCID will partner with innovation organisations to establish these hot spots or connection spaces with a similar mandate to what the Venture Café concept has been successfully doing in many cities in the US. Venture Café is a not-for-profit organisation that hosts community events and gatherings that support early-stage entrepreneurs.

The new campus will also have a cultural component by ensuring that there is space available for the performing arts. The campus will host the Lir Academy, Ireland's national academy of drama and art which is already located in the site, and which will become a focal point for cultural events. The cultural hub will also focus on connecting technology, art and creative industries with research and the local community. This can be achieved for example through connecting the Lir with organisations such as

the Science Gallery, the Bord Gáis Theatre and our national SFI centres to enable new events and gatherings.

Early activation of the innovation campus site in 2019. This will create a new collaboration space and a public square. Trinity has procured Cambridge Innovation Centre (CIC) as an innovation partner for the site, and CIC will support this early activation and programming. The US based CIC has a track record of developing successful programming across innovation districts internationally e.g. Venture Cafes. The model of Venture Café is a collaborative model, and this approach will be adopted for GCID. Collaborative means that the space acts as a neutral venue that brings together existing organisations and provides a means to leverage existing events and connect them to new audiences and new organisations. This is done by hosting a mini-innovation conference every Thursday. The conference acts as a collector of relevant innovation events and brings them into one curated space that allows all actors in innovation to meet and connect – entrepreneurs, researchers, corporates, students and investors. The early activation of the campus will be led by Trinity but done in partnership with the companies and organisations active within the district and indeed within innovation across the city.

In addition to the weekly innovation conference the early activation of the campus will house new start-up companies, accelerators and incubators. Public meeting spaces will support informal get-togethers, festivals, community gatherings, food markets, music and cultural events, as well as innovation-based events and conferences. The campus can quickly act as a new home in the city for those committed to innovation and transformation. Spaces will be available to everyone in the local area and will be a resource for local residents.

Recommendation 6:

Early activation of the site should commence immediately with the development of a vibrant innovation hub that should be completed by the end of 2020. The hub will work collaboratively across higher education, companies and the local community. It will house new start-ups, host accelerator and incubators, be a venue for innovation meet ups and a new vibrant location where entrepreneurship, research, innovation and the arts can connect.

Actions for delivery:

Short-term (12 months)

- Develop a design brief for early activation of the site to include an innovation hub with potential elements such as co-working space, meeting room space, shared research infrastructure, conference space.

- Develop a programming and operational model for this space to include a mix of activities to connect the local and wider innovation communities as well as governance and funding.

- Support the development of public spaces that connect with the local community.

Medium-term (12 -36 months)

- Implement programming that ensures sustainability and supports engagement with key stakeholders.

Recommendation 7:

A cultural hub should be a core part of the innovation campus – connecting technology, art and creative industries with research and the local community. This is critical to successfully activating the area, enabling effective place-making, attracting new visitors to the area and supporting the research ambition to connect technology in a meaningful way with the local community and society.

Actions for delivery:

Short-term (12 months)

- Establish programming as a core activity of the innovation district even before physical building starts.
- Provide designated connection and cultural spaces within the innovation district.

Medium-term (12 -36 months)

- Ensure that the Lir Academy occupies a prominent site within the campus and plays an important role in programming.
- Implement and evaluate cultural programming.

5. Building an Inclusive Community

For an innovation district to be successful, it must have the spontaneity, openness and vibrancy of a natural community. It cannot block itself off from its surroundings but rather must embrace and be open to local residents, employees and visitors at all stages of its progress.

The development of the GCID has the potential to be transformative to the local area – a place that can promote education, training and employment opportunities and provide a desirable and vibrant place to work, live and visit. The development could also be seen in a negative light, with concerns about housing and displacement by large-scale investment and high-tech companies. There is international evidence of variation in the social impact of innovation districts and it is important that this development learns from international innovation districts that have achieved inclusive innovation. Without clear goals, appropriate mechanisms and adequate resources, the GCID will not deliver benefits to the whole community, and so there is a need during the process of development to design both a collaborative structure for delivery and intentional strategies to ensure that all residents benefit from, and are an integral part of the GCID.

The vision is for university and industry partners within the GCID to face outwards, connecting as widely as possible to the local community with the overall goal of providing appropriate educational and social programmes, designed in partnership with the local community to benefit all residents.

5.1. Consultations and audits – demographics and needs of the local population

As part of the GCID initiative, Trinity College has begun the process of consultation by hosting specific sessions with local residents and two broader consultations with wider stakeholders including the academic and business communities in 2018. In addition, trips to Boston and London helped to shape perspectives for stakeholders on what can be achieved at Grand Canal Quay. Further consultations were progressed in 2019 and will continue throughout the development phases and will include residents from the broader Dublin Docklands area. In addition, members of the local community have been part of the Advisory Group which has produced this report. Formal and informal engagement will continue through the development of the GCID, so that the community remains at the heart of the process.

Feedback from open days held in the community around the concept of GCID has indicated that there is scope to improve the existing programming currently offered to local residents by higher education providers and companies based in the area. There were also many positive suggestions provided by attendees at an Open Day held in St Andrew's Resource Centre in 2018. When asked what Trinity could include in its planned new campus that would benefit the community, the following items were recorded:

- Evening courses for local residents
- Community amenities e.g. meeting rooms, gallery, school, sports facilities, teenager/youth innovation and education, training centres
- Green places
- Cafes and restaurants, yoga centre
- Meeting spaces open to community groups to combat isolation
- Anything that would create future links between the local community, especially those who had not had educational opportunities, and the university.
- Space for artist's studios/low rent spaces for creative activity.
- An interactive IT led playground
- Room space for the voluntary tuition programme ("homework club") run by Trinity College and St. Andrew's Resource Centre
- Docklands museum
- Open days showing children and locals the campus.

Many of these suggestions resonate with the findings from the Dublin Docklands Social Infrastructure Audit 2015 which indicated that continued development of training and upskilling is needed with links to local employers and third level institutes required. High levels of satisfaction with the schools operating in the area were reported although comments were made about educational disadvantage and the need to teach more subjects at honours level which influences the outflow of students. The issue of access to Trinity and the National College of Ireland was also raised. The Audit also found a notable shortage of cultural product which recognises and celebrates the history of the area. It was also recommended that support be given to the development of a shared community space or creative venue for young people.

There is an opportunity to deliver some of these suggestions through community and place-making sensitive design of the campus and through the early activation initiatives – ensuring that they are inclusive and take account of local needs.

The 2017 Review of Dublin Docklands Social Infrastructure Audit 2015 found that over 20% of the population of the Docklands is resident at their current address less than 1 year. There is a mix of residents and household types including older people from the area, workers from outside Ireland, private home and apartment ownership, in addition to private rent and social housing provision. The pace of change and population growth in the area has overshadowed the traditional local community and this community, largely dependent on social and affordable housing, is particularly vulnerable to displacement without effective strategies to secure its future, such as were mandated by the legislation establishing the Dublin Docklands Development Authority. It is important that all GCID related consultation and engagement aims to reach this broad mix of residents, thus providing a range of ideas for the campus and wider district.

5.2 Existing Programmes and Organisations

There are a number of programs and organisations operating in the Docklands as part of the Department of Education and Skills commitment to deliver equal access to educational opportunities. These include the Early Start Programme in the pre-school sector, and the DEIS (Delivering Equality of Opportunity in Schools) programme in the school sector. In addition, the Active Inclusion pillar of the Further Education and Training Strategy (published by DES and SOLAS in 2014) seeks to provide more training programmes and supports for those experiencing socioeconomic disadvantage.

Other important institutions which deal with community development include the Dublin City Local Development Committee which has been established to deliver a joined-up approach; and the Docklands Oversight and Consultative Forum which can advise Dublin City Council in relation to any of its functions as they pertain to Docklands.

St Andrew's Resource Centre at the heart of the Docklands offers in their own words, "a supermarket of services" to the Pearse Street/ Westland Row/ City Quay community providing childcare, youth services, a job centre, adult education and a day centre and home care services for older people. St Andrew's delivers these services in an integrated way, tailored to the needs of local individuals and families, in partnership with eight different statutory agencies and a variety of corporate and philanthropic supporters. There are approximately 100 people on work experience through community employment and one recent successful initiative has been the development of a construction skills course with 80 candidates to date, 58 of whom were placed in local construction sites. Graduates included hard to place local men, 6 of whom were homeless. This course was delivered with a range of partners including Dublin North Inner City Task Force, Department of Employment Affairs and Social Protection (DEASP), Dublin City Council, Dublin Port, CDETB and SISK.

The "silver surfers" club at St Andrew's enables older people to enhance their digital skills. St Andrew's Youth Services reaches approximately 360 young people, providing programmes from health promotion to international exchanges. The Centre offers facilities for meetings, classes and the community, from 7am – 10pm six days weekly and on Sundays from 10am – 6pm.

Trinity and other universities undertake a broad range of engagement initiatives nationally and locally targeting primary and secondary schools and the general public, with the aim of increasing access to, and awareness of their education and research programmes. Some of these programmes have a direct impact on the local community e.g. the Trinity Access Programme and Voluntary Tuition Programme which provides individual support for local pupils in Pearse Street and Ringsend from fourth class in primary school to Leaving Certificate level, and is run in partnership with St Andrew's Resource Centre. The National College of Ireland located on Mayor Street developed the Early Learning Initiative (ELI) in collaboration with the local community to address the problem of educational underachievement. The NCI provides the lead for the Area Based Childhood (ABC) Programme, initiated by the Dublin Docklands Development Authority and now funded by Tusla, which provides for children, their parents, families and educators from the early years. Many organisations within the Grand Canal Dock area provide corporate social responsibility programmes, which have reached local school children and residents.

There is a degree of partnership and networking across the area covered by the GCID. This reflects the impact of initiatives established by the Dublin Docklands Development Authority. In addition, some services delivered, for example, by St. Andrew's Resource Centre operate in Ringsend and in the north Inner city. However the degree of coordination and integration in the Pearse Street area as a result of the work of the Resource Centre in partnership with statutory agencies and community bodies is not generally to be found in other parts of the Docklands area. The individual efforts across a range of institutions are often not co-ordinated with each other. As part of an effort to ensure that the needs of the local community are at the heart of the innovation district and to provide greater impact through larger-scale programmes, there is scope to have improved linkages between the different educational and training efforts. There is scope to deliver larger-scale, impactful community programmes for the benefit of all.

Other national projects from which the GCID can learn with regard to what has worked and what has been less successful with regard to community engagement include the past experiences of the Dublin Docklands Development Authority and the Grangegorman development project. There, a community liaison committee has a broad remit including community safety, transport, education and employment opportunities and community projects.

It is important that any effort to develop new or enhanced initiatives with the local community as part of the GCID take existing initiatives, community identities and community structures into account. A proposed structure and mechanism to enable this is outlined below.

5.3 A collaborative structure for community engagement

Governance for the GCID is covered in Chapter 8, and will include representation across industry, local community, government departments and state agencies, Dublin City Council, universities, start-ups and cultural institutions. Meetings of the full Governance group are planned to take place quarterly. The full details of the governance structure remain to be defined based on agreed terms of reference and scope. A focus will be placed on establishing this structure in a timely manner to allow it to respond promptly to the needs of stakeholders and to create momentum for the project.

In order to progress key initiatives within the GCID, it is proposed to form a number of Special Interest Groups (SIGs) to advance work between the quarterly Governance group meetings. This is standard

practice within such large scale initiatives. For example, a University SIG will report on progress on items such as processes required for the development of an inter-institutional research centre on the campus.

It is proposed that a GCID Community Special Interest Group (SIG) be established. This is in keeping with international best practice, e.g. London's Knowledge Quarter has a Community Engagement Sub Group, who have worked to deliver a range of collaborative projects with local charities and community groups around the themes of youth, employability, environment and wellbeing. The intention with the GCID Community SIG group which will comprise representatives from the community, Dublin City Council, training and education providers, cultural organisations and local industry, is that it will bring this diverse set of actors, within a collaborative process together to decide the terms of reference and operational model for the group, as well as agreeing a framework for community engagement. The overall goal of the group is to provide social and economic benefits by delivering a programme of community engagement events, activities and projects, as well as employment opportunities to foster relationships amongst the universities, industry, young people, schools, agencies and the local residential community.

It is recommended that this group should set specific KPIs around the delivery and impacts of programmes. Development of both goals and programmes cannot be done by this Advisory group or in isolation by any one stakeholder. In order to inform specific KPIs, it is recommended that the Community SIG should conduct an audit of both existing programmes and service providers and a needs analysis amongst the local community, to identify gaps across current initiatives in education and training provision and cultural programmes.

Based on the audit and needs analysis, it is recommended that the SIG develop a framework, which will identify key audiences, targets and programmes. This will enable all stakeholders in the area to collaboratively develop and adapt programmes that are based on local needs and critically by working together, provide significantly more scale and impact across these programmes and prevent duplication. One output from the audit could be the publication of a resource, which would provide an easy-to-use guide to all local residents of the education, social and cultural programmes provided by local colleges, training providers, agencies and companies.

The terms of reference for the group should also include setting targets for employment amongst local residents in key areas during the early stages of development, e.g. construction.

The Community SIG should be given the appropriate supports in order to manage operations, an audit and needs analysis and to drive engagement activities.

A long-term collaborative partnership will take time to develop. As the development progresses, recommended regular opportunities for face-to-face meetings with local residents should be hosted, in line with other districts internationally. These might include:
- Monthly coffee mornings on site to invite ideas from local residents and share upcoming events – rotating from campus site to local industry to agencies
- Tours of the campus
- The development of a shared space open to residents and workers in the campus similar to the Invention Rooms in White City (London) or The Roxbury Innovation Centre in Boston.

This proposed structure and process for developing specific goals and new or enhanced programmes will ensure that the collective experience from the range of stakeholders on the GCID Community SIG will generate new ideas and guide effective mechanisms and both medium and long-term KPIs. The SIG should report quarterly to the GCID Governance board, which will also include community representation.

5.4 Education, training and employment

Many innovation districts internationally provide opportunities for education, training and employment for local residents. For example, the **MaRS Talent Development programme (Toronto) provides education and training opportunities for secondary school students through work placements in MaRS based companies, as well as early-mid career training and senior leadership training. In Barcelona's @22 District,** the 22@ Staying in Company program employs university students from within the district at 22@ companies, to retain their talent and knowledge. The Invention Rooms in London's White City campus provides a space for, and programmes targeted at teenagers, particularly those who are struggling academically e.g. maker challenge programmes, which uses university students as mentors.

GCID can learn from these international programmes, while recognising the unique needs of the Docklands community. Although we cannot anticipate the outcome from a needs analysis, it is likely based on early consultation by Trinity College and results from the 2015 Audit, that there will be interest locally in opportunities for targeted education and mentorship programmes, which can help local school-age children imagine and work towards a future within their neighbouring companies, whether in technology, finance or arts. There is an opportunity for universities and industry to work with existing services, e.g. St Andrew's to bridge the gap for local people between accessing third level and securing employment within local companies.

Specifically as part of this report process the local community have highlighted that for education initiatives to have impact, the programmes should reflect the fact that educational attainment and aspiration are shaped in families at an early age. A successful GCID strategy should entail support for early years initiatives, such as the ABC Programme, and build on their success to date. Furthermore changes in, for example, the Trinity Access Programme so that all locally resident children in the GCID could participate would be recognized as a benefit.

Trinity's goal as part of the Community SIG is to increase access to 3rd level resources, increase opportunities for work experience within local industry, both multinationals and small enterprise; educate the next generation of researchers and technologists from the local community and provide this pool of talent to employers.

As part of the Community SIG and audit of services, Trinity will make a commitment to set KPIs for education and employment amongst residents adjacent to the proposed innovation campus, both north and south of the River Liffey, within the area previously defined as the Dublin Docklands Masterplan area, used in the Social Infrastructure Audit 2015,   as follows:
-   Numbers of senior primary cycle (5th – 6th class) and secondary school children who have visited the College and/or engaged with programmes e.g. Access programme, Walton Club, Science Gallery, Voluntary Tuition Programme, Transition Year weeks, Lir Academy.
-   Numbers of young adults aged 18-25 who have availed of internships/ mentorships with local industry.
-   Numbers of adults who have participated in programmes such as evening and short courses or patient involvement with health research.

Numbers engaged across these programmes will be recorded in the first audit and monitored at regular intervals throughout the development, with the aim of increasing each year.

The GCID community engagement programme will clearly need KPIs that are broader than those provided by Trinity and it is envisaged this will be a direct outcome of the collaboration on the development of the needs analysis and the formation of the SIG.

In addition, Trinity will work with the developer and local agencies, e.g. DEASP and St Andrew's, to set targets for recruiting local residents within construction roles during the development. St Andrew's has expertise in delivering appropriate training in this area and a partnership could be explored similar to the existing one funded via NEIC and the Department of Housing, Planning & Local Government, and supported by Dublin Port, on delivering local labour and skills. This could extend beyond employment in construction, e.g. catering services on site.

There is an unlimited number of initiatives which, subject to interest, the Community SIG could facilitate within the community, e.g.
- Careers open days – with presentations about CAO applications, the range of courses and potential employment opportunities facilitated by the Dublin universities.
- Workshops for local businesses on topics including finance, marketing, social media and governance.
- Tech literacy programmes, e.g. White City's "What the Tech" is a digital literacy programme with Imperial students helping older White City residents with computer issues. St Andrew's Resource Centre already run courses for senior citizens and there may be the opportunity to expand these working with Trinity students and staff. Other technology workshops could target teenagers through hands-on activities, e.g. using 3D printers.
- Competitive grants and scholarships, e.g. for a community-led science project; third and fourth level bursaries.
- Innovation festivals and workshops, celebrating science, technology and culture providing hands-on-activities and creative exhibitions about Irish scientific research for families.
- Work placements and Transition Year courses.
- Trinity Access Programmes.
- Workshops by Trinity's Science Gallery and other Schools.

There is potential to develop something truly transformative for the local community in terms of educational and training provision by taking advantage of the close proximity of leading HEIs and global technology-based companies. This would be an opportunity to consider technological advances and develop new education practices in line with them and offer local children the opportunity to attend school locally and flourish in whatever career direction is best for them after school. Discussions should be held with Dublin City ETB and local residents on this proposal.

Local residents should clearly see a pathway to new employment, training and educational opportunities, across all services within the GCID, from construction to retail and technology-based enterprises, both in the short and long-term.

5.5 Culture and the arts

Successful innovation districts globally have brought people together socially and created lively communities rather than simply provided innovation spaces for industry and academics. A mix of uses and activities are required both within the Trinity campus and across the district, including cultural. International examples of innovation districts connecting with the local community through the arts include the Community Arts Centre in Kendall Square, which runs a Teen Media Program that creates community-sourced public art installations.

The Dublin Docklands Social Infrastructure Audit 2015 found a notable shortage of cultural product for the area, and so this would seem an appropriate area for the Community SIG to focus. The Lir Academy, located on the current site is part of Trinity College Dublin and is associated with the Royal

Academy of Dramatic Art (RADA) in London. Offering a range of undergraduate, postgraduate and short courses, The Lir is successfully supplying the theatre and related industries with students. Technical courses range from introductory courses in lighting, sound, stage management and costume, to the three year Bachelor degree in Stage Management and Technical Theatre. The Lir have committed to working with this Advisory Group and a Community SIG to explore new ideas for community engagement, e.g. increased accessibility to the theatre for local residents, through both performances and education opportunities. Trinity's Centre for Social Innovation have also expressed interest in developing the innovation potential for culture, and could be a potential partner for new initiatives within GCID.

There are many festivals held across the Docklands which bring together residents of all ages e.g. the South Docks Festival, Ringsend Festival and these should be supported by the GCID Governance. There are opportunities to bring components of larger Dublin festivals to the GCID e.g. Festival of Curiosity.

Opportunities to communicate the vision for the innovation district through art projects should be considered, e.g. an artist-in-residence working on site to connect existing community organisations and programmes with researchers and industry.

5.6 Quality of life

The focus of the Community SIG should not only be on education and employment, but on providing opportunities for improved quality of life, whether through improved health, better street surroundings, transport facilities, more spaces for engagement with art, music and theatre and more opportunities to work with all stakeholders on tackling social challenges and inequality in the Grand Canal region. However, given the expertise amongst stakeholders (community, universities, industry), an obvious immediate area for the SIG to begin is by considering enhanced opportunities for education and employment, as outlined above. Issues such as increased traffic directly impact local residents and the Governance group should work with agencies such as Dublin City Council to advocate for improvements in pedestrian and cycle pathways as well as traffic management.

5.7 Housing

The new innovation campus at the centre of the GCID has the potential to deliver 7000 jobs. Undoubtedly the development, along with other developments in the Docklands, will put more pressure on issues such as transport, access and housing, both availability and rental prices.

However, innovation districts should be about creating quality places for people, with a mix of uses and activities including housing, office, retail and community spaces. Many internationally recognised innovation quarters provide residential accommodation, including Melbourne Innovation District, White City in London, Cortex in St Louis, Missouri. However these are far larger complexes than Trinity's 5.5 acre campus at Grand Canal, e.g. Amsterdam's Innovation District comprising 114 acres will provide 1200 student housing units and 600 units for families and singles, Cortex's 650 acres site has 1000 existing and proposed multi-family units. Thus, the proposed provision of approximately 200 spaces for accommodation on GCID's innovation campus is in line with international models. The proposed 200 spaces will include a combination of single bed studios and 3-person apartment clusters. Trinity will commit to ensuring that a number of these units will be dedicated to a combination of social and affordable housing, thus making sure that the site is not just a science park for researchers and industry, but a place people want to make their home. The specific details will depend on developer input and planning approval.

At this stage in the development of plans for GCID this advisory group is developing principles for the district and cannot commit to specific action plans. However the importance of the continued

provision of social and affordable housing is recognised if inclusive innovation is to be achieved. The local community has correctly identified that a core ambition of the GCID project should be that efforts are made to sustain a mixed community at the heart of the city.

Recommendation 8:

A GCID community Special Interest Group should be established which would explore, in concert with existing organisations serving the community, how the needs of the community can best be met, subject to funding availability. This would focus on education, training and cultural programmes based on needs and interest, with the aim of improving education and economic opportunities as well as quality of life for local residents. Based on needs and data analysis, the group will set specific targets for job creation, participation in programmes and other quality of life indicators over a 3-5 year period. These will be aligned with existing Government policies such as the National Access Plan for Higher Education

Actions for delivery:

Short-term (12 months)

- Establish a GCID Community SIG, ensuring that early activation and programming will be designed with the community, targeting different needs from education and training to culture and improved quality of life.

- Conduct a needs analysis in partnership with local community to ascertain gaps in education, training and cultural programmes and set subsequent targets, e.g. numbers of local residents participating in programmes.

- Hold regular community consultation sessions to ensure exchange of information and ideas.

Medium-term (12-36 months)

- Publish a Community Framework document outlining current programmes and those in the pipeline.

- Develop and implement new programmes as identified in needs analysis.

- Put forward proposals to consider the development of new kinds of educational offering congruent with technological developments.

- Evaluate delivery of programming and impacts against set metrics.

- Work with the Governance group, Trinity and the developer to ensure targets are set for employing local construction workers, and other service providers as appropriate e.g. catering.

6. The Importance of an innovation district for Ireland

6.1 National Benefits

While an innovation district would be located in Dublin, its development would be of national benefit. The GCID will connect with the major innovation hubs globally and will be Ireland's innovation flagship on the world stage. Through connecting with the GCID, Irish companies – based regionally and in Dublin – will be able to connect with their peer companies globally, with research partners, and with talented and skilled employees.

It has been estimated that there are more than 150 innovation hubs in Ireland.[8] These range from major start-up hubs, to co-working spaces, to small regional offices. This fragmentation of Ireland's innovation ecosystem makes it challenging to sustain this number of hubs and for them to operate in line with best practice. In addition, companies operating in an isolated fashion from these hubs have limited peer connectivity and poor visibility to venture funding, skilled workers and research partnering organisations.

One way of overcoming these weaknesses and building connectivity would be through the establishment of an innovation hub network for Ireland which would include Northern Ireland. Examples of this connectivity model exist in other innovation ecosystems – most notably the start-up Delta in Holland and the UK Innovation Districts Group. These connected groups work by sharing best practise, via a passport mechanism allowing companies to access different locations, connecting enterprises to the research strengths of different regions and providing linkages to the venture and investment community.

This network of Irish innovation hubs through GCID would offer many advantages to all interested parties:

1. Companies that operate in innovation hubs that are part of the GCID network could have a "passport" to access other innovation hubs nationally and use the meeting rooms and co-working spaces / hot desks on a temporary basis as they are visiting the relevant city.

2. Best practice on programming, operations and innovation could be shared between hubs.

3. Special arrangements could be made to allow community managers in larger hubs to support programme delivery in smaller hubs.

4. A database of all companies in network hubs could connect companies to funding, to talent looking for employment and to research organisations looking for partners.

In addition, the GCID as a hub of global scale could connect Ireland with best practice internationally, across hubs for example in the UK, Europe, Asia and the US.

This structuring will ensure that GCID can act to enable regional hubs add greater benefit to their local communities and become more competitive in supporting enterprise growth and high quality jobs.

Two existing start-up and innovation hubs in Dublin – Dogpatch Labs and the Guinness Enterprise Centre – are already developing national connected networks that can be used to complement the GCID plan. The GCID initiative will work with these hubs and also look to build direct connections with other innovation hubs supported through the regional enterprise development fund.

Furthermore the GCID will work to build direct relationships with the non-Dublin based universities and institutes of technology. These relationships will result in benefits that will flow in both directions including students visiting and gaining experience in the research centres and companies located at GCID, new start-up companies or spin-outs obtaining access to venture funding, research

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[8] https://www.techireland.org/hubs?utf8=%E2%9C%93&q%5Bname_cont_any%5D=&commit=Go

collaborations being established between companies and regional based researchers. The regional benefits will be an area that will have dedicated KPIs and focus at the GCID governance level.
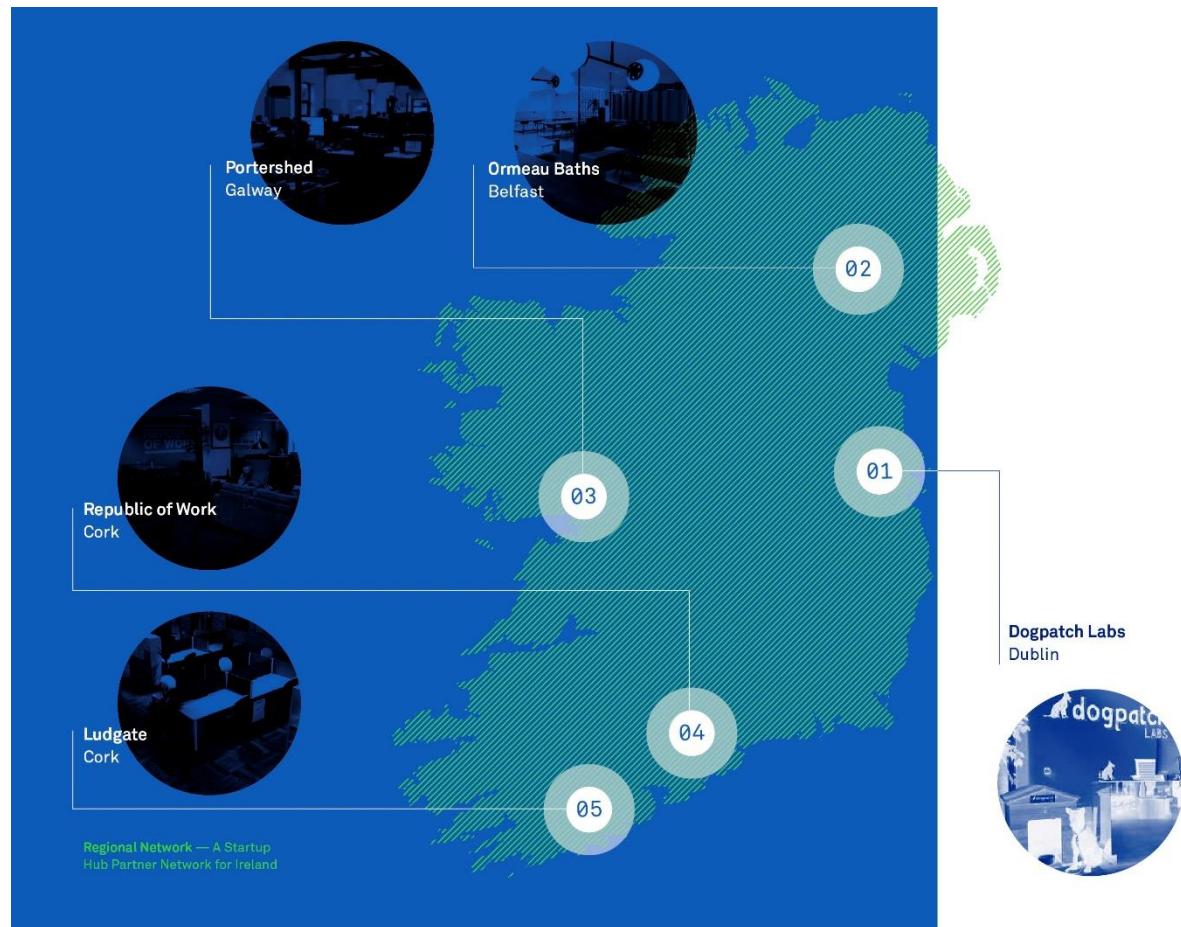

Figure 10. Potential innovation hub network

It is important in the understanding of how the GCID initiative will connect nationally that it must also work to build a connected innovation community within Dublin. Dublin is well served with co-working spaces, incubators, accelerators, start-up hubs and university commercialisation activity. What is missing is the integration of all of these actors into a single and compelling innovation story for the city and a central shared location where all of these entities can collaborate, run events and connect with each other. This challenge exists in many cities. Those who have evolved to understanding the benefits of cooperation have seen significant benefits. The Venture Café space in Rotterdam is a great example. This now provides a unifying location in the city to bring together, celebrate and highlight the exceptional innovation activity taking place across the city, its universities and in its corporates.

Recommendation 9:

To ensure that its benefits are felt across Ireland an innovation hub network should be established to provide strong regional connectivity. This will connect Ireland's leading innovation centres on an all-island basis and will link GCID to the existing large innovation hubs globally. The GCID should not just benefit the city of Dublin – it also needs to be an asset for the rest of the country.

Short-term (12 months)

- Identify potential regional partners to participate in, and contribute to a regional innovation hub network.

- Establish the scope in which regional partners can collaborate within the hub.

- Identify funding sources and models which will support regional hubs.

- Set KPIs for regional benefits.

Medium-term (12 -36 months)

- Convene an event that will bring regional partners together to understand needs in promoting innovation which will assist in sharing best practice on programming, operations and innovation.

Long-term (3 years +)

- Locate regional partners throughout the District including at the innovation campus for defined periods to enable learning.

- Develop sustained relationships with regional partners and evaluate effectiveness of the regional hub structure.

6.2 Promoting the innovation district

If the GCID is to deliver benefits for the city, region and country, there has to be strong name recognition of it brought about by strong branding and continuous marketing. Marketing from the early stages of development will position Ireland as an innovation leader which can attract new investment, high value jobs and support existing companies to innovate. The IDA would have an important role in promoting the Innovation District overseas.

It will be essential to begin marketing the district to potential partners long before the first buildings are complete. A comprehensive and ambitious marketing programme will ensure that meaningful conversations are held with potential collaborators from the beginning. Those conversations will help to build critical mass but also inform the development to some extent. Technologies change and the needs of the market are only ever fully understood when there is dialogue.

Differentiating characteristics of GCID will be:

- Unique or internationally competitive mix of leading global firms

- World leading university campus at the centre with physical presence of multiple HEIs

- Physically located in the heart of a capital city

- Strong culture activity and historical location

- National research centres co-located

- English-speaking and a gateway to Europe

- Based beside the water – attractive environment

- Density and critical mass of interdisciplinary research and innovation, inter-sectoral companies and enterprise of varying levels of scale.

While all these characteristics can be combined to make a compelling case for GCID, it will be important to distil them into a single and unique brand and message that will gain the world's attention

<u>Actions for delivery</u>

Short-term (12 months)

- Work with professional service providers to develop the identity including name, look and feel for the District.

Medium-term (12-36 months)

- Develop website and social media presence.

- Incorporate brand identity across all collateral such as Community Engagement documents, regional hub information.

- Build international recognition through, for example, media, conferences, reports and utilise the expertise of the IDA in so doing.

7. Governance & Financing of the Innovation District

7.1 Governance

A detailed review of international best practise in relation to the governance of innovation districts has taken place; with particular reference to Kendall Square in Cambridge, Cortex in St. Louis; and Here East, White City and the Knowledge Quarter in Kings Cross, all in London.

In all cases there are a number of complementary but separate governance structures required to enable the delivery and long term management of a successful innovation district. All successful innovation districts have developed and operate a representative governance group which acts as a convening body to progress all the issues identified to enhance the impact of the district.

Membership of the GCID governance group should include representation across industry, local community, government departments and state agencies, Dublin City Council, universities, start-ups, venture funding and cultural institutions. This innovation district wide governance structure can model itself on best practise as identified internationally e.g. Kendall Square Association (Cambridge, MA) and the Knowledge Quarter (London). These organisations are both membership based and operate as a not-for-profit and a company limited by guarantee respectively. A similar structure should be applied to the GCID Governance group.

The Kendall Square Association and Knowledge Quarter both operate a system of tiered membership fees, larger fees for corporates and lower for smaller companies and not-for-profits. It is recommended that in order to provide an operational budget for the GCID governance group, a membership fee structure should be established. The terms of reference for the group should include the development of an appropriate fee structure.

Membership should be open to any organisation with an interest in progressing the vision for the GCID.

The Board of this body should be voted in by the members. The overall aim of the group is to deliver on the mission to establish Grand Canal as a location of choice for research and innovation and as a vibrant place to live and work, a place where people want to connect, both professionally and socially. The group will need to deliver concrete benefits to members and articulate these clearly. In addition the group should focus on how to connect these benefits with the wider Dublin and national community.

In the early years of the development of the district this governance group should also include independent experts, national and international, who can offer an independent and informed view on the opportunity and challenges of the innovation district development.

The Governance Group initially can be viewed as a continuation of the GCID Advisory Group and will continue to be chaired by the Department of the Taoiseach. This will ensure that this project of national significance, which has the potential to change how Ireland is seen by companies and entrepreneurs internationally, will be driven forward.

This governance structure can drive immediate innovation district momentum by building enhanced collaboration and cooperation across key stakeholders, using existing assets and adding new programming, coordination and enhanced participation from those working in the area.

Deliverables to include within the terms of reference for the group could – subject to Government approval, include the following:

- An operating structure for the Group including number of members, diversity in representation, numbers of meetings and Chair rotation.

- Development of a value proposition for members.

- Ensuring higher education institutions co-locate some important research facilities in the campus.

- Development of an early activation strategy to signpost the development of the GCID and involve and excite stakeholders through programmes and events.

- Development of programmes and initiatives with the local community to enhance quality of life for all residents.

- Securing appropriate commitments from the corporate sector e.g. hosting events, mentoring.

- Giving start-ups sufficient attention and resources.

- Overseeing the establishment of a national innovation network to benefit the regions.

- Exploring the most appropriate financing model to sustain the innovation district and all the elements within it.

- Working with appropriate agencies, e.g. DCC, to consider all aspects of place-making in the district, from traffic management and the development of appropriate pedestrian and cycle paths to provision of attractive outdoor areas including green spaces and seating.

- Development of a strategic marketing and communications campaign both locally and internationally.

- Development of appropriate metrics with which to measure success (baseline and at regular intervals), e.g. venture capital raised, numbers of employees hired, new education programmes launched etc.

In addition to this convening group additional and specific governance structures will be required for specific projects and initiatives – both capital and non-capital. A degree of flexibility should be maintained in order to be able to deal appropriately with issues as they arise.

For example currently Trinity, working with other stakeholders, is planning the development of a new campus which will be at the heart of the GCID; Google is currently developing the Boland's Quay site, and Fáilte Ireland is coordinating a district wide visitor experience development programme. As these and other initiatives evolve it is critical that their independent governance structures are connected to and synergistic with the overall district vision and governance. This will be possible by ensuring that the GCID governance group communicates clearly the vision and progress through presentations and informal networking to relevant groups.

7.2 Financing

The proposed development of the campus that will be at the heart of the district will take place over three phases and a ten-year duration. However early activation of the GCID will happen ahead of the development of the campus with a vibrant innovation hub will be established by 2020.

All successful innovation districts have three primary sources of funding – public, private development and institutional (HE). The proposed GCID has the same three components. It is expected that 15% of the funding will come from the State, 70% from private sources and 15% from Trinity College Dublin who would also provide the land.

To progress, there are two key enablers; a site ready for development – typically owned by the State or the leading academic institution and government funding which is used to unlock all other funding e.g. Here East, UCL campus, Imperial's White City Campus, Cortex, 22@Barcelona.

Government funding as a cornerstone investment, will be critical to unlock and secure further sources of private capital, debt funding and philanthropy to enable the campus. It also significantly de-risks the project from a developer perspective.

Significant work has taken place to evaluate the potential capital costs for the development of the innovation campus and the financing strategies that could be used to support these costs.

The projected capital costs are determined to be €1.1bn. This includes pre-development costs and the full costs of construction. It does not include the site value. These costs are based on the draft masterplan developed by Perkins + Will with space allocated on the basis of 40% reserved for research purposes, 40% for commercial and 20% for social and cultural uses. The costs were determined by an independent quantity surveyor – Carron & Walsh – and used estimates based on construction rates in the Dublin market in Q3 2018. As the construction timeline does not commence in earnest until 2022 construction inflation assumptions were included at 8%, 7% and 6% for the years 2019, 2020 and 2021 respectively.

No final decisions have yet been made on the financing strategy but it is likely that it would be based on similar scale public projects in the UK and US and involves a development partnership model e.g. White City development for Imperial College or British Library at Kings Cross.

Given the potentially transformative effect of a national innovation district, the exploration of potential capital funding sources including *Project Ireland 2040* and other government sources is required.

Recommendation 10:

A governance group should be established, consistent with international best practice including representatives from across all stakeholders, to manage activation and development of the wider innovation district and to market the delivery of a new innovation quarter for Ireland.

Actions for delivery

Short-term (12 months)

- Develop terms of reference for the innovation district governance group and establish the governance group comprising representatives from all stakeholders.

- Identify potential funding sources and partners at a national, European and international level.

Medium-term (12-36 months)

- Group should meet quarterly to review progress across different project areas e.g. from the University and Community Special Interest Groups, as well as across industry including start-ups and regional.

8. Concluding Vision:

It is a paradox that as technology enables instantaneous communication regardless of distance, countries are establishing innovation locations based on physical closeness. Discovery and development work best through sustained human contact. This is the kernel of the vision for an innovation district in Ireland.

Ireland has become the European headquarters for many leading technology companies. Sustained success depends on continuous adaptation and so Ireland must improve on its already attractive assets.

Progressing an innovation district in the Docklands area is an opportunity to shape development there in a way that maximises the benefits for the local area, the city, the region and country.

The co-location of research faculty, infrastructure and students in the Docklands area sends an impressive signal about the extent of Ireland's ambitions. This will aid each of Dublin's universities by opening up greater funding and commercialisation opportunities.

Committing to place over 300 start-ups in one location presents a wonderful opportunity for these companies to participate in a hive of innovation, sharing ideas and possibilities for collaboration and funding. To support enhanced ambition in our scaling companies.

For large corporates, an innovation district will enhance the attractiveness of Ireland as a location of choice and present a myriad of opportunities to develop and commercialise research in new ways.

For the community, an innovation district is a chance for residents to have a say in how their local area should be developed for their benefit as well as affording them opportunities in terms of education, training and cultural events.

For government, an innovation district can help it deepen its relations with many MNCs by strengthening their links with the national research and business communities.

For Ireland, an innovation district can serve as a beacon for investment and a launching pad for many indigenous companies.

At this stage international benchmarking is complete, a masterplan for the central campus is drafted and the economic viability of this proposed vision has been validated. Significant positive energy has been gathered around the vision and a commitment from key stakeholders to work to achieve its delivery is in place. This report outlines a high level roadmap while recognising there is no prescriptive path to success. For an innovation district to flourish, the most important asset is the fulsome participation and co-operation of each of the vital partners to this venture. In this spirit, the Advisory Group commends the efforts already undertaken and each of its members commits to assisting in the future development of the Grand Canal Innovation District.

Appendix 1: Roadmap

While the value of innovation districts often lie in the unexpected encounters and partnerships to which they give rise, there is still merit in outlining a possible roadmap by which both the innovation campus and wider district might develop. The tables below outline the proposed deliverables for the next 3 years, for both the GCID governance group and the innovation campus governance group. Clear communication channels and methods of reporting will need to be established between both, particularly where there are shared responsibilities and activities e.g. early activation, HEI partnerships.

The Grand Canal Innovation District (GCID) will become a globally-renowned urban quarter, a concentration of enterprise, start-ups, venture funders with a university-led innovation campus in the centre, as well as social and cultural amenities resulting in economic and social benefits to the whole community.

GCID strands		Deliverables		
	Strand dependencies	**Year 1**	**Year 2**	**Year 3**
Governance	• Innovation campus governance	• Interim governance committee established • Optimum legal structure identified to govern district long-term (based on international best practice and input from key stakeholders)	• Governing body structure established • Operational plan approved for 3 years – to include development of charter, oversight on delivery of community programme, branding, early activation, regional connectivity, HEI partnerships and place-making.	• 1st annual report published • Review of governance structure and deliverables • Operational plan updated for year 4
Charter	• Governance	• Charter outlining vision and principles developed by interim governance committee	• Charter review as required	
Community group	• Governance • Early activation • Innovation campus community	• GCID community Special Interest Group (SIG) established • Needs analysis conducted to ascertain community needs across education, training and cultural programmes • Consultation sessions held • Funding secured for 3 year period	• Community framework document published outlining current and planned programmes • Implementation of new programmes • Regular reporting process to Governing body established	• Evaluation of delivery of programmes and impacts

Branding	• Governance • International benchmarking • Innovation campus branding	• Key stakeholders identified to engage with brand development • Consultancy firm appointed to develop brand • Recommendation brought to interim committee for approval	• Implementation plan for branding rolled out across online material, media, advertising etc • National recognition of brand established	• International recognition development • Review of brand reach and understanding
Early activation	• Governance • Community • Culture • HEI partnership • Regional	• Early activation group established to build an innovation mission for GCID • Early activation strategy developed to include corporate, education, community and cultural events as well as identification of flagship initiatives e.g. innovation festival	• Implementation of strategy and scaling of activities • Activation strategy connected to regions and broader Dublin innovation narrative • Strategy connected to campus, Boland's Quay and other capital developments within district	• Integration of early activation strategy with new innovation hub on campus
Benchmarking	• Governance • Branding	• Informal network established with 3 international districts, to share best practice	• Progress review of GCID carried out by international partners	• Publish review within Annual Report
Regional/ NI connection	• Governance • HEI partnership • Finance	• Key regional hubs identified and understanding developed on how best to connect GCID plans to their visions • Visit to regional hubs • Workshop hosted in GCID to agree scalable and sustainable interactions to connect hubs and to connect with GCID	• Implementation and development of regional operational model • Connect to early activation strategy	• 1st annual review and conference
Finance	• Governance	• Government grant secured for 2 years to support operation • Develop long-term funding mechanism	• Non-government funding grants secured to support sustainability	• Transition towards long-term sustainable funding model
Culture, innovation and place-making	• Governance • Finance • Early activation	• Culture, innovation and place-making working group established • Understanding developed on how the theme of innovation can be incorporated by stakeholders across their events, from corporate to social and cultural	• Integration with branding, early activation and community groups on elevating the theme of innovation across culture and place • Integration with the innovation campus cultural hub • Decisions made on new cultural visitor space based on feasibility study	• Evaluation of cultural programmes

		Deliverables		
	Strand inter-dependencies	Year 1	Year 2	Year 3
		• Feasibility study conducted on the development of a cultural visitor space incorporating culture, science and technology		
HEI partnership	• Finance • Regional	• Innovative narrative built for Dublin focused on research and education based around GCID vision	• Integration of HEIs with proposed innovation activities • Report on inter-institutional research centre development from Innovation campus governance	• Integration with regional HEIs
Industry collaboration	• HEI collaboration • Innovation campus collaboration	• Enterprise community to actively support early activation strategy • Enterprise community to engage with the venture community and enhanced supports for start-up companies	Enterprise community to develop sustained relations with local SMEs.	• Commitment to occupying space at innovation campus
International partnerships	• Benchmarking	• Database of peer international districts, venture funders, innovators developed, relationships initiated • Reciprocal visits coordinated	• Networks further developed through shared events	• Integration of appropriate partnerships with innovation campus

The proposed new innovation campus, a Trinity-owned site, will be at the heart of the wider GCID, connecting internationally-renowned researchers with local and international academics as well as international enterprises. The site will co-locate research, industry, other HEIs and cultural institutes.

Innovation campus		Deliverables		
	Strand inter-dependencies	Year 1	Year 2	Year 3
Business case	• Masterplan	• Business case agreed and issue of government funding sources addressed	• Funding sources secured	• Review of funding
Developer appointment	• Business case	• Terms and process agreed to appoint developer e.g. tenant mix	• Developer appointed	• Building commenced

Property assembly	• Business case • Developer appointment	• Renovations on site for early activation	• Planning permission sought	• Planning permission secured
Masterplan		• Draft masterplan published • Consultation workshops held and masterplan finalised • Masterplan shared with potential developers	• Review of Masterplan with developer	•
Early activation	• Community – both innovation campus and GCID • Property assembly • HEI collaboration	• CIC appointed to input into the design and development of early activation on site • Development of a design brief to include refurbishment of warehouse and outdoor public space development • Development of a programming and operational model for the space	• Implementation of programming • Engagement with key stakeholders in GCID	• Integration of early activation strategy with wider GCID activation • Review of programming to date
Community	• Early activation – campus and GCID • GCID community Special Interest Group • HEI collaboration	• Participation in GCID community SIG • Consultation with internal HEI community and Campus Engage on community engagement programmes, best practice and ways to add value to GCID community deliverables • Consultations with local residents and development of KPIs	• Input into Community framework document • Implementation of new programmes	• Evaluation of delivery of programmes and impacts
Cultural hub	• Early activation – campus and GCID • Community – campus and GCID	• Participation in cultural SIG • Development of plan to incorporate innovation into programming	• Implementation of programming • Integration with GCID community group, early activation strategies	• Review of cultural programming

Branding/communications	• GCID governance • GCID branding • HEI collaboration	• Engagement with key Trinity and HEI personnel to develop brand • Appointment of consultancy to develop brand taking into account GCID brand • Brand approved by required Trinity committees	• Implementation plan for branding rolled out across online material, media, advertising • National recognition of brand established	• Review of brand reach and understanding, particularly in relation to GCID
Research institute/ HEI collaboration	• Industry collaboration • Business case	• SIG established to explore inter-institutional collaboration at GCID and development of a new research institute	• Proposal developed on new institute and presented to Departments • Funding sought for shared institute • Operational and governance structures for new institute developed	• Plans for new institute published
Industry collaboration	• HEI collaboration	• Enterprise community to actively support early activation strategy on campus • Enterprise community to engage with the venture community and enhanced supports for start-up companies	Enterprise community to develop sustained relations with local SMEs.	• Commitment to occupying space at innovation campus
International partnerships	• GCID international partnerships • HEI collaboration • Industry collaboration	• Relationships developed with international HEIs and enterprises connected to innovation districts • Best practice shared and documented	• Networks further developed through shared events	• Integration of appropriate partnerships with GCID

Appendix 2: Summary of role and benefits of innovation districts for each stakeholder group:

International best practise in relation to the establishment, operation and sustainability of successful innovation districts is rapidly evolving. This work was originally led by the Brookings Institute[9] and in recent times supported by white papers and reports from developer led groups[10] or cooperation of innovation districts[11].

Throughout the numerous reviews and papers there is startling consistency. Innovation districts to work require scale, the operational proximity and density of actors and a critical mass of research and enterprises that reaches a tipping point where real agglomeration benefits accrue.

In addition, they require coherent and sustained leadership from academia, large corporates, government and the entrepreneurship community (start-ups, scale up companies and venture capital companies). Each of these stakeholders must commit to the strategic vision of the district and work to align their resources, investments, activities and energies in a manner that can create a thriving and internationally visible location for innovation that works coherently and in synergy with the local community. They also must commit to participating in the governance and the longer term operation of the district – respecting the balance needed between the different stakeholders to ensure a sustainable location.

The literature is also clear that the participation levels and role of different stakeholders evolves with time. It is most typical for innovation districts to be initially championed by universities or large research institutions. These not for profit organisations have a deep concern for city or region, a large research and innovation capacity and a graduate and alumni pool who can directly contribute to and benefit from the district. They plan long term and bring a stability and international reputation that allows a district to begin to thrive.

Furthermore Government and the City typically play a critical role in the unlocking of the potential of a region by providing the political leadership, the support and financing for early activation of the district and the convening power to connect and allow the key stakeholders to work together. Examples include the role of the City of Boston in the establishment of the District Hall innovation hub in the South Sea Port area, the role of Rotterdam City in providing a loan to enable CIC to open a world class innovation hub in Rotterdam, the role of London in providing the old media centre from the 2012 Olympics to Here East and the role of the Canadian government in funding the MaRS innovation district in Toronto as the development stalled in its early phases.

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[9] Brooking Institute reports. The Rise of Innovation Districts: A New Geography of Innovation in America.
[10] The Global Institute of Innovation Districts report – The Evolution of Innovation Districts – the new geography of global innovation.
https://www.giid.org/wp-content/uploads/2019/05/the-evolution-of-innovation-districts.pdf
[11] The UK Innovation Districts Group. Report entitled - UK Innovation Districts and Knowledge Quarters: Driving more productive growth.

Industry – large and small – also plays a critical role. As the district evolves there is an expectation on industry to fund, sponsor, host and encourage staff participation in events and programming. It is important that industry looks to collaborate more on a research and innovation strategy, actively supports and mentors new companies as they scale, co-locate and collaborate with research institutions / start-ups and works to develop the charter, governance and innovation reputation of the district.

All transformational activities on a city scale with an international ambition requires buy-in and support from multiple stakeholders. In the tables below a detailed breakdown of the required role and commitment of each of the stakeholder groups and the perceived benefits that should accrue from their participation is provided for reference.

Universities – Role and Benefits to an innovation district	
Universities play a critical role in enabling the development of innovation districts. They typically act as an anchor tenant providing a mission and vision stability over a long period, a pipeline of talented graduates that support enterprise growth, and a research and innovation capability that enables reputation enhancement of the district and the development of an enhanced innovation direction for the enterprises. Universities also support new start-up creation, provide education and training programmes to attract talent into the district. Furthermore they link new intellectual property and research vision into the district. Universities also act as effective bridges connecting the enterprise and local communities. To achieve these goals a scale of activity is required and this scale needs to be located with a density to achieve enhanced collaboration and with a proximity to industry to ensure the barrier for innovation cross-over and inter-sectoral and inter-disciplinary collaboration is minimised.	
Commitment from universities.	*Benefits to universities*
Participate in a process to build a vision for an inter-institutional research institute of scale.	Support in the development of a research institute that is of a scale to be internationally visible and leading and that will enhance Dublin, and Ireland as a location for a leading faculty, students and companies that are global leaders in innovation.
Co-locate research faculty at the institute from the strategically aligned research directions.	Enhanced research collaboration and output through co-location of leading researchers and infrastructure.
Co-locate relevant research infrastructure at the research institute.	Enhanced enterprise engagement through co-location with both large and start-up innovation companies.
Co-locate researchers, students and research programmes at the institute.	Enhanced opportunity to compete for national and international research funding through the academic and enterprise partnerships.
Connect commercialisation and entrepreneurship activity on campus to the innovation district (and vice versa)	Enhanced opportunity for enterprise research co-funding.

Participate in the early activation strategy for the district through hosting events in the district / campus.	State-of the art new research laboratories.
Participate in the governance of the district and developing its charter.	Enhanced opportunity for research commercialisation through seed funding, access to venture funding and connection to the entrepreneurial and enterprise eco-systems.
Participate in the community engagement programmes within the district.	Enhanced opportunity for student entrepreneurship by co-location with start-ups and through the sharing of best practice across higher education institutions.
Recruit new faculty and drive new research opportunities within the proposed inter-institutional research institute.	Connection to global innovation hubs.
	A location for the universities in the city centre and in the heart of a globally competitive innovation district.
	Enhanced opportunity to attract post graduate students for taught masters courses through connections to the enterprise community.
	A pivotal role in forming and evolving what will be Ireland's most globally recognised location for innovation and research.

Large Corporates - Role and Benefits to an innovation district	
Successful innovation districts require leadership and participation from large corporates. These companies are typically the largest employers and land owners / tenants within a district. Their presence brings scale, international recognition and visibility and a diverse and deep pool of talented workers. In addition they bring a strong connection to both global markets and innovation needs and trends. Their participation in the district brings validation and credibility, and early momentum as activation and engagement scales. The workforce in these companies are often the individuals who drive enhanced collaboration with universities and can mentor and work for the scaling start-ups.	
Commitment from corporates.	*Benefits to corporates*
Play a pro-active role in the governance of the district and developing its charter.	Located in an innovation eco-system that will enable enhanced retention and attraction of talent.
Participate in the early activation strategy for the district through hosting and sponsoring events in the district / campus.	Enhanced connectivity to universities – creating opportunity to leverage and access research, innovation and graduates.
Develop and support the community engagement programmes within the district, in collaboration with the community and other stakeholders.	Enhanced connectivity to start-ups – creating an opportunity for visibility on disruptive and complementary technology.
Co-locate research and innovation activity within the district – specifically to consider the co-location of innovation teams onto the proposed campus post development.	Improved connectivity, through proximity and curated events, with peer companies co-located within the district to enable improved cooperation on issues linked to policy, education and talent attraction.

Work in deeper partnerships with the universities to support collaborative research, graduate development, research commercialisation and student entrepreneurship.	Improved connectivity and organisation around community engagement – ensuring companies operate in an environment which is inclusive and supportive to the local residents.
Connect with start-up companies and consider the development of mentorship programmes to connect the company leadership team with scaling start-ups and student entrepreneurs.	A new opportunity to co-locate research and innovation business units within an innovation campus of global scale in the heart of the innovation district – leveraging new relationships with researchers and start-ups.
	Enhanced opportunity to compete for international research funding through the academic and enterprise partnerships.
	Enhanced opportunity to build a closer linkage with universities to access intellectual property licensing opportunities.
	Enhanced opportunity to shape the talent pipeline by, in partnership with universities, developing new educational courses at undergraduate and postgraduate level, to seconding researchers in residence to universities and accepting placements from university researchers within the company.
	Support the development of a research institute that is of a scale to be internationally visible and leading and that will enhance Dublin, and Ireland as a location for faculty, students and global innovation active companies.
	Enhanced opportunity to access shared research infrastructure and capability within the proposed research institute.
	Enhanced proposition for why Dublin and Ireland is a location of choice for innovation activity and further investment.
	Connection to global innovation hubs.
	A pivotal role in forming and evolving what will be Ireland's number one innovation and research destination.

Start-up, scaling companies and venture funding - – Role and Benefits to an innovation district
Successful innovation districts obtain momentum, activation energy, innovation renewal and long term sustainability by nurturing and supporting a thriving start-up, scale-up and venture environment. These companies are the disruptors who work on the edge of new research, commercialisation and new product development. They connect directly with the research within universities and feed new products, services and markets into larger businesses. Importantly, in the context of an innovation district, the co-location of these companies densely in one large campus provides significantly enhanced opportunity for additional connectivity, for best practice to be shared, for mergers and acquisitions and, for strategic and technology partnerships. By locating in this way with density, proximity and critical mass they also attract national and international angel investment and venture funding. This potent mix of new research, new companies, global

businesses and venture funding can enable significantly enhanced opportunities for companies to scale.

Commitment from start-ups and SMEs.	Benefits to start-ups and SMEs
Play a pro-active role in the governance of the district and developing its charter.	Located in an innovation eco-system that will enable enhanced attraction of talent.
Participate in the early activation strategy for the district through attending and potentially sponsoring events in the district / campus.	Enhanced connectivity to universities – creating opportunity to leverage and access research, innovation and graduates.
Connect with the global companies through mentorship programmes, accelerators or incubators.	Enhanced connection to international venture funding – attracted to Dublin by the scale of the innovation hub and the critical mass of start-ups collocated in a single location.
Participate in the community engagement programmes within the district.	Enhanced connectivity to large corporates – creating an opportunity for visibility on new markets, new partnerships or strategic alliances.
Co-locate research and innovation activity within the district – specifically to consider the co-location of innovation teams onto the proposed innovation campus.	Improved connectivity with peer companies co-located within the district to enable improved cooperation on issues linked to policy, education and talent attraction.
Work in partnerships with the universities to support collaborative research, graduate development, research commercialisation and student entrepreneurship.	Improved connectivity and organisation around community engagement – ensuring companies operate in an environment more connected to the local residents.
	A new opportunity to co-locate within an innovation campus of global scale in the heart of the innovation district – leveraging new relationships with researchers and start-ups.
	Enhanced opportunity to compete for international research funding through the academic and enterprise partnerships.
	An enhanced opportunity to build a closer linkage with universities to access intellectual property licensing opportunities.
	Enhanced opportunity to access shared research infrastructure and capability within the proposed research institute.
	Enhanced opportunity for student entrepreneurship by co-location with start-ups and through the sharing of best practice across higher education institutions.
	Connection to global innovation hubs.
	A location in the city centre and in the heart of a globally competitive innovation district.
	Support the development of a research institute that is of a scale to be internationally visible and leading and that will enhance Dublin, and Ireland as a location for faculty, students and global innovation active companies.

Government and City - – Role and Benefits to an innovation district
Successful innovation districts are dependent on strategic, policy and financial support from governments and the host city. No globally leading innovation district has developed without government support and a shared vision of purpose. Innovation districts are economic engines that can transform or regenerate a city or a region but they need to operate and grow within an environment that is conducive to innovation, talent agglomeration and business co-location. Typically the government or the city provides early validation of the model and a cornerstone investment in the project c.f. District Hall in Boston, Here East in London, MaRS in Toronto, 22@ in Barcelona. With the right long term support governments can shape the innovation environment and work to balance the activity between academia, start-ups and mature business. Importantly Government must provide a long term strategic vision of the district and the role it wants to play for the city and country.

Commitment from Government and City.	Benefits
Play a pro-active role in the governance of the district and developing its charter.	Growth in employment (and the quality of employment) in innovation companies.
Co-fund and participate in the early activation strategy for the district.	A vibrant, investable and more internationally visible start-up community.
Provide leadership in relation to the transformational collaboration opportunity for universities within the district.	A globally competitive innovation district that will attract, retain and sustain investment from the most innovative companies globally.
Provide co-funding to enable new infrastructure that cannot be funded through private sources e.g. academic buildings, innovation collaboration and connection spaces, start-up hubs etc.	A deeper collaboration between Ireland's leading universities at a scale and a density that will act as a visible international beacon to the enterprise community.
Provide leadership in relation to place making and establishing a vision for the district from a town planning perspective.	A globally recognised brand for innovation in Ireland that will allow the IDA and Enterprise Ireland to market Ireland and our innovation story globally.
Provide an integrated cross government and cross agency approach to innovation, start-ups and enterprise development.	Enhanced venture funding into Ireland from leading international firms.
Play a key role in the development and marketing of an innovation district brand that will enhance and connect with Ireland's global positioning.	An enhanced location from which to scale new Irish global businesses.
Participate in the community engagement programmes within the district and ensure the local community is not just protected but enhanced by the innovation district development.	New globally competitive academic faculty, students and partnerships; leading to enhanced competiveness in winning European funding and other competitive international research funding.
Sustain, enhance and develop new policies that lower the barrier for entrepreneurship, research, innovation and research commercialisation.	An urban regeneration project of scale that will build on and continue the decades (plus) work that has gone into the re-development of the docklands.
Provide enhanced recurrent research funding to support the attraction of world class faculty and students.	Enhanced opportunities for local community to avail of education, employment, cultural programmes and community spaces.

Provide enhanced capital funding to support new infrastructure that will allow differentiated, enhanced and new collaboration opportunities between universities, companies and the market.	A deepening embedment of multinationals in Ireland through their enhanced relationships with universities and SMEs.

Community – Role and Benefits to an innovation district	
Analyses of successful international districts have indicated that they reach their full potential by developing strategies to include community goals, rather than solely focusing on "innovation-based" strategies. Developing a community engagement strategy that engages with a range of actors, from local residents to local employers, will ensure that the local community feels connected to the innovation district. Through education and training programmes future talent can be sourced and retained locally. An innovation district is more than a collection of buildings, it is about building a community. It needs to be designed so that the public spaces and buildings draw the community together and are open for mixed uses. **Programming—a range of activities to grow skills and build networks—is what will connect the district.**	
Commitment from community.	*Benefits to community*
Participate in a process to build a vision and framework that will ensure the innovation district benefits the community.	New attractive open public spaces and buildings including squares, retail, cultural spaces and meeting rooms
Contribute to the development of education, training, employment and cultural programmes, based on local needs.	Regeneration of a site with opportunities for regeneration of the surrounding streetscape, offering improved place-making.
Participate in the early activation strategy for the district through hosting events in the district / campus with other stakeholders	Enhanced opportunity for accessing university programmes and events
	Enhanced opportunity for engagement with local industry through training and employment programmes.
	New education and training programmes contributing to skills development and improved long-term employment opportunities
	Enhanced potential to work with local industry to attract funding for local regeneration and opportunities.

Appendix 3: Membership of the Grand Canal Innovation District Advisory Group

The Grand Canal Innovation District Advisory Group was chaired by the Secretary General of the Department of the Taoiseach and the secretariat for the Advisory Group was provided by the Department of the Taoiseach.

The members of the group are:

- Martin Fraser (Chair), Secretary General of the Department of the Taoiseach

- Elaine Boland, Manager, St. Andrews Resource Centre

- Niamh Bushnell, CEO, TechIreland

- Elaine Coughlan, Managing Director, Atlantic Bridge Capital

- Andrew J. Deeks , President UCD

- Owen P. Keegan, CEO of Dublin City Council

- Sharon McCooey, Head of LinkedIn, Ireland

- Brian MacCraith , President DCU

- Stephen McIntyre, Partner, Frontline Ventures

- Derek Moran, Secretary General D\Finance

- Brian Norton, President DIT

- Sean O'Foghlu , Secretary General, D\Education & Skills,

- Patrick Prendergast , the Provost and President of TCD

- Orlaigh Quinn, Secretary General, D\Business, Enterprise and Innovation,

- Martin Shanahan, CEO IDA

- Julie Sinnamon, CEO EI

- Anthony Nakache, Director EMEA, Google