



Innovation: The Challenge of Building an Adaptive and Innovative Society

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Currently, Dr. Cunningham is co-principal investigator of a major study on principal investigators of publicly funded research in science, technology and engineering. This research programme is being supported by Irish Research Council for the Humanities and Social Sciences (IRCHSS) Research Development Initiative Grant.

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Innovation is a critical element of a vibrant economy and society. Despite the current recession, innovative capacity has been evident across business and society on the island. Innovation can be viewed in narrow terms as relating to firms and measured by expenditure on research development. Innovation, however, is much more than financial investments in developing products, services and processes. It is about an open, individual and collective mindset among people in different organisational settings, and the creation of environments for experimentation and creativity that have individual, economic, social and public good outcomes. So what are the challenges we face in building an adaptive and innovative society as we strive to move beyond austerity?

Business Challenges

The innovation challenges faced by businesses are significant and will be influenced by a number of factors. First, there is a significant management revolution underway in the way in which organisations manage, deploy and configure their resources. Progressive and competitive organisations are looking at different types of ‘outside’ public and private partners, while allowing employees the internal freedom to experiment. In essence, they are engaging the creative and intellectual capacity within and outside the organisation for competitive outcomes. Google, for example, are at the forefront of this management revolution; they allow employees the freedom to experiment but also create interesting, physical environments to facilitate the creative process at individual and collective levels.

Second, the rapid development of science and technology, particularly convergent technologies between, for example, bioscience, nanotechnologies and information technology, provides for significant disruptive innovation that will change the manner in which services are delivered and products consumed by society.

Third, the nature of innovation is changing; it’s increasingly collaborative in nature, and is requiring different types of relationships between larger multinationals, public sector organisations, small and medium sized enterprises (SMEs) and individuals. It is about sharing the risks, engaging with the best talent and exploiting it as effectively as possible in a variety of market settings.

Embracing Third Mission Activities

Third level institutions have a significant influencing role in building an innovative society. Academic environments are experiencing significant pressures to deliver on ‘third mission’ activities beyond the traditional core missions of teaching and research. Third mission activities include business start-ups, licensing, spin-outs, spin-in and knowledge transfer. With significant investment in basic and applied research through the Irish university system in the last decade, the challenge is translating funded research activities into products and services that can be utilised by indigenous companies or multi-national organisations. It is also about forging new collaborations between industry and society as well as knowledge and expertise transfer between. Irish Higher Education Institutes (HEIs) have, over the last decade, begun to embrace third mission activities but it will take a long period of time before we will see the true returns for the current public investments being made.

Another challenge within the Irish academic system is funding a research system that can compete internationally and, as such, attract the best talent at all levels from doctoral fellows to senior researchers. The funding is not alone essential in building critical mass in defined areas for international competitive positioning, but also to support economic and social progress on the island. These knowledge workers, creators and carriers many publicly funded are essential to maintaining the vibrancy that is necessary to sustain our collective innovation efforts. Certain threshold levels of public investment – and skills levels – will be necessary if countries are to become innovation leaders.

A further challenge facing the Irish academic environment in embracing third mission activities is the need to support publicly funded researchers in developing their managerial capabilities. A national survey of public funded researchers in the life sciences and physical sciences that Paul O'Reilly at DIT and I undertook in 2010 shows the positive impacts that public investment has had on strengthening and growing human capital, and developing the physical infrastructure. However, challenges remain as industry participation in publicly funded projects is low by international norms, as is the retaining of scientific and technological talent within the country during the current economic crisis (see www.dit.ie/pistudy). One of the key findings our study was the need for greater levels of senior management support and greater levels of managerial training for publicly funded principal investigators.

Finally, new ways need to be found in which HEIs could deploy their considerable intellectual property resources to support communities and businesses. Imagine if the resources of a local higher education institution were deployed over a year to a particular town or community to support all of the various activities. The difference could be significant and could lead to some unexpected outcomes. The activities could range from enhancing the management expertise of local business, joint interdisciplinary based projects that graduate students work on for the community good in the area such as energy, child and family issues, built environment etc as well as technology transfer for business and public outcomes. The focus of IP deployment, knowledge and expertise should be about sustaining communities and businesses, sharing best practices, developing new approaches that lead to the development of adaptive thinkers – all of which is necessary to excel at being innovative. These linkages would take the idea of the 'third mission' and the relevance of third level institutions directly into local communities and the wider region.

Public Infrastructure and Educational System Collaboration

Taking innovation as the core focus of our society on the island of Ireland, there is a collective need to be innovative in how the public infrastructure and our education systems are organised and co-ordinated. In the case of the Republic of Ireland, there is no doubt the investment in innovation by the Irish Government is beginning to have an impact; with international innovation measurements of our performance bearing this out. This is reflected in the EU Innovation Scoreboard which measures innovation inputs and outputs for the EU 27. In 2010, in overall terms, Ireland ranked 9th; and this report stated that

'Ireland is one of the innovation followers with an above average performance. Relative strengths are in Human resources, Open, excellent and attractive research systems and Outputs. ...High growth is observed for Community trademarks, Community designs

and License and patent revenues from abroad. A strong...Growth performance in Human resources, Open, excellent and attractive research systems, Intellectual assets and Outputs is above average.'

(European Commission, 2011¹).

But if we are to truly become an island innovation leader, we must intensify the engagement between universities, businesses and the public sector infrastructure – as well as adopting collaborative models that will work in Irish context.

The unleashing of the U.S. universities over 30 years ago, with the passing of the Bayh Dole Act², has meant that they have become adept at building sustainable relationships with businesses that support commercialisation of research for profit and public good, as well as providing necessary resources to support knowledge advancement. In addition, it has created attractive environments where critical mass of international academic talent is focused on frontier research. This is supported by public and private stakeholders – from basic research right through to the market. There is no reason why this could not be replicated in an island of Ireland context.

Exploiting our Natural Talents and Resources

Innovation is also about low technology businesses and exploiting natural talents. The creative sector in Ireland is a significant contributor to economic activity and to the international reputation of the island (Western Development Commission, 2009³). Over the decades Irish writers, poets and musicians have contributed to the island of Ireland's international reputation. Combining these natural talents and place provide for endless and unimagined outcomes. Creative industries offer significant job growth opportunities and ongoing potential in global markets but it requires a collective support from public and private sector actors to fulfil its true potential⁴.

Sectors like furniture and cheese making, for example, have survived significant industry changes by taking niche market positions, through mutual supports and networks. This demonstrates how low technology industries can survive and even prosper against significant international competitive challenges. Food, marine and tourism sectors also offer significant innovative opportunities that can be exploited for the common good for the whole island. The growth in artisan producers and farmers markets highlights the vibrancy of the food sector the challenge is supporting and growing these producers to sustainable levels to compete in global markets.

¹ European Commission Enterprise and Innovation (2010). *Innovation Union Scoreboard (IUS), The Innovation Unions Performance for Research and Innovation*, European Union, p.35

² Also known as the University and Small Business Patent Procedures Act, and adopted in 1980, this Act gives universities, small businesses and non-profits ownership and intellectual property (IP) control of their inventions and other intellectual property that arises from the funding. The act created a uniform patent policy among the many federal agencies funding research.

³ Western Development Commission (2009). *Creative West: The Creative Sector in the Western Region*. Ballaghaderreen: WDC.

⁴ See Collins, P. & Fahy, F. (2011). "Culture and Creativity: The case study from the West of Ireland" in *Cities* 28(1), pp 28-35.

Importance of Place

Place has a bearing on innovation. Innovation is about developing liveable cities and places which encourage creativity, and where new opportunities and collaborations are possible and never ending. It is beyond a physical environment; it is about the people and their attitude. For example, if you take Cambridge or Oxford in the U.K., these are places where people can be creative in a scientific, technological and business sense as well as having the necessary access to resources coupled with an attractive built environment⁵. Such places are attractive for a variety of family units, as well as for science and business. There is an intellectual vibrancy that pervades communities as well as business. My colleague at the Centre for Innovation and Structural Change Professor Kevin Leyden research on happiness and cities highlights that ‘places foster the types of social connections that can improve happiness and ultimately enhance the attractiveness of living in the city.’ (Leyden et al, 2011).⁶ Thus, we need to re-examine the manner in which we create built environments and address infrastructure, transportation and energy requirements over the coming decades on the island of Ireland. Innovation also forces us to reconsider how we use space to support communities. The island of Ireland has an abundance of attractive places; the challenge is to utilise the re-imagining of place so that it benefits both business and society. Towns such as Kinsale and Clonakilty in West Cork demonstrate that this is possible.

Public Administration – Managing Horizon Two

The current challenge for national governments is significant but there is a need to look beyond the short term perspective. Right now in 2011, does the Northern Ireland Executive or the Irish Government have a foresight capacity where they are actively planning 20 to 30 years ahead around key societal issues? Is there sufficient strategic planning capacity within the public administrations on the island? Who is examining the key issues for the long term development – *horizon two* – of the island of Ireland?

The challenge in the coming decade is reconfiguring public administration and infrastructure to support the needs of citizens, society and businesses. This is critical as the demands of citizens, society and businesses do not fit neatly into traditional public administration structural configurations. New configurations of public administration around a person’s life cycle may be more appropriate in this century. Taking a long term perspective and seeking constant alignment between societal and citizen needs, and the organisation of the public administration and infrastructure, is an important element in supporting an adaptive and innovative society. This requires risk taking, experimentation and an acceptance that sometimes plans and intentions do not work out.

One of the themes that emerged during the Sixth ICLRD annual conference, held in January 2011, was about the angry citizens (see <http://iclrd.org/web/2011-conference/>). One way of overcoming this is for public administrations to develop meaningful engagement mechanisms with its stakeholders. This is about opening up a dialogue with

⁵ For an interesting perspective on the importance of place and culture in economic development see Briefing Paper 6 in the ICLRD series, *Recovery Scenarios for the Two Irish Economies* by Prof. John FitzGerald of the ESRI - <http://iclrd.org/web/wp-content/uploads/2010/12/Paper-6-Recovery-Scenarios-Both-Economies-July10.pdf>

⁶ Leyden, K.M., Goldberg, A. & Michelback, P. (2011). ‘Understanding the Pursuit of Happiness in Ten Major Cities’ in *Urban Affairs Review*.

stakeholders, but also about explaining to citizens the core purpose, mission and ultimately vision they have for the provision of services. In essence, the challenge is creating co-ownership but also being open to new ways of engaging with stakeholders. That might necessitate, for example, spending time with stakeholders in their setting or locale for periods of time so as to better understand their context, challenges and needs.

Characteristics of Building an Adaptive and Innovative Society: Beyond Austerity

Over the last three years, the island of Ireland's focus has been on austerity measures. We need to look beyond this horizon and begin to plan for new types of growth and progress on the island. Significant progress has been made but if the island of Ireland is to be an innovation leader, it requires what I would argue is a fundamental and systematic change in the way we organise and support innovation, and a total re-thinking of the way that we organise and utilise our public infrastructure.

The objective is simple, that of creating an adaptive and innovative society which is to the benefit of business and society. It requires partnership, a collaborative approach and a spirit of ambition and passion. To create this adaptive and innovative society, there are five characteristics.

1. First, **Persuasion**, the ability to recognise that there's a different way of doing things and communicating that persuasively. We have demonstrated this through our business in attracting Foreign Direct Investment, and in society through our internationally acclaimed writers.
2. Secondly, it is about having clarity about the commonality of **Purpose**. Innovation is everyone's responsibility, and every citizen has a role and part to play in shaping this adaptive society. The focus and outcome is clear to all stakeholders.
3. Third, it is about the collective and individual **Passion** to experiment and do new things. Passionate people attract interest and followers.
4. Finally, it is about **Persistence** and **Practice**, the ability to keep focused, to share practices that benefit a variety of stakeholders. The island of Ireland, as it starts the second decade of the 21st century, has the necessary ingredients for building an adaptive and innovative society.

So just how ambitious are we for our families, our communities, our businesses, our society and our island in building this adaptive and innovative society?