Chapter 8
Dublin's and Ireland's Entrepreneurial Revolution: The Force Awakens

Peter Robbins

1 Dublin Then and Now

In 2016 Dublin celebrates the centenary of the infamous Easter Rising. In 1916 a bunch of schoolteachers, trade-union activists and poets decided to take on the might of the British Empire and declare Ireland a Republic. They seized control of key buildings in the city in an attempt to force the British to deliver the Home Rule Bill that they had for so long promised, but upon which they had invariably reneged. Interestingly, with no military strategists among the revolutionaries, the buildings of which they took possession were not the arteries of government or seats of power; instead, they occupied a post office, a public park, a flourmill and a bakery. British retaliation was swift and emphatic. A century ago, Dublin was in ruins, with English artillery fire having blasted large holes through the city, eviscerating many of its landmark buildings. The insurgents had been court-martialled rather than tried by a jury, and summarily executed. A terrible beauty was born.

Exactly 100 years later, Dublin is a thriving metropolis that is home to many of the world's top companies as well as a magnet for high-potential start-ups. In fact, Dublin has legitimate claims as the start-up capital of Europe. Half of the population is under the age of 30. It is a modern, dynamic, vibrant city which has left that bloody but heroic legacy far behind. On the very centenary of the day the revolutionaries were shot by firing squad, Ireland was named as the EU's fastest growing economy for the second year in a row, according to new figures from the European Commission (2016). Guttman (2015) reported that Dublin's first Commissioner for Start-ups, Niamh Bushnell, believed that the city's start-up scene was set to grow at least 30% in 2016. Bushnell, an entrepreneur herself, was appointed in 2015 to help grow Dublin's start-up community and help boost the profiles of home-grown Irish entrepreneurs whose success stories may not be sufficiently well known. Ireland's

P. Robbins (✉)
EDEN, Maynooth University, Maynooth, Co. Kildare, Ireland
e-mail: Peter.Robbins@nuim.ie

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hosting in November 2016 of the Start-Up Nations Summit in Cork marked the first time the event had ever been held in Europe (see Roche 2016).

In the Good Country Index, which measures a range of impacts and has as its objective the creation of a ranking of how much each country contributes to the welfare of the rest of the world, Ireland is ranked No. 1. The Index's definition of a good country is worth stating: 'a country that serves the interests of its own people, but without harming—and preferably by advancing—the interests of people in other countries too' (Anholt and Govers 2016).

The Global Entrepreneurship Monitor (GEM) Report shows 30,000 new businesses are being set up in Ireland (Fitzsimons and O'Gorman 2014) every year, roughly 2700 per month, and this high level of activity has delivered the ideas, the energy and economic activity to power the recovery in Ireland. According to Bushnell (2016), over $300 million in funding was secured by Dublin-based start-ups in 2015. Over 46% of that funding was raised through international investors, and investments at seed stage represented 10% of the total. The Irish government, through its agency Enterprise Ireland, plays a vital role in early-stage investment in Ireland, and Dublin has a strong and growing venture capital and angel investor community.

Several global surveys and rankings are suddenly finding Dublin coming into view and attracting positive attention. One among them, the City Momentum Index of 120 cities, compiled by global real estate services firm Jones Lang LaSalle (JLL), ranked London first, followed by Silicon Valley, then Dublin, Bangalore and Boston. Dublin and London are the only European cities in the Index's top 20. According to the Index, the current cycle of globalization, urbanization and technological advancement is leading to a major change of the global urban pecking order. In this new era, success revolves around innovation. As if to emphasize this, the title of the report is *The Rise of the Innovation-Oriented City* (JLL Cities Research Centre 2016).

Separately, the 2015 Global Innovation Index (GII) ranked Ireland as No. 8 in the world standings for innovation (Dutta et al. 2015). This ranks Ireland ahead of Germany, Denmark, Australia and Canada—all countries with a deserved reputation for innovation and entrepreneurship. The GII covers 141 economies around the world and uses 79 indicators across a range of themes: it thus reveals a rich dataset to identify and analyse global innovation trends. Ireland scores very well against all the metrics. Ireland's 4.9% GDP growth rate contrasted with the Euro Zone average of 1.6% growth expected in 2016, down slightly from the 1.7% growth forecast in February 2016. The GII is intended to help countries to design policies to facilitate innovation-driven economic growth.

Ireland is also punching above its weight in the rankings for research and development. R&D is said to be the engine room and starting point for most commercial innovation (Robbins and O'Gorman 2015). In its strategy *Innovation 2020*, Ireland aims to be a global innovation leader. This ambition will be underpinned by excellent research activity in key areas; an international enterprise base; a world-class pool of talent; and a vibrant research and innovation ecosystem. Launching Ireland's programme in December 2015, Junior Minister, Damien English said, 'Our success

in delivering on our vision will depend on our people—undertaking the research, working in and creating successful enterprises, and contributing to the society in which we live' (SFI 2015).

A few things are needed to make that happen. The Industrial R&D Investment Scoreboard (Hernández et al. 2015) shows businesses in Europe lagging far behind their international competitors in terms of R&D investment growth rate. Europe's rate was 3.3% while the US registered 8.6% and China over 23%. But Ireland is doing well, with an R&D spend increase, according to this survey, of over 15% year on year. This is largely attributable to significant investment from a number of particular large firms with a high R&D intensity: Medtronic, Allergan, Seagate and Alkermes. Ireland's strong showing is based on a few positive moves; one the change in location of Medtronic's HQ to Galway and some recent and sizeable acquisitions of Allergan.

In short, Ireland is standing tall. Its share of FDI is disproportionate to its size. According to Ireland's Industrial Development Authority (2016), it is home to major hubs of nine of the top ten pharmaceutical companies and nine of the top ten ICT businesses, and most of the world's fastest growing businesses have some presence in Ireland. Its start-up ecosystem is the envy of Europe and some of Ireland's smart young people are behind businesses like Stripe and the Web Summit. It has a thriving R&D environment with substantial links between academia, industry and the state. Underpinned by all this, it is now the fastest growing economy in the EU.

One more thing: Ireland was the location chosen for filming the dramatic scenes of the 2015 film *Star Wars: The Force Awakens*. Film buffs and culturally curious tourists are flocking to see where Luke Skywalker has been hanging out all this time.

One question this paper attempts to answer is: how did all that happen?

To return to history for a moment, following the Easter Rising in 1916 Ireland was catapulted into a long, brutal and pointless civil war. Then, in the mid-1920s, political stability was restored, but the country was a barren wasteland in terms of economic development. Under the ascetic and Catholic leadership of the then Taoiseach (Prime Minister) Éamon de Valera, Ireland pursued isolationist, inward-looking policies in the vain hope of becoming self-sufficient and of not having to engage in international affairs and trade. Ireland was a closed, insular and doomed economic entity. Then came the Great Depression. According to Ollerenshaw (1987), Irish share prices hit a peak in 1898 (when the British were still in charge) and then went into almost terminal decline until 1930, long after Ireland's civil war. The state coffers were similarly affected by the costs of all the violence of the civil war and they were in deficit from the granting of independence until 1931. It was a largely agrarian economy, with only one trade partner, the UK, with whom it traded mainly beef and dairy products. Ireland was facing into a perfect storm: powerful leadership with poor judgment; an anaemic domestic market; no financial system; little innovation; and a closed economy which was, anyway, in recession.

2 Fast Forward to 2000

Several academics and policy makers have analysed Ireland's economic ascent in the 1990s, its subsequent steep and merciless descent from 2006 to 2014 and, finally, its redemption and recovery. Chief among them was Professor Brendan Walsh who, with Patrick Honohan (former head of Ireland's Central Bank), published a seminal paper in 2002 entitled 'The Irish Hare; catching up with the leaders'. The hare metaphor was intended to be a counterpoint to those who were describing Ireland's economic performance in terms of a 'Tiger' economy. Honohan and Walsh (2002) argued that they preferred Aesop's hare—long and somnolent, dashing to catch up with the slow and steady tortoise—as a metaphor for the Irish economy's performance. It was, they argued, more apposite than the widely touted 'Celtic Tiger', which is 'zoologically improbable', whereas the hare is one of the largest wild animals actually native to Ireland.

Honohan and Walsh (2002) describe how Ireland was

> …transformed from a poverty-stricken, peasant economy that had served as a source of cheap labour for booming cities in Britain and North America to an economy that, at the start of the twentieth century, boasted wages—in some sectors of the urban economy at least—close to those prevailing across the Irish Sea.' (Honohan and Walsh 2002: 2)

Commentators generally agree on the fact that Ireland was underperforming its EU neighbours in the post-war period. But in the 1990s various factors conspired to turn the tables and fuelled the long-awaited economic growth for Ireland. According to Datamonitor's *Country Analysis Report* (2008), these factors included favourable demographics, a well-educated workforce, high productivity and a business-friendly environment, a labour force that had signed up to collective pay agreements, an English-speaking population, and, most important of all, low corporate tax rates. All these attributes enabled Ireland to position itself effectively as *the* gateway to EU markets, particularly for US foreign direct investment (FDI).

From about 1995 to 2002, productivity was increasing, the fiscal position of the Irish state was very strong and the unemployment rate fell to around 4%, a level economists consider to be definable as 'full employment'. It was around this time that Ireland earned the epithet of the Celtic Tiger. Its economy was widely seen as one of the most successful in the world; and yet, since then, it has been among the hardest hit by the global financial crisis.

From the mid-1990s to 2007, Ireland enjoyed strong economic growth; but this is a 'tale of two cities' or possibly 'a game of two halves'. The first phase of growth lasted from the mid-1990s until the early 2000s, and can be described as one of 'catching-up growth': after years of lagging behind, there was a rapid convergence of Irish living standards towards those of the world's most successful economies. There were two main factors behind this. First, high birth rates gave rise to an increase in the number of workers entering the workforce market. Second, significant investment and improvement in the educational level of the workforce meant that these new employees had higher productivity and were more suited to the development of the knowledge economy that was emerging.

Other factors also contributed to this story. In particular, the arrival of the EU single market made Ireland an attractive location for inward investment, especially from the USA, and helped to boost Irish exports.

3 The End of the Beginning

From roughly 2002 until 2007, however, this high-growth dynamic changed in fundamental ways. The high growth rates were mainly based on the rapid expansion of credit and an accompanying build-up of personal indebtedness by Irish households. This was fuelled, above all else, by rising property prices. During this period, construction activity increased very strongly, accounting for a much larger share of the economy and employment than had previously been the case. So, although the public finances still appeared strong, this was misleading, because a disproportionate amount of the revenue the State took in was related to the property market. The property-related revenues included not only stamp duty and capital gains tax but, just as important, a large amount of VAT paid by developers as well as income tax paid by workers in the very large construction sector. The tax base was effectively very narrow and dependent to a large extent on the housing boom.

With unkind irony, the beginning of the Irish crash is said to have begun on 17 March 2008. The 'St Patrick's Day Massacre' saw shares in Anglo Irish Bank lose a fifth of their value (O'Hara et al. 2008). A full-scale economic crisis, every government and every citizen's worst nightmare, was being presaged by a banking crisis.

But there was also a public finance crisis, the scale and speed of which was, if anything, even more shocking than in the banking crisis. By July, the budget balance had imploded from a small surplus to a deficit of more than 7% of annual economic output (GDP), as the construction industry and property market came to a dead halt. Three hundred thousand people lost their jobs; the economy was in freefall. Hundreds of thousands of people ended up in debt as the price of their homes plummeted. The effect was exacerbated by a dramatic increase in the scale of debt problems, including significant negative equity issues for homeowners (Whelan et al. 2016). Lawless et al. (2014) reported that, between the first quarter of 2008 and the fourth quarter of 2010, real GDP and real gross national product (GNP) in Ireland fell by 10.3% and 10.9%, respectively; GNP at current market prices fell by 17.5%, while unemployment rose from 4.8% to 14.8% over the same time period.

The government of the day, which had adopted 'light touch regulation', suggested that it had not seen the crash coming. But, of course, economic commentators had been warning that the good times were built on an unsound foundation. However, the government, benefiting from the high taxes that any property boom brings, were unwilling to listen and had allowed the bubble to swell until eventually they had to implore the EU and IMF privately to come to Ireland's rescue.

Generally regarded as the mainstay of a sustainable economy, the SME sector comprises firms that are largely indigenous and employment-intensive. SMEs are

important players in national innovation ecosystems, even if only because they are so numerous and account for the bulk of economic activity in most economies (Veugelers 2008). In 2007, SMEs accounted for 99% of enterprises in the EU, estimated to be 20 million separate businesses, and they provided two-thirds of employment (Robbins and O'Gorman 2016). Similarly, in Ireland SMEs make up a substantial proportion of the enterprise economy, with more than 99% of businesses in this sector and 69% of people employed by them.

4 The Redemption

At the height of the recession, one of Ireland's leading economists—the one who had predicted the economic collapse with such foresight and precision—had another idea. David McWilliams is better known as an author, broadcaster and journalist, but is also an economist. He proposed that, in order to generate novel, creative ideas to help Ireland out of the recession, the help of the Irish diaspora needed to be enlisted, and especially those who had done well and were influential and well connected in business. This was a Design Thinking and entrepreneurial approach—*effectuation* on a grand scale.

McWilliams enlisted the support of the government, which agreed to sponsor a massive 'Irish diaspora, CEO Hackathon' in one of Dublin's stately homes, Farmleigh House. The guest list was extensive and impressive: some 112 people attended from abroad, including 44 from the USA and others from Britain, Europe, Argentina, Australia, Canada, China, Indonesia, Korea, Malaysia, New Zealand, the Philippines, Russia, Saudi Arabia, Singapore, South Africa and the UAE. The overseas participants were joined by the Irish Prime Minister, members of the government, Secretaries General of government departments, CEOs of state agencies and leading members of the Irish business and cultural sectors. The group was called the Global Irish Network and the session the Global Irish Economic Forum (styled as a national version of Davos).

Speaking at the launch, in November 2011, Ireland's Taoiseach, Enda Kenny, said:

> The ingenuity, creativity and success of the Irish diaspora is legendary as is their desire to contribute to their homeland in times of crisis; to help turn times of crisis into opportunities for Ireland. The Government is determined that the success of the Global Irish Economic Forum yields real results, particularly in the area of inward investment and job creation. (Department of Foreign Affairs and Trade, November 2011)

The programme and proceedings were all made public, but two major contributions have made their way into folklore. The first, by Craig Barrett, a former CEO of Intel, advised Ireland to put her eggs in the basket labelled STEM. He said that the future would be an 'ology'. It could be technology; nanotechnology; or fin

technology.[1] With Cloud computing and Internet of Things (IoT) on the way and software as a service becoming more popular, Ireland needed, he said, graduates who were excellent in maths and engineering. His advice was for Ireland to concentrate resources on teaching mathematics better and focusing more on science and engineering.

An opposing view was taken by a leading Irish financial services entrepreneur. Dermot Desmond is widely recognized as one of Ireland's most successful business people. Desmond took a more marketing-led approach. He noted that what Ireland is really good at should be extracted, invested in and amplified so that it became world-class. He proposed that what Ireland is good at is the arts: the nation has more Nobel Prizes for Literature than any country of comparable size; it has world-beating music artists, brilliant playwrights, successful actors and talented poets. Desmond's proposal was to offer a different path to STEM and to follow the arts and create in Ireland a 'Harvard of the Arts'.

In pursuing this idea, Desmond reached out to a number of Ireland's high-profile, artistic community. As one newspaper reported shortly afterwards, under the headline: 'Irish billionaire to create global arts and culture university',

> Dermot Desmond, one of Ireland's leading business figures, has written to major Irish names in the arts and culture asking for their help. Included are musicians Bono and U2, Enya, The Corrs and Van Morrison; actors Daniel Day-Lewis, Colin Farrell and Liam Neeson; directors Neil Jordan and Jim Sheridan; and writers Brian Friel, Roddy Doyle and Sebastian Barry. (Walsh 2009)

The idea was being called the Cultural Odyssey and it is a little unfair or certainly overly simplistic to say that it was totally agnostic about the STEM philosophy. In fact, Desmond said in the letter to Ireland's artistic community that Ireland should 'exploit its deep and world-renowned cultural legacy and talent to establish a global university focusing on culture and the performing arts'. 'As the world economy continues its inexorable shift to becoming knowledge-based, we have many competitive advantages,' he wrote; and, further, 'The combination of our cultural pedigree and our technological leadership suggests to me that we can create a lasting opportunity for Ireland's future generations'.

The project came to be known as OdysseyU, the university of the performing arts in Ireland. The concept itself underpinned the notion that, while STEM is an important capability for an educated workforce, without creativity and novel, original, creative ideas, no amount of technology can drive an economy. The project is now up and running and is part of our university landscape, although it has no campus; it triages elements of M.Sc. programmes from partner universities and is an educational innovation in itself—it's called Uversity.

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[1] Originally, the term [fin technology] applied to technology applied to the back-end of established consumer and trade financial institutions. Since the end of the first decade of the twenty-first century, the term has expanded to include any technological innovation in the financial sector, including innovations in financial literacy and education, retail banking, investment and even crypto-currencies like bitcoin. See: http://www.investopedia.com/terms/f/fintech.asp (accessed 10 November 2016).

Although redemption did not come exclusively in the form of the 'Harvard of the Arts', the project certainly informed the national debate and the rhetoric about creating an enterprise culture that values creativity. Perhaps neither Barrett nor Desmond were absolutely right. The answer lies in the grey area between the two. Curley and Formica (2013) recommended creating the conditions for entrepreneurship in an interdisciplinary environment where the boundaries between the arts and engineering are blurred and where the idea, not the academic disciplines of the team members, is paramount.

5 Case Study of Maynooth University

Ireland is home to seven universities (not including Uversity). In 1592, Trinity College was founded as a branch of Cambridge University in England for the Irish protestant aristocracy. That makes Trinity indisputably Ireland's oldest university. However, Maynooth is both one of Ireland's oldest and one of its newest universities. It was originally founded in 1795, under the name of St Patrick's College, as a seminary for the training of Catholic priests. It was thought that those in training to take holy orders on mainland Europe in the late eighteenth century might be susceptible to the scent of revolution in Europe and, unhelpfully, bring it back to Ireland. Hence, it was decided to open up a domestic priestly seminary and this was Maynooth.

In 1966, the campus was opened up to students from outside religious life, and this development gave it the first growth spurt. In 1997 it became a full member of the National University of Ireland (NUI) family, which includes all the major universities in the country. Maynooth is now Ireland's fastest-growing university, with close on 10,000 students. In 2009, NUI Maynooth was listed as a Top 500 university in the Times Higher Education–QS World University Rankings (Times Higher Education 2016): in 2016, it broke through the next level and is ranked now between 350 and 400. In 2008 it was named Sunday Times University of the Year. In 2011 NUI Maynooth became the first and only institution outside North America to be included in the Princeton Review of Best Colleges.

It was only in 2007 that Maynooth University chose to open a business school. Its orientation towards theology had meant that business was not a key priority, but opening the school showed the university that there was a large demand for undergraduate business courses and for business education in the hinterland. Quite quickly, business became the largest department in the entire university. Maynooth then set up a technology transfer office to try to maximize and harvest the revenue deriving from business ideas that spun out of the university. However, one of the issues that emerged was that the ideas were not as plentiful and certainly not as novel as the university could have wished for. With regard to how business was taught in the university, it was very conventional—teaching students how to pull the

levers of existing businesses. There was a strong focus on accountancy, economics, supply chain and project management and less on the right brain, creative elements. The Princeton Review also coincided with two other elements; the EU report on the teaching of entrepreneurship (European Commission 2007) and the spectacular rise in the theory and practice of Design Thinking. As a result, a decision was made to set up a small centre for entrepreneurship and design innovation within the university. The acronym EDEN was chosen.

5.1 Building an EDEN

Professor Piero Formica was consulted widely in the design of EDEN. His strong belief is that the entrepreneurial process is not a linear progression from lightbulb moment to successful commercialization, but rather an iterative series of experiments where progress depends on the persistence and resilience of the individuals involved and their ability to learn from failure as well as success. From this premise, he (and his co-author Professor Martin Curley) argue that the ideal environment for new venture creation is a form of 'experimental laboratory' a community of innovators where ideas are generated, shared and refined, where experiments are encouraged, and which in itself serves as a test environment for those ideas and experiments (Curley and Formica 2013). This idea helped to form the blueprint for EDEN.

Creating a more entrepreneurial society remains a top priority for the Irish government. Its entrepreneurship strategy (Department of Jobs, Enterprise and Innovation 2014) has three pillars.

1. *Building the pipeline.* Increase the numbers of entrepreneurs, who will actively engage in creating high-quality business start-ups and jobs across the country.
2. *Building entrepreneurial capability.* Develop entrepreneurial skills among the general population and nurture entrepreneurial thinking and talent.
3. *Building the right conditions.* Nurture and develop an ecosystem of start-ups.

In the 2016 *Policy Framework for Design*, the government committed itself to widening the availability of design innovation across more businesses than merely those in traditional design industries such as architecture, graphic design, etc. (Department of Jobs, Enterprise and Innovation 2016b). In the 2016 *Dublin Action Plan for Jobs* (Department of Jobs, Enterprise and Innovation 2016a: 62), this message is repeated: 'To reiterate—entrepreneurial and design thinking are key to shaping our entrepreneurs and talented workforce of the future'.

It is recognized that education plays an essential role in underpinning these objectives. The Hunt Report (Strategy Group 2011: 56) recommended that 'Creativity and entrepreneurship must be encouraged to a much greater extent'. Universities, in particular, have an opportunity to promote creativity and entrepreneurial thinking and to foreground these skills within their broader curricula. Smart, creative people are in high demand in the private, public and third sectors.

A mandate for universities, though, is not to restrict their enterprise courses to business students alone. If entrepreneurship is, simply, the *conversion of ideas to action*, then it makes sense to target the people with new, original and useful ideas and these are likely to be students in all faculties—not just business students.

EDEN operates according to certain founding principles. Its role is to foreground creativity in the university; to build the creative confidence and competence of the student body. First, it was located separately from the Business School. It is widely thought that novel and original ideas are far more likely to emerge from almost any department other than business. While this sounds like a harsh judgment on business students, it has been a common experience and is part of the EU recommendations on best practice in teaching entrepreneurship (European Commission 2007). The second aspect insisted upon by the university is that courses, lectures and modules on creativity or innovation must be delivered within the curriculum. While part of the role of EDEN can be mediated through evening events, external speakers and workshops, or through campus competitions for innovation, the main metrics for the initiative would be its capacity to persuade other departments of the desirability of integrating greater emphasis on creativity into their degree programmes. It would be measured in terms of 'bums on seats'.

An important element of the EDEN philosophy is the building of a community of people with entrepreneurial mindsets; people who lean forward when they hear new ideas. EDEN should be a community for people with ideas. They will see it as the natural place to go if they want their ideas strengthened and developed. So, while there is a formal element of credit-bearing courses, the greatest impact of EDEN will be in specific, extra-curricular workshops where people with promising, raw ideas can find out how to accelerate their progress into tangible (even testable) innovation assets.

A third priority in the beginning was to empanel an advisory board from outside the university. Like all large institutions, Maynooth needs to avoid being too self-referential and not sufficiently outward-looking, and so it was considered important to incorporate an external perspective into the oversight of the initiative. The Advisory Panel's purpose is to give external perspectives on and insights into the EDEN mission and initiatives. EDEN sought a blend of external expertise covering private and public sector innovation and enterprise as well as third sector and student input. Stakeholders include the University Executive; the University student body; Enterprise Ireland (the state body responsible for job creation); public-sector organizations with an interest in enterprise; private-sector organizations (including individuals responsible for graduate hiring); social enterprises; Maynooth University Commercialization Office; local businesses and industry; and partners from other universities with a complementary ethos and commitment to creativity.

The Advisory Panel meets a couple of times per year and reviews progress on the EDEN initiative. It also provides an external view of what's going on in learning and development generally and helps EDEN to benchmark its activities against comparable national and some international organizations.

5.2 Examples of What EDEN Does Within the Curriculum

In various faculties across the university it seems clear and is accepted that their graduates are likely to be self-employed at some point in their career. At minimum, they will have a portfolio career, with pockets of self-employment. This is true, for example, for law graduates unless they are taken on by one of the big firms immediately. Most likely they will be solicitors or barristers working for themselves or in small practices. Similarly, music graduates will need to craft a salient value proposition for themselves so that they can make a living from their talent.

So, one of the first items on the Eden agenda was to develop appropriate course material for different subject groups. The material for the Law Department was the first to be developed. Working alongside the Head of Department, EDEN developed a module entitled 'Creativity in Professional Practice'. Law was considered especially suitable for this approach, because many commentators believe that the profession is on the verge of considerable disruption. Susskind (2008) has been predicting the end of the legal profession for more than a decade. He believes that automation and technology have bypassed many conventional legal functions and that much of what lawyers can now bill or charge for will soon be expected as a free part of the service. Hence, in his view, the future belongs to lawyers who are creative and willing to adapt. He exhorts legal academics to expose students 'even to the possibility that legal service may be radically different in the future and well within the span of their careers'. EDEN has taken up this call for Maynooth University's Law Department.

An equivalent module has been developed and delivered for Maynooth's music graduates. This time, the curriculum was co-developed by the Music Department, EDEN and a producer from *Riverdance*.[2] Included in this module are many visits to theatres, concert halls and other venues to give the students introductions to useful contacts and, more especially, access to the places where they may eventually perform.

Similar modules have been developed for sociology, engineering and biology, and the ambition is to develop and deliver modules for every faculty and if possible for all of the University's 27 departments.

5.3 EDEN's Extracurricular Activities

Interpreting the EDEN mandate has been an interesting challenge. However, in essence it boils down to making people want to be more creative and to believe that they can be. EDEN runs open evenings, styled as 'Creative Cafés'. While credit-bearing modules in the curriculum are certainly vital for EDEN, its best

[2] Riverdance is a theatrical show consisting mainly of traditional Irish music and dance. See: http://riverdance.com/.

chance to foreground innovation and creativity often lies outside the lecture halls. A hallmark of the operation for the first 2 years has been a heavy emphasis on evening, extracurricular themed events. In March 2016 EDEN began with a workshop on sketching and visual thinking and then followed this up with a 'Business Model' workshop. Later, it ran an 'Ideas Speed Dating' workshop in which people with ideas were invited to meet people who wanted to work on ideas but might not currently have one of their own. EDEN has also held classes on photography, semiotics and ethnography, as well as presentation skills. In this way, those who are passionate about an idea of their own get to meet people who are merely passionate about ideas in general. One group helps the other and a living entrepreneurial laboratory develops.

5.4 Access Earth: A Born-Global, High-Potential Start-Up

One company that has benefited from the presence and support of EDEN is the start-up technology company Access Earth. Wanshel (2016) recounts how Matthew McCann, who has cerebral palsy and uses a walking aid, got the idea to start the company in 2012. For a visit to the London Olympics he had booked, online, a hotel which had advertised itself as wheelchair-accessible, only to find that, in fact, it was not. 'When I arrived, there were three steps up to the entrance and I couldn't even fit my [rolling walker] in the hotel room', he said. McCann asked for a refund and left the hotel, but the experience was a telling one. He discovered that such episodes were all too frequent in the lives of people with a mobility restriction. A hotel website may promise accessibility, but there is often an element of over-claim because the vendor usually supplies the accessibility information itself.

McCann wanted to do something to improve accessibility for people with disabilities because, he believed, the problem lay in how hotels defined the term 'wheelchair accessibility'. 'In some cases you will find a place that provides fully accessible bathrooms down a flight of stairs', he said: 'That's no good to anyone'.

McCann, a software engineer, believed he could do something about the lack of specific accessibility information and so, with some help from other students at Maynooth, he created Access Earth, which won third place in the World Citizenship Category of Imagine Cup 2014, a Microsoft technology competition. The idea was also entered into the Enactus Ireland social enterprise competition, which it won in 2015, and this victory took McCann to Johannesburg to represent his idea, his university and his country in the Enactus World Cup finals. A new app was developed and a website designed (see http://access.earth/). As of summer 2016, the fully-fledged app can be downloaded onto smartphones. The business has been incorporated in Ireland and has already won funding support from Enterprise Ireland, the national development agency. It has also secured offers of investment from a number of sources.

The app focuses on accessibility for people with mobility disabilities, but McCann says that he and his business partner, Ryan O'Neill, are looking to add

sensory and cognitive disability criteria in the future, once the platform has gained traction. This is a big idea and one that will make a positive impact on the lives and welfare of users as well as creating a great start-up company.

6 The Entrepreneurial University

Human capital and creativity—in other words, smart people with promising ideas (and the energy to make them happen)—are the life-blood of innovation and entrepreneurship. The economy depends on a vibrant entrepreneurial ecosystem to facilitate the flourishing of more and better businesses.

Universities have a vital role to play. Maritz et al. (2016) acknowledged that not only have governments around the world accepted that entrepreneurship is the key pathway to economic development, but they have embraced entrepreneurship education as an integral and dynamic component of an entrepreneurial ecosystem. Their point has been echoed by the World Economic Forum, which in 2012 added a seventh domain to its review of the key ingredients for entrepreneurship, the *university as a catalyst*. This domain underscored the role of the entrepreneurial university in providing a significant contribution to priming the pump for entrepreneurship.

Within the overarching concept of a National System of Entrepreneurship (NSE) (Audretsch 2015), the entrepreneurial university is a key constituent. Universities that strive to be more entrepreneurial transform their organizational structures to respond and adapt to the external environment (Sporn 2001) and seek to encourage collective entrepreneurial action at all levels (Clark 1998) in the university. Entrepreneurial universities are centred around innovation and the development of an more entrepreneurial culture (Clark 1998; Kirby 2002). They have a different, progressive managerial ethos in governance, leadership and planning (Subotzky 1999), which includes greater faculty responsibility for finding and finessing external sources of funding (Etzkowitz 1983; Yokoyama 2006).

Ideally, the entrepreneurial university goes far beyond the transactional work of technology transfer. Rather, it needs to offer mentoring, encouragement and support. It needs to make entrepreneurship a legitimate and even a fun aspiration for more students and to equip them with entrepreneurial ambition and skills and the confidence to convert their ideas into action. Coaching and consulting should be provided for business ideas and business plans. Support in areas such as lean start-up, design thinking and business model innovation, business simulations and entrepreneurial tools should be provided (Maritz et al. 2016).

Another pillar of the entrepreneurial university is industry collaboration. The university should have close ties with local and national businesses so that, alongside technology transfer, other forms of collaboration may be developed. Research partnerships, market testing and research, and internships can all be explored through industry collaboration.

In short, the university must promote an entrepreneurial stance in all that it does so that it encourages innovation and novel creative ideas and these, in turn, simulate growth in the local and national economy. Maynooth University is an example of what can be achieved.

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