



Innovative Entrepreneurship

Pulling on both oars together

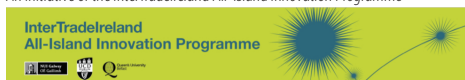
WORKSHOP REPORT

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Community of Innovation Researchers

An initiative of the InterTradeIreland All-Island Innovation Programme



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INTRODUCTION

This report presents the results of a Workshop, *Innovative Entrepreneurship — Pulling on both oars together*, which took place on Wednesday, October 26, 2011, as part of the Dublin Innovation 2011 festival.

A number of national and international speakers addressed the Workshop under the themes of policy, education and research.

A total of 75 invited guests participated in the Workshop which was held in DIT Aungier Street.

The event was organised by the Community of Innovation Researchers, Tom Martin & Associates and DIT Business School, and was sponsored by InterTradeIreland.



The promoters used a variety of mechanisms to promote awareness of, and interest in, the workshop including a dedicated web site:

www.innovative-entrepreneurship.ie

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Background

The Innovative Entrepreneurship Workshop was held on Wednesday, October 26, 2011, as part of the Dublin Innovation 2011 festival and was opened by Mr. John Perry T.D., the Minister for Small Business.

The Workshop which was held in DIT Aungier Street was a joint venture between the Community of Innovation Researchers, Tom Martin & Associates and DIT Business School.

Attendance at the Workshop was by invitation only; a total of 75 participants drawn from the policy, education, research and business sectors heard presentations from national and international speakers on innovative entrepreneurship covering three main themes: policy, education and research. The Workshop was divided into Plenary and Breakout sessions.

The focus of the Workshop was on redefining the role of Higher Education Institutions in the Irish national system of innovation and in defining and implementing policies that more fully take account of the needs of small businesses. Additionally, the workshop sought to indicate the potential to raise the nature and quality of entrepreneurship within a new policy and action framework for '*innovative entrepreneurship*'.

Findings

The Workshop established that innovative entrepreneurship, the intersection of innovation and entrepreneurship, was a new area of policy direction that was more than the sum of its parts.

A distinction was made between entrepreneurship involving innovation and other entrepreneurship, termed '*imitative*'. The level and type of education tends to be more important for the former while working status is more significant for the latter.

It was emphasised that innovative entrepreneurship was not equivalent to technology-based entrepreneurship i.e. innovative entrepreneurs could also be found in low tech sectors.

Studies have shown that the level of activity at the '*innovation-entrepreneurship nexus*' activity is a strong indicator of a region's ability to benefit locally from innovation.

The Workshop identified that although there was a growing interest in innovative entrepreneurship the lack of data sources — which focused primarily on either innovation or entrepreneurship, but not the intersection of the two — was a constraining factor for policy analysts.

While innovation has risen to the fore in government policy circles and is now a cornerstone of economic and industrial development, entrepreneurship lacked the same level of policy engagement; despite repeated calls, no national statement on entrepreneurship has been published.

The Global Entrepreneurship Monitor study of entrepreneurship in Ireland indicated that in 2010 there had been a reduction in the overall rate of early stage entrepreneurial activity, a significant reduction in the population of entrepreneurs, a significant increase in necessity entrepreneurship, and a lowering of entrepreneurial ambition.

The Workshop heard that Finland, an increasingly services-based economy, had spawned innovations through a relatively successful innovation system but, until recently, had lacked innovative entrepreneurs to fully exploit the potential of those innovations and had a weak policy approach to entrepreneurship. The Finnish government is pursuing a number of policy approaches to rectify this including the provision of entrepreneurship support measures. Robert van der Have, a research scientist with VTT, the Finnish Technical Research Centre, concluded his presentation to the workshop by stressing that if you want innovation, you've got to have entrepreneurship!

Responding to Robert's presentation, Professor Pauric McGowan, University of Ulster, said that a greater commitment to, and integration of, both innovation and entrepreneurship policies was crucial to Ireland's economic recovery. He said that there was a need to consider policies with respect to innovation and entrepreneurship that were comprehensive, incorporated services and encouraged innovation in processes and practices. He stressed the need for coherency in policies at the innovation-entrepreneurship nexus, particularly around investment funding.

In his presentation on innovative entrepreneurship and education, Keith Herrmann, said that entrepreneurship education should be at the centre of higher education and there was a need for culture change in how it was provided. He pointed to the need for an innovation entrepreneurship ecosystem but highlighted the problems arising from the lack of connect between the academic research base and industry knowledge needs.

The final guest speaker, Eucharía Meehan of the Higher Education Authority, speaking on innovative entrepreneurship research, traced the evolution of investments in innovation and entrepreneurship within the higher education sector. She noted that innovative entrepreneurship-related projects are now set to become a major priority in the context of new research priorities. It was important that socio-economic and policy research was undertaken to monitor the embedding of innovative entrepreneurship within the Irish innovation ecosystem.

Broad Recommendations

The following recommendations emerged from the Workshop:

- ◆ Policy-makers should focus on innovative entrepreneurship as recent studies indicate that innovation without entrepreneurship and entrepreneurship without innovation is likely to lead to sub-optimal economic results;
- ◆ The Government should publish a statement on entrepreneurship policy and strategy;
- ◆ There is a need for national co-ordination and coherence in design and provision of entrepreneurship education;
- ◆ Within the new 'Applied Research' approach, further research is needed on the nature and impact of innovative entrepreneurship and to ensure that it is embedded in the Irish innovation ecosystem.

CONFERENCE DETAILS

Conference organisers

The organisers of the workshop were the Community of Innovation Researchers (an initiative of the InterTradeIreland All-Island Innovation Programme), Tom Martin & Associates/TMA and DIT School of Business. See Appendix 1 for more information on the organisers.

Workshop structure

The workshop was divided into Plenary and Breakout sessions:

- ♦ The **Plenary session** was chaired by Dermot O'Doherty (www.innovationanalysis.ie), TMA Consultants and Policy Advisory member of the Community of Innovation Researchers. The speakers in the Plenary session were:
 - ♦ Mr. Robert van der Have, VTT Technical Research Centre of Finland
 - ♦ Professor Pauric McGowan, Professor of Entrepreneurship and Business Development, University of Ulster
 - ♦ Mr. Keith Herrmann, Director, Higher Ed Research, UK
 - ♦ Dr. Eucharía Meehan, Head of Research and Capital Programmes, Higher Education Authority
- ♦ The **Breakout session** was chaired by Dr Thomas Cooney (www.thomascooney.com), DIT, Founder, former Chairman and current Board Member of INTRE (Ireland's Network of Teachers and Researchers in Entrepreneurship)

See Appendix 2 for a detailed description of the workshop structure.

Aims of workshop

The workshop aimed to point the way to a redefinition of the role of the Higher Education Institutions (HEIs) and other players in the Irish national system of innovation and in the definition and execution of Irish research and innovation policies and priorities that more fully take account of the needs of small businesses. Equally it aimed to indicate the need and potential for raising the nature and quality of entrepreneurship (specifically through more and better entrepreneurship education) within a new policy and action framework for 'innovative entrepreneurship'.

The workshop was sponsored by InterTradeIreland.

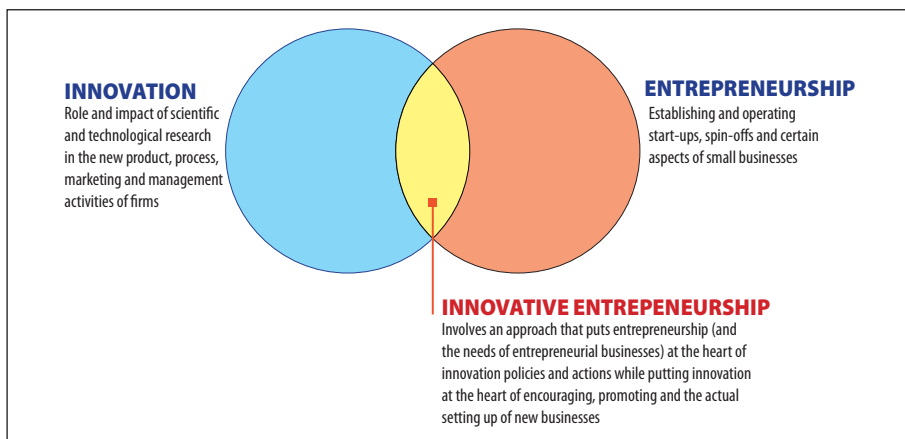
Attendance

There were more than 75 registered attendees, drawn from the policy, education and research communities, as well as innovators and entrepreneurs from industry, both indigenous and overseas.

Rationale/Themes

Nature and Impact of Innovative Entrepreneurship

This Workshop addressed the need for improvement in, as well as more analysis of, the interface between innovation (encompassing the role and impact of scientific and technological research in the new product, process, marketing and management activities of firms) and entrepreneurship (involving establishing and operating start-ups, spin-offs and certain aspects of small businesses more generally). Bringing these two phenomena together in the form of '*innovative entrepreneurship*' is more than just summing their parts. It means an approach to innovation that puts entrepreneurship (and the needs entrepreneurial businesses) at the heart of innovation policies and actions while putting innovation at the heart of encouraging, promoting and the actual setting up of new businesses.



We can make a distinction between entrepreneurship involving innovation, and other entrepreneurship, which we can call ‘*imitative*’. The level and type of education tends to be more important for ‘innovative entrepreneurship’ while working status is often significant for imitative entrepreneurship. While it is clear that not every entrepreneur is an innovative entrepreneur in this sense, most studies measure entrepreneurship by business ownership and self-employment, which, although closely related, does not correspond to innovative entrepreneurship as mentioned above. The relative scarcity of studies specifically inquiring into the determinants of innovative entrepreneurship, is at least partly explained by the fact that most of the databases traditionally used in entrepreneurship research (labour force surveys, business formation rates, etc.) have no information on the innovativeness of new ventures. At the same time, data widely used in innovation research (such as Community Innovation Surveys) mainly focus on innovation activities in established businesses, and hence provide little information about entrepreneurship.

These deficiencies are obviously a matter of concern for the Community of Innovation Researchers, one of the main sponsors of this event, as is the need for more and better studies on the nature and incidence of innovative entrepreneurship.

It is worth emphasising here that innovative entrepreneurship is not equivalent to technology-based entrepreneurship. Although high-tech start-ups are frequently more ‘*innovative*’ than start-ups in traditional industries, not all technology-based ventures are truly innovative ‘*new combinations*’, while a start-up in a low-tech industry should be considered as innovative if it introduces a product new to the market (but perhaps, not “*new to the world*”) even if this product is not based on the latest technology.

Studies indicate that the level of ‘*innovation-entrepreneurship nexus*’ activity in a region is a strong indicator of the region’s ability to benefit locally from innovation. Many regions (and countries) that have made heavy investments in innovation capacity now recognise that entrepreneurship is the primary mechanism for converting early-stage innovations into local economic gain. Innovation without entrepreneurship generally yields minimal local economic impact. Innovations are highly portable, whereas entrepreneurship is place-based. Whether they are building new firms or reinventing existing ones, entrepreneurs, through the real commercial application of new ideas to new products and services, capture locally the economic benefits of innovation.

Developing strategies, policies and programmes for leveraging the nexus between innovation and entrepreneurship, therefore, appears to be of vital importance for economic development and competitiveness. Consequently, an increasing number of regions and countries are actively developing policies and strategies that foster the nexus between innovation and entrepreneurship for the benefit of their enterprises and local economies.

The Irish Situation

On 14th October in Seanad Éireann (Senate), the Minister for Research & Innovation in outlining current Government thinking on his area of responsibility, stated that:

Ireland must develop a high productivity and high innovation economy. In the past decade, we have trebled the level of investment in research and development,

underpinned enterprise demand for it and invested in human capital, physical infrastructure and the commercialisation of research.

This public investment is leveraging twice its value from business investment. It has contributed significantly to an increase in foreign direct investment, the competitiveness of indigenous enterprise and the creation and application of new knowledge and technologies. If we are to grow an innovation system to build national competitive advantage, we will need to support and embed innovation across our economy and facilitate the commercialisation of research. We are taking action to achieve this. We are leading and co-ordinating a whole of Government approach to investment in science, technology and innovation, as underpinned by the 2006 strategy for science, technology and innovation, the 2010 report of the innovation task force and the programme for Government that will apply from 2011 to 2016.

This will soon be informed and steered by the recommendations of the research prioritisation steering group.

However, as stated in the Forfás ***Analysis of Ireland's Innovation Performance*** (March 2011):

Irish-owned firms outnumber their foreign owned counterparts by more than 4 to 1; therefore it would be expected that a greater number of Irish firms are engaged in some form of technological innovation... while Irish firms account for almost three-quarters of all innovative firms, they also account for a much larger proportion — nearly seven-eighths — of non-innovative firms. Despite a lower foreign-owned firm population, this suggests that foreign firms are more innovative than Irish-owned firms.

With regard to Entrepreneurship the recently published ***Global Entrepreneurship Monitor*** (GEM) 2010 Report for Ireland states:

The environment in Ireland for entrepreneurship has changed beyond all recognition since the onset of the current economic crisis. Consumer demand has contracted, business confidence has been negatively affected and the availability of finance to new and developing businesses has been greatly restricted. At the same time unemployment has significantly increased, resulting in a decline in inward migration and an increase in enforced emigration, particularly among young adults. Both early stage and established Irish entrepreneurs report that, as a result of the impact of the economic crisis, it is harder to start a business and there are fewer business opportunities.

GEM 2010 shows that the significantly changed environment has been reflected in a reduction in the overall rate of early stage entrepreneurial activity, a significant reduction in the population of entrepreneurs, a significant increase in necessity entrepreneurship, and a lowering of entrepreneurial ambition. GEM 2010 shows that among the general population, fewer people perceive entrepreneurial opportunities, fewer people see entrepreneurship as a good career option, and fewer people aspire to be an entrepreneur.

The reasons motivating people to become an entrepreneur have also significantly altered. There has been a very marked increase in the number of individuals starting a new business through perceived necessity. In 2010 three in every ten entrepreneurs (32%) were motivated by 'necessity' rather than by 'opportunity'. This compares with one in five in 2008 (19%) and almost one in seventeen in 2007 (6%) and earlier years.

This has also reduced the scope for 'innovative entrepreneurship' which is more likely to arise in an opportunity context.

This is outlined in the GEM Report:

With the increase in the level of necessity entrepreneurs has come an increase in the proportion of early stage entrepreneurs that wish merely to create a job for themselves. One in four (23%) of those setting up new businesses do not expect to become employers. This compares to less than one in five in 2008 (18%) and one in ten (11%) in 2005.

Simultaneously, there has been a reduction in the proportion of early stage entrepreneurs with high growth aspirations. This is a significant trend given the disproportionate impact of high growth new businesses on employment creation and their contribution to economic growth.

EXEMPLARS

There are examples of relatively small businesses that have really achieved this nexus between innovation and entrepreneurship. Among these are:

- ◆ **Celtic Catalysts**, an innovative venture capital backed life sciences company, that has developed ground-breaking chemistry that enables its end-user clients in the pharmaceutical, biotech and fine chemicals industries to realise significant manufacturing cost savings. The company's technology and products are currently integrated into the manufacture of a number of potential blockbuster drugs currently in development by major well-known pharmaceutical companies. The company received an Irish Times/InterTradeIreland Innovation Award in 2011
- ◆ **Richard Keenan & Company, Co. Carlow**, a long established animal feed technology company which, uniquely, has its own Scientific Advisory Committee to guide it towards the best research and knowledge-applications opportunities.

There is, therefore, a gap in innovation policy with regard to the indigenous sector and with no explicit policy statement on entrepreneurship, a gap with regard to encouraging and supporting 'opportunity' entrepreneurs. Both of these policy deficits inhibit 'innovative entrepreneurship'.

European Dimension

The importance of this area has already been recognised at EU level in a pilot (2010) Entrepreneurship and Innovation Programme (EIP) as part of the wider Competitiveness & Innovation Programme (CIP). This encompassed a range of studies and initiatives, including:

- ◆ Access to finance for the start-up and growth of SMEs and investment in innovation activities
- ◆ Creation of an environment favourable to SME co-operation, particularly in the field of cross-border co-operation
- ◆ All forms of innovation in enterprises, including innovation analysis and promotion
- ◆ Eco-innovation
- ◆ Entrepreneurship and innovation culture, including promotion of entrepreneurship
- ◆ Enterprise and innovation related economic and administrative reform.

The emerging results of this programme are part of the ongoing discussions on Commissioner Geoghegan-Quinn's EU Innovation Union Strategy 2020 and the preparations for the new Framework Programme (FP8).

In the US, the Small Business Administration (SBA) has also taken a significant interest in the interface between entrepreneurship and innovation. Recent reports have included '*The Innovation-Entrepreneurship Nexus*' and '*High Impact Firms — US Gazelles Revisited*'.

WORKSHOP PROCEEDINGS

The Workshop was officially opened by Mr John Perry, Minister for Small Business, who was welcomed to DIT by its President, Professor Brian Norton. The Minister expressed his strong approval for the effort being made to put innovative entrepreneurship on the agenda at both a policy and practical level, highlighting the roles already played by organisations such as Enterprise Ireland and its High Potential Start-up programme, as well as by higher education institutions such as DIT which had already demonstrated a closeness to small business. He stated that he was looking forward to receiving the Workshop report and to entering into a dialogue with the Workshop organisers.

For purposes of clarity of focus and discussion, the Workshop Plenary and Breakout Sessions were broken into Policy, Education and Research modules.

Policy

Mr Robert van der Have, Research Scientist in Innovation Policy Studies at the Finnish Technical Research Centre (VTT), addressed the following issues:

- ◆ Notions of entrepreneurship, innovation and innovative entrepreneurship
- ◆ Structural changes in the Finnish economy
- ◆ Entrepreneurship in the innovation system
- ◆ Entrepreneurship in recent policy programmes
- ◆ International entrepreneurship comparisons — Global Entrepreneurship Monitor
- ◆ Conclusions

He defined the following types of newly-established firms as having the potential to be characterised by '*innovative entrepreneurship*':

- ◆ Scalable startup: searches for (new) business model; an unknown customer, unknown product features; grows bigger — usually needs risk capital.
- ◆ Buyable startup: same as above, but solves something interesting for a larger company, like gaming apps (e.g. Rovio's Angry Birds).
- ◆ Social Entrepreneurship startup: solves social problems, social innovation, new strategies.

Using the SFINNO database (a database of Finnish innovations), he concluded that Finland, an increasingly services-based economy, had spawned innovations through a relatively successful innovation system but, until recently, had lacked innovative entrepreneurs to fully exploit the potential of those innovations and had a weak policy approach to entrepreneurship. This both reflected and was at least a partial explanation for the relatively poor performance of Finland in GEM and other international entrepreneurship studies.

There had been general agreement that:

- ◆ Tax policy: taxation treatment of equity income should be more favourable to entrepreneurial risk-taking and creation of potential **high growth entrepreneurial firms** (HGEFs).
- ◆ The Ministry of Employment and the Economy and the Ministry of Finance should publicly assume joint operational responsibility for policies that aim at promoting entrepreneurship and knowledge-based HGEFs... both the governance and cost-effectiveness of the support system could be improved by reducing its complexity.
- ◆ The Finnish innovation system suffers from a mismatch between 1) the growing demand by Finnish high growth firms for global insight, foreign expertise, international networks, and 2) an insufficient supply of inward foreign spillovers due to the scarcity of world class human capital, foreign R&D and cross-border venture capital within Finland's borders.
- ◆ Small number of active VC funds, sized above €50+ million alternative supply of angel investment is limited.

The situation is currently being tackled through the following:

- ◆ Government will target the generation of new enterprises and promotion of growth and internationalisation of the existing businesses... The corporate tax rate will be lowered.
- ◆ Efforts will be made to increase interest in and preparedness for entrepreneurship by means of training at various levels of education. Entrepreneur training programmes will be intensified in order to find successors for businesses. To foster growth entrepreneurship, the business skills of SMEs will be enhanced... Entrepreneur training will be developed all the way up to business training at a high international level.

- ♦ The employment and entrepreneurship of educated young people will be promoted with the help of business incubator and accelerator activities.
- ♦ The possibility of interrupting business activity will be clarified e.g. by alleviating the requirements to sell the equipment as a condition for eligibility to unemployment benefits after a relevant working group has made its proposals.
- ♦ Problems related to debt settlement situations of entrepreneurs will be looked into. The position of self-employed persons and micro enterprises will be improved... The administrative burden on entrepreneurs will be alleviated, and the processes associated with payments and taxes will be intensified. Public and publicly-funded business services and transactions between businesses and the authorities will be brought together and operate on a one-stop-shop principle.

He concluded that:

- ♦ If you want to have innovation, you've got to have entrepreneurship!!
- ♦ Truly innovative entrepreneurs with scalable, buyable businesses are scarce, and they have a really difficult time — make their life as easy as possible. A culture and place-related issue — more developed in US than Europe (e.g. analyses of Audretsch), and you can't just copy
- ♦ It's hard... but worth the try!!

In response and addressing The *Changing Face of Innovation and Entrepreneurship — Policy Perspectives*, Professor Pauric McGowan, University of Ulster Business School, highlighted that:

- ♦ A greater commitment to and integration of both is crucial for economic recovery in current times (Abreu et al 2011).
- ♦ Policies need to be sensitive to the existing structures, cultures and competitive strengths of regions/countries.
- ♦ There is a need to consider policies with respect to innovation and entrepreneurship that:
 - ♦ are comprehensive
 - ♦ go beyond R&D, Technology Transfer (TT) and New Product Development (NPD)
 - ♦ encourage innovation in processes and practices
 - ♦ incorporate services as well as goods.
- ♦ This requires a commitment to a wider interpretation of what we mean by 'innovative practices' (Abreu et al 2011, Forfás 2011)

There is currently a need for:

- ♦ Increased contributions from public and private Research Organisations
- ♦ More joined-up thinking from central government
- ♦ More encouragement, including additional tax breaks for those engaging in risk-taking to grow ventures
- ♦ Control over the level of evaluation
- ♦ More disruptive innovation but a greater commitment to wider innovation
- ♦ Easier access to appropriate levels of funding in recognition of the often high-cost of innovation particularly for SMEs
- ♦ Making available a world-class ICT infrastructure
- ♦ Various stakeholders to encourage greater entrepreneurial endeavour to exploit innovative endeavour, challenge the status-quo and to think global (Murray et al (2009), Forfás 2011).

Key considerations for Innovative Entrepreneurship are:

- ♦ To re-evaluate the over-emphasis on technological innovation and R&D
- ♦ To introduce greater flexibility into the targeting of innovation expenditure

- ♦ To recognise for example, the importance of the services sector in developed economies and in terms of encouraging innovation and greater entrepreneurial endeavour
- ♦ To enhance physical infrastructure, particularly in telecoms, given its importance in knowledge-intensive service industries
- ♦ To build, thoughtfully, at the HEI/Business interface
- ♦ To consider the scope for innovative entrepreneurial practice within the public and third sectors
- ♦ To be sensitive to the peculiar circumstances of regions/countries — one size does not fit all
- ♦ To recognise the importance of global markets in stimulating export-led growth in the SME sector and to developing a knowledge-based or “smart” economy
- ♦ To build some coherency into policies at the I&E nexus, particularly around investment funding

The following issues related to Policy were raised in the Breakout Session:

ISSUES (POLICY)	
Need (medium-term) Entrepreneurship strategy and more strategic approach in government departments/agencies, address scalability issues and ‘worker empowerment’ to think and act creatively	Clear criteria/basis for ‘judging’ entrepreneurs — include failure as well as success — need ‘indexing’ system — effectual entrepreneurship vs ‘business plan’ approach; include provision for disruptive technologies
Need understanding of services and organisational innovation	Transformation (Programme) for Indigenous Businesses — including Intrapreneurship and exchange programme with MNEs
‘Framework Conditions’ vs ‘Support’ — e.g. bankruptcy rules	Pilot ‘schemes’
Improvement in the stats on Innovation and Entrepreneurship (in particular)	Entrepreneurship Culture/education — in Leaving Cert and more from primary level onwards
Placement/mentoring fund for business development	One-stop-shop — for technology/innovation/entrepreneurship — not just grants! — central ‘enterprise centre’
Should also identify bureaucratic and other barriers — encourage organisational innovation	One Irish Institute of Technology — with appropriate employment contracts
Measure business outcomes	Increase number of students/length of year
Need multidisciplinary innovation	On-line forum for business stories/journeys including failures
Involve entrepreneurs in HE research (visiting entrepreneurs?)	Fast-track IP
Language skills	

Education

In his presentation on *Universities, Entrepreneurial Learning and Innovation*, Keith Herrmann, Director, Higher Ed Research, emphasised that ‘*Entrepreneurship is not solely about business skills or starting new ventures; it is a way of thinking and behaving relevant to all parts of society and the economy*’.

Higher Education should be about 3 interrelated phenomena — knowledge exchange, entrepreneurial minds and higher level skills:

Knowledge Exchange

- ♦ Relational, not transactional approaches;
- ♦ Pasteur Quadrant, not basic vs applied;
- ♦ Creating ‘public space’ to co-create knowledge

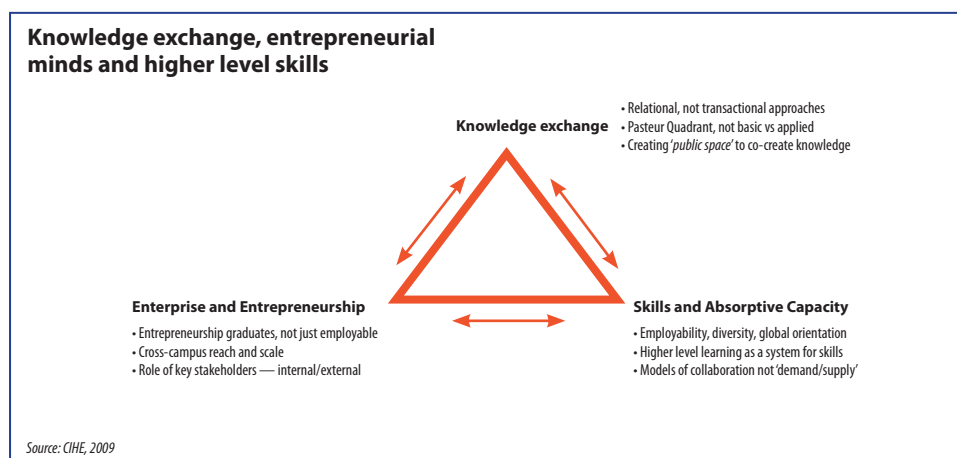
Skills and absorptive capacity

- ♦ Employability, diversity, global orientation;
- ♦ Higher level learning as a system for skills;
- ♦ Models of collaboration not ‘demand/supply’

Enterprise and Entrepreneurship

- ♦ Entrepreneurial graduates, not just employable;
- ♦ Cross-campus reach and scale;
- ♦ Role of key stakeholders — internal/external

(Source: CIHE, 2009)



Entrepreneurship education must be positioned:

- ♦ Putting entrepreneurship at the centre of higher education since that is what universities are about
- ♦ Adopting a broad approach to entrepreneurship that situates it in a variety of settings
- ♦ Strategic shift needed to reposition entrepreneurship education in the student experience.

There is need for a cultural change involving a commitment to entrepreneurial learning:

- ♦ Broadening the student experience — beyond new ventures to entrepreneurial behaviours.
- ♦ Entrepreneurial capacities to deal with uncertainty and complexity.
- ♦ Learning to design organisations for future competitiveness — New Industries New Jobs.
- ♦ Stretching the classroom-company projects, placements, collaborative working on new ventures.

The following can be '*agents for change*':

- ♦ Vice-Chancellors/Presidents can provide visible leadership.
- ♦ Academics can enable change in the curriculum.
- ♦ Entrepreneurship educators can enrich the student learning experience.
- ♦ Business and social entrepreneurs must be fully involved.
- ♦ Students should engage in entrepreneurial learning opportunities.
- ♦ Government can support entrepreneurial education by providing overarching strategic goals.

There is need for an ecosystem of innovation entrepreneurship:

- ♦ Bridging the serious divide between knowledge exchange and innovation (TTO) and entrepreneurship education (business school).
- ♦ Universities and businesses co-creating new knowledge that leads to innovative entrepreneurship.

But:

There is a disconnect between the academic research base and industry knowledge needs;

- ♦ Need 'boundary-spanning' academics to collaborate with industry; for research and in the classroom.
- ♦ Need innovative pedagogies to connect entrepreneurial capacities and knowledge with high performance and knowledge intensive industries.
- ♦ Need to involve the student and researcher in entrepreneurial practice to co-create new applications of knowledge.

There is a need to connect with the 6% who are innovative entrepreneurs through for example:

- ♦ models such as Cambridge CBR research — rich and varied connections between academics and business/society; not just patents, licences and spin-outs.
- ♦ connecting with the 6 per cent of UK businesses with the highest growth rates who generated half of the new jobs created by existing businesses between 2002 and 2008 (NESTA, 2010).
- ♦ establishing TSB Technology and Innovation Centres to close the gap between concept and commercialisation.
- ♦ highlighting the role of the new disruptors — the real innovative entrepreneurs.

The key challenges include:

- ♦ Building synergies — harnessing internal and external stakeholders to span divides.
- ♦ Reward and recognition as levers for changing behaviour.
- ♦ Broadening the concept of entrepreneurial action to make it relevant to students, academics and the institution.
- ♦ Measuring and evidencing success is crucial.
- ♦ Ownership is key.

The following issues related to Education were raised in the Breakout Session:

ISSUES (EDUCATION)	
3RD LEVEL	
Focus on SMEs/secondments/networking	Two streams — general/technical — but cross-disciplinary co-operation (at least one 'external' team member — from other faculty/discipline); 10% of time on interconnectedness
Transformation of Knowledge/Culture	T-shaped Graduates — breath & depth
Entrepreneurship across disciplines — need for metrics	Enterprise/Incubation? Centres
Visiting Lectureships/Entrepreneurs/Advisers include Sales/Marketing	Promote/reward Group project work
Share rather than protect IPR	Focus funding on outcomes within full modularisation
Teach about 'failure'	
2ND LEVEL	
'Spread' transition year	Points system? — thinking skills? Focus on attitudes and aptitudes
Link participation in Young Scientists to points	Apprenticeships
Role of guidance staff	Entrepreneurship teaching/education from primary onwards
'Teach the teachers' and good selection criteria e.g. creative attitudes/ approaches	
1ST LEVEL	
Bring in 'role models'	

Research

Dr Eucharia Meehan, Director of Research & Capital Programmes at the Higher Education Authority (HEA), set out:

- ◆ Firstly — largely from a national higher education system perspective — the context in which the dialogue organised through the Workshop was taking place
- ◆ Secondly, some of the steps that have been taken to support innovative entrepreneurship and where research on innovation and entrepreneurship sits in that framework
- ◆ Finally, some ideas as to how greater levels of innovative entrepreneurship can be supported by the broader policy ecosystem and more particularly by the higher education system.

In the Irish context the concept of innovative entrepreneurship was an idea whose time had come. It had arrived following over a decade of rapid evolution in the national innovation system. In the course of this evolution the emphasis has been on physical infrastructure, then on people, on knowledge output, then on knowledge transfer, followed more recently by an emphasis on innovation. The Innovation Taskforce report in particular had contributed to the growing attention on the next stage — the support and embedding of innovative entrepreneurship, and had established that support for this area was sub-optimal. A significant component of what was contained in the Forfás-published report — *'Towards Developing an Entrepreneurship Policy for Ireland'* (2007) — was reflected in the recommendations from the Innovation Taskforce.

The key factors in developing an innovative and entrepreneurial culture always include:

- ◆ close relations between universities and industry
- ◆ mature venture capital
- ◆ openness as a society.

A *'Roadmap for Employment-Academic Partnerships'* (REAP) was recently generated by 11 higher education institutions as a framework to support this type of engagement. The REAP project has been chosen as a model of good practice by the EU DG Culture and Education's University-Business

Dialogue: Thematic Forum. This project also had as a consortium developed professional, outward-facing centres to support all forms of engagement, examples of which include the Work-based Learning and Engagement Office in the Athlone Institute of Technology (AIT); the Cork Institutes' Extended Campus; Single Point of Contact in NUI Galway and the corporate Partnership Network in DIT. There has also been a proliferation of entrepreneurship and business support programmes such as IGNITE, an exciting initiative based in UCC in collaboration with the Cork County and City Enterprise Boards. On the supply side, initiatives range from the Innovation Vouchers supported through Enterprise Ireland through to the IRCSET Enterprise Partnership Scheme through which PhDs are co-funded by industry. On the research and knowledge generation side, there is no doubt that in terms of having 'pull' from the commercial and societal system, optimisation is required and further work needs to be done. Based on the international experience one would expect that with maturing relations between universities and the commercial sector, the pull will increase. The fact that at a policy level there is — as stated by the Minister for Small Business at the workshop — increased emphasis on funding industry led, industry informed and/or more applied/nearer market research also should enhance the 'pull' factor but care must be taken not to erode the strong research base that has been developed over the past decade.

The National Strategy for Higher Education sets down 'Engagement' in its widest sense between HEIs and key economic and societal stakeholders as the third pillar of activity after teaching and research/knowledge transfer. It will also be the third pillar for performance measurement in the context of allocation of performance funding. Thus the funding instruments and policy requirements of the state are to become more aligned and all stakeholders will have a role to play in that alignment.

The fact that clear signals are being sent by Government and the HEA around wanting a diverse higher education system with differentiation between missions is interesting in this context — without prejudice to any institution or deliberations on the criteria for a Technological University.

Not unrelated to the 'entrepreneurial university concept' is the formation of strategic alliances which have the enhancement of enterprise development as a key objective.

Examples of such alliances include the:

- ◆ UCD & TCD Innovation Alliance
- ◆ University of Limerick/NUIG Strategic Alliance.

Both are using Stanford University modalities to develop innovative entrepreneurship education and knowledge transfer.

Within the wider HE context, research on innovation and entrepreneurship is recognised as underdeveloped even on the international stage. This goes for both commercial and social innovation, the latter being equally important to society and the economy. This point was well made in the HEA/IRCHSS publication *'Playing to Our Strengths — The Role of the Arts, Humanities and Social Sciences and Implications for Public Policy'* (2010).

The Arts, Humanities and Social Sciences drive economic and social innovation, promote ways in which the economy can be best managed and developed, and enable individuals to engage and participate in civil society. Skill such as creativity, cultural awareness, and critical and analytical thinking are vital to the promotion of innovation and productivity, as well as making Ireland an attractive place in which to live, work, and do business. Through PRTL and the Strategic Innovation Fund (SIF), the HEA has been directly and indirectly supporting research in innovation, entrepreneurship and innovative entrepreneurship. A number of these investments form a strong foundation on which to build research in innovative entrepreneurship. The building of infrastructure and centres to enable innovation and entrepreneurship research as far back as 2002, with the investment in the Centre for Innovation and Structural Change hosted at NUIG, partnering with DCU and UCD (€2.9m). The centre undertakes research to investigate the impact of the knowledge-based economy and to understand the linkage between actors in the innovation system.

- ◆ In 2007, CISC in collaboration with other institutional research centres and seven other Irish third level partners established the Irish Social Sciences Platform, which focuses on knowledge society, balanced development and sustaining communities. The ISSP programme covers research topics in entrepreneurship and venture creation.
- ◆ The Innovation Policy Simulation for the Smart Economy (IPSE) initiative (again funded by the HEA/PRTL Cycle 5 €1.15m UCD, TCD, QUB) combines empirical research on issues identified as important for Irish innovation performance with computational methods such as network analysis, agent-based modelling and social simulation, to implement and test innovation policy scenarios.

The TCD-UCD Innovation Academy (Cycle 5 €1.7m) is being supported by the HEA under Cycle 5. The Academy is a collaborative joint venture in PhD education between UCD, TCD and Industry. The Academy fundamentally changes doctoral education by establishing innovation alongside research and education as a key outcome, thereby developing a new breed of graduate with the creativity and entrepreneurial skill to apply their knowledge for commercial, economic and social benefit.

Other related initiatives include the Innovation Value Institute. IVI is a research institute of NUI Maynooth (€ 1.12m) established in partnership with Intel Corporation, and supported by a consortium of over thirty-five companies (the IVI Consortium). In general Cycle 5 has supported Structured PhD programmes encompassing modules to develop an 'entrepreneurial culture and an ecosystem of innovation and commercialisation' which is a key requirement in 'Building Ireland's Smart Economy'. These represent an array of research approaches across the landscape of innovative entrepreneurship research. They support research and PhD education but also have in common an engagement with knowledge users and those who create wealth and/or societal benefit from research output.

The '*Irish Case Studies in Entrepreneurship*' publication from the Strategic Innovation funded Accelerating Campus Entrepreneurship (ACE) Initiative — a partnership between DKIT, CIT, ITS, ITB and NUIG, has at its heart research and analysis but it is published as a resource for entrepreneurship education and training. This is research underpinning and enhancing education to optimise returns to the system of investment in research.

Much has been done to take the HEI-related and wider system in the direction of 'innovative entrepreneurship' and this is the right direction. Still more can be done, however, to get the voice of the entrepreneur/user fully taken into account in a systemic sense, with clear and adequate feedback loops and mechanisms. The new Small Business Advisory Group chaired by the Minister for Small Business may have further proposals in this regard.

Furthermore, demand-driven programmes and innovative entrepreneurship-related projects are now set to become a major priority in the context of new research priorities and socio-economic and policy research is important in allowing us to see where we are going and keeping us on the path towards embedding innovative entrepreneurship. At a more 'corporate level' and in the context of the strategies of higher education institutions, reflection is needed as to the role of innovative entrepreneurship and how it could be engendered and embedded.

Dr Meehan concluded by stressing that understanding what is happening in the Irish ecosystem and preparing it to support innovative entrepreneurship are key tasks for the future.

The following issues related to Research were raised in the Breakout Session

ISSUES (RESEARCH)

Need 'Applied' approach — including 'fast turnaround'	Counter 'fear of failure' — encourage risk-taking in HEIs but also firms
Streamline 'publishing' — freeing up time for IE-related activities	Phds need 'practical objectives'
More Secondments/'Fusion'	Build-in formal ex-ante and ex-post performance assessment/evaluation
Institutional and culture connections	Need 'National R&D Priorities Centre'
Research 'Translation'/'packaging' — one pagers/meetings etc	Research 'management skills'
Interaction with social sciences	
Cluster development	
Need to research distinction between 'self-employment and 'entrepreneurship'	
Need to research scalability — creating/supporting larger indigenous firms	

WORKSHOP CONCLUSIONS/RECOMMENDATIONS

The Workshop was arranged to allow conclusions to be drawn and recommendations made at the broad innovation and entrepreneurship levels and, in particular, at the interface '*innovative entrepreneurship*' in terms of the best ways to address policy needs, including the analysis and evaluation of policies and programmes, within 'a national system of innovation' framework. There are also conclusions and recommendations on the role of entrepreneurship education as well as on the nature and significance of scientific and technological research policies and programmes and the importance of research on '*research and innovation*' and '*innovative entrepreneurship*' in particular.

Robert van der Have concluded that:

- ◆ If you want to have innovation, you've got to have entrepreneurship!
- ◆ Truly innovative entrepreneurs with scalable, buyable businesses are scarce, and they have a really difficult time — make their life as easy as possible;
- ◆ Innovative Entrepreneurship is a culture and place-related issue — more developed in US than Europe but you can't just copy.

In response, Pauric McGowan, highlighted the need:

- ◆ To introduce greater flexibility into the targeting of innovation expenditure;
- ◆ To recognise for example, the importance of the services sector in developed economies and in terms of encouraging innovation and greater entrepreneurial endeavour;
- ◆ To enhance physical infrastructure, particularly in telecoms, given its importance in knowledge-intensive service industries;
- ◆ To build, thoughtfully, at the HEI/Business interface;
- ◆ To be sensitive to the peculiar circumstances of regions/countries — one size does not fit all;
- ◆ To recognise the importance of global markets in stimulating export-led growth in the SME sector and to developing a knowledge-based or "*smart*" economy.

The Breakout reinforced these broad conclusions and added the need for:

- ◆ A formal Entrepreneurship Strategy and a more strategic approach in government departments/agencies, addressing scalability issues and '*worker empowerment*' to think and act creatively;

- ♦ Clear criteria/basis for '*judging*' entrepreneurs — including failure as well as success — need '*indexing*' system — '*effectual entrepreneurship*' vs 'business plan' approach; include provision for disruptive technologies;
- ♦ One Irish Institute of Technology — with appropriate employment contracts.

Policy and Strategy Changes

From an Innovative Entrepreneurship perspective, which recognises and highlights the role of entrepreneurs and small business, the following areas of and approaches to policy should to be prioritised and addressed in the context of optimally combining innovation and entrepreneurship:

Demand-led innovation and an enhanced voice for indigenous entrepreneurs

Demand-based national innovation strategies have become more prevalent since the Lisbon Strategy of 2004, which emphasised EU-level efforts to drive the union towards a more dynamic and competitive knowledge-based economy capable of sustainable economic growth with more and better jobs, a greater social cohesion, and respect for the environment. This has motivated policymakers in Finland, for example; to find a balance between science/technology-based and demand-based innovation policies. In Finland, innovation policy has traditionally been more technology-orientated. Thus, the somewhat new emphasis on demand-driven orientation created a need for new strategic choices in drafting and implementing national innovation policy. This need was acknowledged by several government-initiated reports that identified a number of global challenges for Finland.

The identification of these challenges led to the conclusion that public and private actors in the Finnish innovation system should invest more and systematically in R&D activities. Public investments had traditionally been distributed evenly over all innovative activity in Finland. Through Strategic Centres for Science, Technology and Innovation the aim is to break with the tradition and lay more emphasis on the economic relevance of innovative activity as the decisive criterion for public funding while, at the same time, acknowledging that there is often a significant role for research as a prerequisite for innovation.

It is significant that relative to the Competence Centre approach in Ireland, the Finnish Centres will account for roughly 20% (€123 million) of Finnish annual public support for R&D and innovation by 2012.

This is important in enhancing the position of entrepreneurs and small businesses generally in the definition of research and innovation priorities as it highlights the need for Higher Education Institutions and other research '*producers*' to enter into an on-going dialogue and engagement with '*user*' communities such as small and medium-sized firms (SMEs).

Statement on Entrepreneurship Policy and Strategy

There have been calls in a range of reports — from that of the Small Business Forum to the Enterprise Strategy Group and most explicitly in the Forfás report, '***Towards Developing an Entrepreneurship Policy for Ireland***' — for a statement of entrepreneurship policy and strategy on but no definitive policy response, in the form of a Green or White Paper for example, has yet been published. Such a Statement would be timely in the context of the recent changes in government and the trends highlighted in the most recent GEM Report.

The Small Business Forum (2006) recommended that policy should be focused on optimising the number of start-up businesses and (interestingly, in the context of this Workshop) in particular on maximising the number of start-ups aspiring to and achieving high growth. This fits well with an

‘innovative entrepreneurship’ where a policy statement would allow for clear links with other areas of enterprise and innovation policy.

The new Small Business Advisory Committee, chaired by Mr John Perry, Minister for Small Business and ‘Mr SME for Europe’ (who officially opened the Workshop), will obviously have a major role in this matter.

Education

Keith Hermann concluded that Enterprise/Entrepreneurship Education must be positioned:

- ♦ Putting entrepreneurship at the centre of higher education since that is what universities are about;
- ♦ Adopting a broad approach to entrepreneurship that situates it in a variety of settings;
- ♦ Strategic shift needed to reposition entrepreneurship education in the student experience.

There is need for a cultural change involving a commitment to entrepreneurial learning:

- ♦ Broadening the student experience — beyond new ventures to entrepreneurial behaviours;
- ♦ Entrepreneurial capacities to deal with uncertainty and complexity;
- ♦ Learning to design organisations for future competitiveness — New Industries New Jobs;
- ♦ Stretching the classroom-company projects, placements, collaborative working on new ventures.

The Breakout Session added:

- ♦ Two *‘teaching’* streams at 3rd level — general/technical — but cross-disciplinary co-operation (at least one ‘external’ team member — from other faculty/discipline); 10% of time on interconnectedness;
- ♦ *‘Teach the teachers’* and good selection criteria e.g. creative attitudes/approaches;
- ♦ Change Points system — thinking skills. Focus on attitudes and aptitudes.

Enterprise Education (EE)

Enterprise Education must be seen as a significant element of overall entrepreneurship policy that itself needs a framework within which to grow and develop its potential. Irish entrepreneurship education is perceived as vibrant and exhibits a wealth of local initiatives. However, the flip side is that it suffers from fragmentation and uneven quality across the system. There is a clarion cry for national co-ordination and coherence in EE design and provision. Good EE policy and co-ordination is therefore contingent on an explicitly articulated overarching entrepreneurship policy.

Research

Eucharia Meehan concluded by stressing that understanding what is happening in the Irish research and innovation ecosystem and preparing it to support innovative entrepreneurship are key tasks for the future.

While much has been done to take the HEI-related and wider research and education system in the direction of *‘innovative entrepreneurship’* still more can be done to get the voice of the entrepreneur/user fully taken into account in a systemic sense — with clear and adequate feedback loops and mechanisms. The new Small Business Advisory Group chaired by the Minister for Small Business may have further proposals in this regard, according to Dr Meehan.

Furthermore, demand-driven programmes and innovative entrepreneurship-related projects are now set to become a major priority in the context of new research priorities and socio-economic and policy research is important in allowing us to see where we are going and keeping us on the path towards embedding innovative entrepreneurship. At a more *‘corporate level’* and in the context of the strategies of higher education institutions, reflection is needed as to the role of innovative entrepreneurship and how it could be engendered and embedded.

The Breakout Session added the requirement for:

- ♦ A '*National R&D Priorities Centre*' focusing on '*applied*' needs;
- ♦ '*Translation/packaging*' of research findings — one pagers/meetings, etc;
- ♦ Interaction between physical and social sciences;
- ♦ Countering '*fear of failure*' — encourage risk-taking in HEIs as well as firms.

Applied Research Policies & Programmes

A fully-fledged Applied Research strategy is now a requirement as the role and needs of users and innovative entrepreneurs become increasingly recognised. This must be articulated as an integrated part of the '*national system of innovation*'.

Research on 'Research & Innovation'

The Workshop called for a programme of research on research and innovation the coming together of the Community of Innovation Researchers and the Irish Network of Teachers & Researchers in Entrepreneurship (INTRE) in order to strengthen research on both innovation and entrepreneurship and particularly on '*innovative entrepreneurship*'.

This Workshop Report is being sent to both the Minister for Small Business and the Minister for Research and Innovation, emphasising the need to address the innovation-entrepreneurship interface in a new way and the contribution of the presentations in plenary and discussions in the breakouts in helping to define the new agenda of '*innovative entrepreneurship*'.

APPENDIX 1: WORKSHOP ORGANISERS

A committee representing the Community of Innovation Researchers, Tom Martin & Associates/ TMA and Dublin Institute of Technology (DIT) was established to organise the Innovative Entrepreneurship workshop.

The committee members were: Dermot O'Doherty (Community of Innovation Researchers), Tom Martin (TMA) and Dr. Thomas Cooney and Paul O'Reilly (DIT).

Special thanks to Jim Mc Devitt (TMA) and Kieran O'Hea, Digitigm, for their inputs.

Community of Innovation Researchers

The Community of Innovation Researchers is an initiative to bring together academics and postgraduate students interested in innovation in Ireland. (www.intertradeireland.com)

The aim of the Community is to create a virtual community to strengthen innovation studies research in Ireland and its contribution to strategy, practice and policy.

Tom Martin & Associates/TMA

TMA are management and marketing consultants and have undertaken a major study of Entrepreneurship Education in Ireland for the South-East Regional Authority which highlighted the need for initiatives at the interface between innovation and entrepreneurship and a more comprehensive approach to the teaching of entrepreneurship in the Higher Education sector. (www.tma.ie).

School of Business, Dublin Institute of Technology (DIT)

The School of Business at DIT addresses the areas of innovation and entrepreneurship through educational and research initiatives in areas such as technology management and 'minority' entrepreneurship (in which it has been a pioneer) and also across the Institute's wide range of courses and programmes (www.dit.ie).

APPENDIX 2: WORKSHOP STRUCTURE

The workshop agenda is presented on the following page.



Innovative Entrepreneurship

Pulling on both oars together

WORKSHOP AGENDA

LOCATION: DIT Aungier Street, Dublin 2

DATE: Wednesday, October 26, 2011

REGISTRATION: 08.30 hours

08.30 REGISTRATION

09.00	Welcoming address	Professor Brian Norton President, Dublin Institute of Technology
09.10	Opening address: Innovative Entrepreneurship — policies and actions	Mr. John Perry T.D. Minister for Small Business
PLENARY SESSION: Policy & Practice in Innovative Entrepreneurship		
09.20	Plenary chairman	Chair: Dermot O'Doherty, Consultant on innovation and entrepreneurship
09.25	Innovative Entrepreneurship: Towards a new policy perspective	Mr. Robert van der Have, Research Scientist, VTT Technical Research Centre of Finland
	Respondent:	Professor Pauric McGowan, Professor of Entrepreneurship and Business Development, University of Ulster
10.00	Innovation and entrepreneurship in education	Mr. Keith Herrmann, Director, Higher Ed Research, UK
10.20	Innovation and entrepreneurship research—good practice structures and approaches	Dr. Eucharía Meehan, Head of Research and Capital Programmes, Higher Education Authority
10.40	Q&A	
10.50	Tea/coffee break	

BREAKOUT SESSION

11.00	Actions <i>To engender greater levels of 'innovative entrepreneurship', what actions should be taken by:</i> <i>(1) policy makers and support agencies,</i> <i>(2) educationalists,</i> <i>(3) researchers,</i> <i>(4) business organisations.</i>	Chaired by Dr. Thomas Cooney, Dublin Institute of Technology A period of 15 minutes will be given to identify required actions to be taken by each group and these will be compiled over the course of the Breakout Session.
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12.30 DISCUSSION

13.00	CONCLUDING REMARKS	Mr. Aidan Gough, Strategy and Policy Director, InterTradeIreland
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Background Note for Workshop and Entrepreneurship Education Report 2011: Tom Martin & Associates/TMA

A workshop report — incorporating plenary summaries, the main issues from the breakouts and the conclusions and recommendations arising for policy, education and research — will be distributed after the event.

Note: Attendance at workshop is by invitation only. Email: workshop@innovative-entrepreneurship.ie

Organised by the Community of Innovation Researchers, Tom Martin & Associates/TMA and DIT as part of Innovation Dublin 2011

Web: www.innovative-entrepreneurship.ie Email: info@innovative-entrepreneurship.ie

