

NUI Maynooth / Irish Times Training joint CPD programme

Building Innovative Capacity

The purpose of this professional development programme is to enhance the innovation capacity necessary to harness existing knowledge and convert it into effective business initiatives. There is growing realisation that effective innovation is much more than R&D and needs to connect with and align every dimension of an organisation/business. In this regard some central dimensions of innovation which the course will focus on are:

- Common models of innovation and the key principles and techniques involved
- Financing of innovation, sourcing the finance and how it should be managed
- The transition from knowledge creation to innovation
- Communication networks developed in companies and with external sources of technology
- Building innovation capacity in the progression to an innovation island
- The role of foresight in developing the strategic capacity necessary to establish a sustainably competitive economy.

The Department of the Taoiseach recently established an Innovation Taskforce the purpose which is to advise the Government on a strategy for positioning Ireland as an International Innovation Development Hub. The taskforce has received submissions from 112 stakeholders a number of whom highlight the need for an increased focus on professional development programmes as a driver of innovation.

The programme is aimed at scientists, engineers and technologists and also those engaged in the management and administration of these functions in both public and private organisations. The programme will comprise four one-day sessions (see Schedule below). A central component of the programme is a foresight approach relating to the three strategic presentations on the afternoon of day 1. Development of the foresight projects will be facilitated online between the modules. On the final day the reports of the foresight projects will be presented and discussed.

Programme Schedule

Opening Session: [From Knowledge Creation to Innovation](#)
[Fri 16th April \(Day 1\)](#).
Location: Irish Times Training HQ

9.30 am – Registration / coffee

10 am Una O'Hare, General Manager, Irish Times Training
Jim Walsh, Vice President for Innovation, NUI Maynooth
Jim Rice, Managing Director, Schneider Electric Ireland

11.30 am – break

Liam Downey, Course Structure

Lunch: 1 pm to 2 pm

John Sweeney – Climate Change - Post-Copenhagen – Implications for Ireland

Sean Doyle – Bioscience commercialisation- where to from here?

John Ringwood – Ocean energy - A solution to Ireland's energy needs?

Module 1: [Managing Innovation: Frank Devitt, Joe Cogan](#)
[Fri Apr 23rd 10 am to 1 pm \(Day 2\)](#).
Location: - NUI Maynooth

Module 2: [Financing Innovation: Pat Crehan](#)
[Fri Apr 23rd 2 pm to 5 pm \(Day 2\)](#).
Location: - NUI Maynooth

Module 3: [Communication: Liam Downey, Bob Lawlor, Sam Lyons](#)
[Fri May 7th 10 am to 1 pm \(Day 3\)](#).
Location: - NUI Maynooth

Module 4: [Networking: Tom Allen, Eddie Commins](#)
[Fri May 7th 2 pm to 5 pm \(Day 3\)](#).
Location: - NUI Maynooth

Module 5: [Developing Strategic Capacity: Liam Downey, Frank Devitt](#)
[Fri May 14th 10 am to 1 pm \(Day 4\)](#).
Location: - Irish Times Training HQ

Module 6: [Project Reports: Dermot O'Doherty, Liam Downey, Bob Lawlor](#)
[Fri May 14th 2 pm to 5 pm \(Day 4\)](#).
Location: - Irish Times Training HQ

Module 1

Defining Innovation Capacity

The Strategy for Science, Technology & Innovation (2007-2013) and the subsequent Smart Economy publications have articulated a vision “to make Ireland an innovation and commercialization hub in Europe”. To achieve this goal a high level of ‘innovation capacity’ must be attained. But what is innovation capacity and, significantly, how can progress towards this goal of an ‘innovation island’ be calibrated?

Innovation capacity requires the accumulation of three forms of capital, which are interdependent: human or knowledge capital, physical capital and social capital. To a considerable extent human and physical capital are innovation enablers that require an infusion of social capital to deliver social and economic returns. Social capital has been defined by Abramovitz as “the deeper elements of national culture that condition response to economic opportunity”.

Recent discussion on ‘innovation indicators’ has focused on distinguishing between different dimensions of innovation capability. The success of government policies that increase the stock of human capital are easily assessed, as indeed are public investments in areas such as support for public R&D and physical S&T infrastructure. Progress has also been made in measuring outputs from the innovation process, such as the number of firms introducing product or process innovation and, more recently, improvements in productivity due to resource efficiency. Less focus has been placed on measuring the innovation activities of the firm where innovation actually takes place: business R&D and non-R&D expenditures, linkages between innovative firms, public-private collaboration, entrepreneurial start-ups and more generally, absorptive capacity.

It is proposed to use the 2009 European Innovation Scoreboard to assess Ireland’s comparative performance in terms of innovation policies and resource inputs, across three dimensions namely, innovation inputs, outputs and innovation activities at level of firm.

Managing Innovation

Innovation is described succinctly as *‘doing something new that adds economic value through being adopted by a user’*, and there are many dimensions in which the ‘something new’ may be practised. Bessant and Tidd describe the 4Ps of innovation space, while Darrel Rhea describes the four sources of innovation. The OECD Oslo Manual (only in 2005) acknowledged that the measurement of innovation must recognise that it covers all of product, process, organisational and marketing elements. We will review some common models of innovation that define the broad scope of innovation practice that is appropriate for action in the modern business.

Business innovation is practised in a highly dynamic, multi-disciplinary, risk-essential, uncertain environment. Yet, it is well established that some companies consistently excel at innovation while others flounder. We will see how the best companies recognise innovation as a process that is amenable to good (and bad) management, and we will elaborate on some of the key principles and techniques used.

* Innovation Unit, UK Department of Trade and Industry, 2005.

* INNOVATION IS THE SUCCESSFUL EXPLOITATION OF NEW IDEAS.

Module 2

Innovation Financing

Innovation is no longer seen as an internal activity of the organization, but as a series of activities dispersed throughout its entire supply-chain or value-network. It is not understood in terms of new products alone, but also in terms of new services, processes and business models, new forms of organization, and even new tools, methods and practices of management. This has important consequences for questions concerning what activities need to be financed by innovation finance, where the finance comes from, and how it is managed. This module is intended to clarify these issues. It does not aim to be exhaustive. It intends, in a way that is practical and useful, to help managers ask the right questions about innovation financing and involve the right people in finding answers.

The activities that constitute innovation vary considerably from sector to sector. They depend on whether the 'client' is another business or an individual consumer. They depend on whether the innovation process is led by a start-up or by a mature organization. The module is therefore divided into three main parts:

- **Part 1:** What does innovation finance pay for?
- **Part 2:** What are the specific needs of start-ups and young business ventures?
- **Part 3:** How is this different for established organisations?

Part 1: It is not easy to apply cost-benefit analysis to innovation financing. There is a tendency to think of innovation in a research-centric way, but most inventions are carried out in the field of work, in a factory or on an assembly line, with partners or with clients. In most organizations these costs do not appear on any budget for research or innovation. This is referred to as 'hidden innovation'. It is only one of the reasons why it is easy to under-estimate the cost of an innovation or overlook much of the value it creates and there are many more. This module helps to clarify what innovation finance needs to pay for.

Part 2: New ventures and start-ups pass through distinct phases of development and their needs vary along with each transition. Patrick Crehan describes a typical start-up, its growth journey and the major hurdles it faces as it moves towards maturity. He focuses on the very early stages of development. In particular the innovation financing needs associated with the marketing of new ideas. He explains the role of boards and the importance of 'smart-money'. He talks about sources of finance and other support that include free-rooms, rich-uncles, research grants, incubators as well as seed, angel and venture funding.

Part 3: The innovation game is very different for mature organisations, especially in non science-based businesses. Patrick describes how the game is different. He explains how even cash-rich companies, and those that spend significant sums of money on formal research laboratories, can experience great difficulty in financing innovation. Their problems tend to stem from gaps in strategy and weaknesses in organization. Patrick describes these problems and provides examples of how they can be successfully addressed. Mature companies don't just require financing for innovation projects and programmes but for structures, infrastructures and processes that extend beyond the organization to what is effectively a global innovation supply chain. This is all about the financing of 'open innovation'. Patrick introduces tools to help organize and finance innovation in a way that SYSTEMATIC, OPEN and COMPLETE.

Module 3

Communication

With the predominant pursuit of knowledge creation over the passed decade or more, little attention has been given to the effective management of the accumulating reservoir of knowledge. Indeed with the disproportionate concentration on the creation of knowledge the impression could be formed that the transfer of the knowledge is expected to happen *by osmosis*.

In the transition to innovation-based economies immediate priority needs to be given to putting in place effective systems for the systematic management, harnessing, communication, transfer, uptake and application of existing knowledge. This would make a more immediate and essential contribution to building sustainably competitive economies than the generation of new knowledge.

Effective communication processes are an imperative requirement in harnessing existing knowledge and the transfer of this knowledge to potential users. However, in many respects communication is often the weakest link in the entire knowledge chain ranging from conceptualisation of the research hypothesis / question to product and process innovations.

The module on communication will include the development of:

- Knowledge Transfer Systems
- Knowledge Presentational Skills

FROM KNOWLEDGE CREATION TO KNOWLEDGE COMMUNICATION AND INNOVATION
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Module 4

Networking

Prof Tom Allen (via video link from MIT): What I would talk about is the topic of technical communication networks that develop among engineers in companies and how these networks connect with external sources of technology.

Dr Eddie Commins: In practical terms, the process of bringing ideas to cash is the aim of business innovation. There are many texts and papers discussing (at various levels) innovation, but for companies the key issue is the actual “doing” of it in practice.

Lundvall talks about learning by doing, by using and by interaction and this provides a reference frame from which we can work. Working from this, the objective is to bring companies to a high level of competence in the thinking, practices and tools of innovation.

Innovation is a social activity and the practices of team working and networking are central to achieving the very best innovation performance. The type, size and performance of the network can vary according to the learning needs and of individual companies and the extent of absorptive capacity deficit.

The network we will talk about was set up to improve performance excellence in Irish companies. The mix of companies included a range of SMEs (10 to 150 employees) and an exemplar MNC (Lake Region Manufacturing Ltd).

The learning process was designed and facilitated by Enterprise Ireland. It involved bringing together 35 companies, setting out the broad learning objectives and exposing the attendees to a phased presentational programme to set out best practice in the thinking, practices and tools of operations excellence. To embed the learning gained, companies were given “homework” with a view to presentation of their findings to the network.

The work of this network ended after a year’s work involving 5 meetings with homework in between. A number of companies used the knowledge gained to continue their own smaller networks. One of the networks, involving engineering companies is working very well with particular emphasis on building and sharing capability in the tools of engineering design and innovation.

Module 5

Building Strategic Capacity

Repositioning business and organisations in response to current and forthcoming challenges and ensuring that they move in new directions and pursue emerging opportunities requires well developed and properly informed strategic capacity. Weaknesses in this essential capability are common in many companies and public bodies. Engagement in a foresight project provides decision-makers and other key stakeholders with a participative forum for developing the strategic capacity necessary to consider alternative futures, perspective needs and forthcoming opportunities.

Foresight is a mutual learning process in strategic capacity building that is increasingly used in longer-term strategic planning in many countries. Rather than straying into a future determined by issues as they unfold, foresight provides a structured forum for developing shared understandings of the complex interactions between global drivers of change, international policy developments and vital national, regional and business prospects. It can play a central role in the transition from resource-based economies and the progression to sustainably competitive economies based on innovation.

At this daunting turning point in economic and social developments, organisational innovations may be more crucial determinants than technology in overcoming the complex array of competitiveness and sustainability challenges that must now be addressed.

The module on developing strategic capacity will include:

- The experiences gained in undertaking a number of EU and National foresight projects ranging from Science & Technology to Agri-food and the Humanities.
- The vital role which foresight can play in developing a sustainably competitive economic model characterised by responsibility, reciprocity and resource management.

<p>WE CANNOT PLAN THE FUTURE BUT WE CAN PLAN FOR THE FUTURE</p>

Module 6

Foresight Project Reports

In this final session the three foresight reports will be presented by a member of each of the three groups. The presentations will be followed by a questions and answers session to be chaired by Dermot O'Doherty. Following discussion of the reports attention will be given to the role of foresight in building innovative capacity.