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INNOVATION

Over 100 staff members attended the recent 'Knowledge Machine' conference held in DIT, Aungier St, in May.

Knowledge Machine conference a great success

Over 100 DIT staff attended the Innovation and Industry Services Knowledge Machine conference in DIT, Aungier Street on May 10th. Along with acknowledging the contribution DIT continues to make to the Irish economy through its interaction with industry, the event was also organised to encourage and support the institute's efforts in building world-class research and innovation.

All Faculties were represented as well as staff from Academic Affairs, External Affairs, the Learning and Teaching Centre and Central Services.

The Knowledge Machine hosted a combination of overseas and domestic keynote speakers and was supported by the Directorate of External Affairs and Enterprise Ireland. The conference was chaired by broadcaster David McWilliams who opened the proceedings with some pertinent quotes from a recent Global Competitiveness Index report (see p 2). This issue of Innovation contains a summary of the main topics discussed on the day for staff who could not attend. Presentation slides and a full report are on the staff intranet at:

http://intranet.dit.ie/km/

Competitiveness

Broadcaster David McWilliams who presents the TV3 programme Agenda as well as Newstalk 106's morning news programme, presented a summary of a recent Harvard report on competitiveness ranking at the Knowledge Machine conference. The report, he told us, broke down the competitiveness of 79 countries around the world into three areas:

Macroeconomic environment
Public Institutions Index
Technology Index

Ireland came 2nd out of 79 countries when the general business environment was taken into account (tax regimes and other issues that relate to the ability of the private sector to develop and grow).

When the regulation of institutions was analysed (primarily through the effectiveness of the Competition Authority) we slipped down to 18th position. But when it came to the index of competitiveness that used innovation as the yardstick, Ireland slipped further down the scale to 29th position.

This last index measured the ability to innovate in terms of interaction between industry and the Third level sector, the production of patents and in technology transfer.

As David said *'In this crucial area, we are miles behind the European Union and even Central Europe'.*

Competitiveness	Ireland's Ranking
Macroeconomic	2nd out of 79
Public Institutions	18th out of 79
Technology	29th out of 79

Global Competitiveness Report 2001-02 (Harvard University)

Events

The Faculty of Applied Arts in association with the NCAD, University of Ulster and eleven Institutes of Technology, have come together to host the 2002 ELIA (European League of Institutes of the Arts) conference in Dublin.

ELIA is an independent network of Arts Education Institutes, covering all the disciplines of the Arts: Dance, Design, Theatre, Fine Art, Music, Media Arts and Architecture, with approximately 350 members in 47 countries. It was founded in Amsterdam in 1990.

President Mary McAleese is Patron for the conference which will be held in Dublin from the 22nd - 26th October 2002. The conference will take place in a number of venues spread throughout Dublin, including the National Concert Hall, Dublin Castle, Irish Museum of Modern Art, City Hall, Arthouse and DIT Rathmines House and Aungier St.

Approximately 800 arts practitioners, educators and students from across Europe, the US and Australia will attend and be addressed by some of the most significant names in the arts in Ireland, Europe and further afield.

An extensive cultural programme which will showcase the creative work of Irish students and staff and other artists will accompany the conference. Papers from the event will be published in ELIA's refereed journal.

A glimpse into the future

Dr Chris Coughlan of Compaq Ireland began his talk at the **Knowledge Machine** Conference with a quote attributed to Alan Kay.

"Technology is what wasn't around when you were born"

He then led delegates along the technology and innovation pathway through the "3 Waves of technology" and beyond. His lively and attention-grabbing presentation emphasised the need to keep up to date with developments in leading edge information technology. Having moved from the agricultural age through the industrial revolution we are now in the digital age, he said, and on the cusp of the next generation of technology where innovation will focus on the visual, intelligent and personal.

Digital technology, he said, is the primary Innovation driver of the New Economy. He focused on five key elements of technology innovation, namely: creativity, change, connectivity, complexity and convergence.

He pointed out that successful companies will know what they are going to do with new technology before it becomes available, so they will be ready to deploy it as soon as it does become available. Technology is moving at such a rapid pace that it is fundamentally changing the traditional society and business landscape. But before delving too far into the future, Dr Coughlan illustrated the convergence of technology and how terminology is merging and how we have already been introduced to terms such as 'Edutainment', 'Infotainment' and "Viewsers" to describe these new combinations of technological development.

A glimpse into the future introduced us to mobile computing, biometrics, wearable computers and the prospect of interactive movies where the viewer decides what direction the story will take. The actor of the future he said, may well be hiring out his voice, body, eyes and ears - separately - to be used as the basis for computer simulated images on the big screen! Interactive product placement may be the marketer of the future's dream and nanotechnology, and quantum computers may form the basis of the next waves of technology.

HP's knowledge management

Hewlett Packard's Niall Connolly provided delegates at the Knowledge Machine with a fascinating insight into knowledge management and showed how it fits into an innovation culture. He told us about the hoarders of knowledge that exist in every organisation and how they could disrupt the whole process of innovation by keeping essential information to themselves. People management skills are needed to encourage these people to share their knowledge and incentives may need to be introduced to encourage them to pass their information on.

Niall introduced us to knowledge management theories such as those of Nonaka who talks about second generation knowledge management and knowledge as a social construct. The four elements of this theory are to Socialise, Externalise, Combine and Internalise with one element leading to the next. Within this structure he explained, people get ideas from sharing experiences with others, being mentored and so on (socialise). These ideas are combined with knowledge obtained externally and existing data and knowledge (externalise and combine). By trial and error and learning by doing (internalise) the knowledge is then passed on to those who learn by sharing experiences (socialise phase).

Innovation is not dependent on trust, he said but is to a great deal dependent on interactions between people and the development of networks. The hidden university he alludes to in his talk is made up of the numerous social interactions that take place on a daily basis and which if tapped into could provide us with an invaluable source of information.

Hewlett Packard and Compaq merged officially this year so perhaps Chris Coughlan and Niall Connolly will be working in partnership to create a knowledge management system within the next technology wave.

Leonardo programme

The second phase of the Leonardo da Vinci II (2000 to 2006) programme makes provision for five types of measures which can qualify for Community support:

- mobility
- pilot projects, including "thematic actions"
- language competencies
- transnational networks
- reference material

The programme does not usually fund training provision except for experimental applications to test new methods and products developed through Leonardo da Vinci pilot and language competence projects. There is also special provision for joint actions with related Community programmes and actions, particularly the Socrates and Youth programmes.

The three objectives of Leonardo da Vinci II are to:

- ***improve the skills and competencies of people***
- ***improve the quality of, and access to, continuing vocational training***
- ***promote and reinforce the contribution of vocational training to the process of innovation***

The Commission will probably announce a new Call for Proposals on it's website (see below) early this summer. A deadline of the 4th November 2002 for pre-proposals is expected. New priorities for all Procedure B and C measures (except for Thematic Actions) will include:

1) Valuing Learning
2) New forms of learning and teaching and basic skills in vocational and education training
3) Guidance and Counselling.

Further information will be available from the Commission web site in early summer. The deadline for Procedure A (Mobility) and Procedure B full proposals is the 14th February 2003.

Public and/or private bodies and institutions involved in vocational training can apply for Leonardo funds. These include:
- Research centres and bodies
- Undertakings, particularly SMEs and craft industry
- Social partners
- Local and regional bodies and organisations

Useful websites:
National site:
www.leonardo-ireland.com
European site
http://europa.eu.int/en/comm/dg22/leonardo.html
Call for proposals management web site
http://leonardo.cec.eu.int
Partner Search Database:
http://leonardo.cec.eu.int/psd

Focus on funding

Research and Industry Development

BIOIRELAND 2002 - November 13-15 Dublin

The first North-South Conference on Biotechnology will take place at the Royal Hospital, Kilmainham, Dublin in November this year. This is the first of 2 such conferences, the second of which will be held in Coleraine in 2004.

The primary aim of this event is to put the whole island of Ireland firmly on the global biotech map. Delegates can hear presentations from leading international speakers as well as speakers from both sides of the border. To date the following speakers have been confirmed :

Hartmut Michel - Max Plank Institute - Nobel Laureate

Carl Feldbaum - BIO USA

Hugo Schepens - EUROPABIO - Belgium

Donal Geaney - Elan Corporation - Ireland

Gerry McKenna - University of Ulster - Northern Ireland

John Atkins - Science Foundation Ireland - Ireland

Axel Kleemann - BioTec - Germany

Chris Barnett - University of Ulster - Northern Ireland

Paddy Johnston - National Cancer Institute - Northern Ireland

Steven Burke - North Carolina Institute of Biotechnology - USA

Further details at: http://www.biotechnologyireland.com

Professor Fottrell opens conference

After listening to David McWilliam's discuss competitiveness, **Professor Patrick Fottrell,** Chairman of DIT's Governing Body tackled this very issue in his opening speech for the Knowledge Machine conference.

Professor Fottrell spoke about the large resources that have now been made available for fundamental and applied research and the development of a world class research infrastructure.

As he pointed out, for many years there was very little research funding available and there wasn't a great deal of technology to transfer.

However, he said, this is all about to change. In the last few years, he said, exceptionally high quality research has been funded throughout the third level sector. He is convinced that over the next 2 – 3 years there will be a tremendous increase in technology transfer opportunities and applied research projects of benefit to the industrial sector.

The National Development Plan, he said has put aside €3.5bn (Ir£2.65bn) for research between 2000 and 2006; PRTLI funding is being used to help build up the research infrastructure and SFI funding has been put aside specifically for collaborative work between industry and the third level sector.

However, he also mentioned the declining interest of schoolchildren in science-related subjects and he said there must be an equally strong drive at the other end of the scale to reinvigorate an interest in science and technology throughout the secondary and primary school system.

'*We must make every effort to attract the best and brightest young people into science and technology'*, he said.

R&D News

Europe's leading researchers on the impact of endocrine disrupters on human health and wildlife are to be brought together under a new research 'cluster' supported by €20m of funding from the European Commission.

Endocrine disruptors cause changes in the endocrine system of humans and wildlife by interfering with the production, secretion or action of natural hormones in the body, in some cases to sterility or sex changes in animals.

The cluster, coordinated by the EDEN project, will involve 64 organisations in Europe, bringing a wide range of expertise and disciplines together to examine the effects these contaminants can have in the environment and their role in endocrine-related disease in humans. Research Commissioner Philippe

Busquin said the work, funded under the 5th Framework Quality of Life programme will complement ongoing efforts to assess the risk posed by chemicals in the environment and to the EU Strategy for Endocrine Disruptors.

'It is essential that we base our policies and regulations on sound science and that we invest in the

R&D News cont

reinforcement of our scientific capabilities to test chemicals on possible endocrine disruptive characteristics,' he said.

The EDEN (Endocrine disrupters) project will explore changes in gene expression caused by endocrine disrupters and look at the effects of exposure in aquatic life and laboratory animals. It involves 22 partners in 10 countries, with an €8.7m EC contribution.

The COMPRENDO (Comparative research on endocrine disrupters) initiative brings together 13 partners from nine different countries to examine the evolutionary effect of endocrine disrupters with a focus on androgenic and anti-androgenic compounds. It is being given a €3.3m EC contribution.

EURISKED will complete a multi-organic risk assessment of selected endocrine disrupters, bringing together 10 partners in eight countries and backed up by €3.1m of EC funds.

The FIRE project will examine brominated flame retardants as suspected endocrine disrupters in humans and wildlife. It involves 19 partners in 7 countries, with a €4.9 million euro EC contribution.

Other ongoing and future projects on endocrine disrupters will also be informally associated with the project through workshops and other means, with the aim of further enhancing European research capability in the area. For further information look at: http://europa.eu.int/eur-lex/en/com/cnc/2001/com2001_0262en01.pdf

Sorting out a patent

Technology transfer is a science in itself and needs to be done in consultation with key players such as patent agents. BTG's business is finding, developing and commercialising technology and **Dr Mike Murray** from it's health, medical and biotechnology unit gave delegates at the Knowledge Machine excellent advice on generating value from research and innovation.

Scientists are used to disseminating their research results to be peer-reviewed in journals and at conferences. But if you have made a scientific discovery that may be patentable and have commercial potential you mustn't let anyone know about your work until the intellectual property rights are legally secured, he advised. Dr Murray told delegates of occasions when researchers had lost huge sums because they were careless in this regard, presenting research results at conferences and then losing out when someone else commercialises the work.

But it is not just at conferences or in published reports that the patentability can be lost. Conversations over coffee, discussions on the internet and publications of abstracts are all potential disaster areas in this regard. When securing patents researchers must be very clear as to what exactly the invention is and who the other contributors are, if any. *'It's not always obvious what exactly is the invention'* he said. *'You need to ask yourself who else were you working with?'*. Researchers should know who would want to use the invention and why. There is no point finding a solution to a problem that doesn't exist, he said.

In the first instance he recommended dealing with the local industry contact in this area (which in DIT's case is the Faculty Innovation and Industry Services office). The next stage will involve the employment of a patent lawyer or agent and making a proper patent application. Confidentiality agreements must be signed to get some degree of exclusivity. It may cost about €40k to generate full patent following the PCT route.

Once the patent is filed, this leaves you open to licence your idea and for someone else to make money from it, but to pay you a royalty. Alternatively you could set up a company and generate your own income. There are many possibilities at this stage. Linking up with a company such as BTG is one option, but Mike did say that whatever option you choose it's worth paying for good advice at this stage as you will save money in the long run.

Technology Convergence

In his presentation at the Knowledge Machine conference, Compaq's Dr Chris Coughlan told us how technology convergence will affect the development of an information society.

Around about the same time the European Commission's Enterprise and Information Society's Commissioner Errki Liikanen was also talking about the convergence of media platforms.

Addressing a conference on media convergence in Europe and the Americas he said the convergence of different technological platforms is 'transforming society' by changing the way companies and individuals behave and interact.

Mr Liikanen said convergence will help reduce the 'digital divide' between those with and those without access to new technology. *'With a wider choice of platforms and networks, we will increase inclusion. There is far less reason for anyone to be excluded on the grounds of geography, skills or capabilities',* he said.

He called on public authorities to establish clear political priorities and policies to de-couple content from networks and make it available to a wider audience.

Mr Liikanen also highlighted the close link between convergence and business creation.
'Entrepreneurship is closely linked to convergence as we envisage it. Local initiatives that exploit cultural diversity should be able to flourish', he said.
He added that these new developments will require new partnerships to grow up, such as those fostered by the European Union through its research and development IST programme, which is open to non-European organisations.

The Commissioner also emphasised the role digital television can play in opening up the information society to all. He gave the example of Latin America and the Caribbean where 27 out of 100 inhabitants owned a TV but only 8 out of 100 owned a PC. As more inhabitants owned a TV they would have greater access to information society applications such as e-government and e-health through this medium.

The EU is committed to supporting the introduction of digital terrestrial television in these countries, he said, and to share advice and experience to help achieve this.

Researcher profiles

DCU's Professor Conor Long was in DIT recently to demonstrate their Research Support System to the DEA, Offices of Innovation and Industry Services and the Heads of Research Strategy.

A comprehensive profile of DCU researchers is accessible through this fully searchable knowledge management system. You can access this at the following web address: http://rss.dcu.ie/GeniusSearch/genius.asp.

DCU researchers are responsible for keeping their own profiles up to date and they can access their personal file remotely from anywhere in the world. DIT is considering implementing a similar system for its staff and to become part of a network of universities that have agreed to do the same.

Companies and individuals can search for particular expertise on the system and can contact individual researchers directly. By registering keywords on the site individual researchers will receive information automatically on funding opportunities relevant to their particular area of expertise.

To encourage researchers to keep their profiles up to date DCU has also introduced a procedure where staff applying for new positions or promotion no longer submit their CV's with their application forms. The personnel department download applicants profiles from the database and use this in the recruitment - an obvious incentive to keep it up to date!

Why don't you log on to the DCU site and tell your local head of Research Strategy or IIS Office what you think?

Encouraging entrepreneurship in the UK

Proposals for a new package to support first time entrepreneurs and growing businesses, particularly those run by members of under-represented groups, has been announced by the UK Minister for small business, Nigel Griffiths.

The initiative is aimed at boosting the UK's enterprise culture and encouraging more people to set up their own business, particularly women, people from ethnic minorities and those from disadvantaged areas.

'We're determined to create a culture of enterprise where entrepreneurs from all walks of life are given the skills and confidence to put their ideas into practice,' said Mr Griffiths.

'We're also keen to increase the take-up of business advice, as it can make a big difference to success or failure. We're going to drive up the quality and relevance of advice to make more businesses consider using it,' he added.

The proposed package includes:

- a starter pack for all prospective entrepreneurs, explaining what assistance is available and what they need to do when setting up a business

- boosting business success by increasing the numbers seeking advice and improving the standards of business advisors (research shows that those firms taking up advice are 20 %more likely to survive than those that don't

- setting up a national policy forum for start-ups to improve coherence of delivery, ensure services meet customer needs and review existing initiatives

- improving electronic access to information

- encouraging more entrepreneurs to act as role models.

Research and Innovation

Spain is continuing to promote the idea of a European research and innovation area as a way to address the gap between academic research and industrial innovation, Dr Arturo González Romero, Director General of technology policy at the Spanish Ministry of science and technology, has said.

Speaking to Euroabstracts, a publication funded by the Innovation and SME's sub-section of the Commission's Fifth Framework programme, Dr Romero said that the EU must transform the European research area (ERA) into a European research and innovation area.

'The EU has a long experience of the Framework programme and has learned from its earlier versions. Now we're trying to address what has been called the 'European paradox', that is, trying to make good the European weakness in transforming research of the highest standard into industrial development and this, in turn, into commercial results,' said González Romero.

'Innovation is a key component of the technological policies of the countries of the Union,' he added. Spain has recently transformed its own R&D plan into the plan for research, development and innovation, whilst introducing tax incentives for innovation, which were previously restricted to R&D.

Public and private investments in telecommunications, the environment and biotechnology will help the EU to overcome the belief that *'Europe is very good at turning euros into research, but poor at turning research into euros,' said Dr Romero.*

The European Commission's Enterprise DG has announced a call for tenders for a study on 'e-commerce and e-administration friendliness of legislation establishing requirements notable for the protection of health and safety, and if applicable, of public security, on the manufacturing and delivery of certain industrial products, as well as on the provision of certain services in the European Community'.

The study is divided into two lots: product legislation and service and taxation legislation at Community and national level. The study will focus on the areas not covered by the e-commerce directive .

The deadline for requesting tender documents is 18.06.2002. The deadline for submitting tender documents is 24.06.2002.

Partner search

CORDIS, the European Commission's Research and Development Information service, has updated its Partners Service in preparation for the forthcoming Framework programme for research- FP6.

The service covers partnership requests from companies, research institutions and universities across Europe and the world. It offers fully updated records to ease partner identification, consortium building and the promotion of competencies or needs.

In the new version, all partner descriptions have been reviewed and updated. In addition users can express their interest in specific FP6 thematic programmes. The profiles of more than 5,700 organisations are currently available.

The free service is a key tool in finding research partners and building new networks.

The Partners Service can assist organisations in taking part in the forthcoming research programmes and new instruments.

A more user-friendly and interactive service will soon be launched offering improved features for the creation of profiles and the search for European partners.

To access the Partners service log on to:
www.cordis.lu/partners-service

R&D News

Delegates from Europe's major mapping agencies met to discuss the future of automated map generalisation - technology which helps shrink maps to a smaller scale without distorting them - at a workshop in Cambridge on the 2nd and 3rd May.

Representatives from seven EU Member States gathered at the headquarters of geographic information company Laser-Scan to discuss aims for the future and identify new areas for research.

The seminar was held as a follow-up to AGENT, a three-year project to develop new techniques for generalisation supported by €1.2m of funding under the information society programme of the European Commission's Fourth Framework programme for research.
The project consortium included

France's Institut Géographique National and the Universities of Grenoble, Zurich and Edinburgh as well as Laser-Scan.

Laser-Scan managing director Dr Michael Sanderson said it was *'very exciting to see continued pan-European cooperation taking place - we look forward to seeing the resulting developments*.'

The Lisbon summit's target of making Europe the most competitive knowledge-based economy by 2010 will not be met unless improvements are made in its competitive and productivity growth levels. This is one of the main conclusions of the European Commission's 2002 competitiveness report, published on 23 May.
'The recent productivity and growth performance suggests that this strategic [Lisbon] goal will be missed,

unless the Member States and the Commission show more determination in pursuing economic reforms,' said EU Enterprise and Information society Commissioner, Erkki Liikanen.

The report focuses on the specific areas of skills and education, productivity in the services sector, sustainable development in manufacturing and the relationship between competition and enterprise policy.

Skills shortages are evident in Europe in the fastest growing service sectors: general business services and health and social work, as well as in manufacturing. Medium and high skills demand has already outstripped demand in all Member States with the exception of Austria and Sweden.

Arts Council Project funds

The Arts Council has announced funding for projects to assist the 'devising, exploration and implementation of creative ideas in any artform or combination of artforms'. The emphasis is on the creation of new work, experimentation and innovation. This scheme funds the development and/or production phases of artistic projects of up to 5 years. It's open to artists, organisations and other individuals. **Award range: Up to €20,000, Closing date August 31st.** Application forms and more details will be on it's website shortly www.artscouncil.ie

EI roadshow

Enterprise Ireland is kicking off its 2002 season of Technology Roadmap Seminars in early June. The first seminar of 2002 is on the subject of Software Development Tools.

Their guest speaker is Wassim Ahmed, VP of Applications Development with Computer Associates in the US. He will be giving his opinions as to the real usefulness of the current generation of software application development tools and systems. He will also discuss his hopes for the next generation of technology led improvements in this area.

Are software development tools really worth the resources in time and effort, will they shorten your development cycle, allow you to reuse code, make product maintenance easier or just become yet another overhead?

Computer Associates is rated as the fourth largest developer of software applications in the world and also has its own direct technology interests in the tools for developers space. Mr Ahmad will be joined by other industry speakers for the event which is to be held on the afternoon of the 6th of June in the Alexander Hotel, Dublin. Admission is free of charge to those who book in advance and places are limited.

If you are interested then contact Gearoid Mooney (gearoid.mooney@enterprise-ireland.com) at Enterprise Ireland, for more details and an invitation.

New World IQ

Dr Canice Lambe, from Trinity, co-founded the forerunner to New World IQ towards the end of his PhD studies. In one of the three Knowledge Machine workshops he described how his business has gone from strength to strength since re-positioning themselves in 1999.

In the early days he and his partner worked on small projects of short duration, had little experience of large projects and weren't working to their own strengths.

However, recognising this they focussed on offering their clients a customised solution built on their basic product and targeted early adopters of the Internet. With their main strengths in their technological expertise, their business skills were weak and crying out for assistance.

They made a decision in 1999 to take on a CEO with a proven track record in fundraising and business development. What's more, as he had been a member of their board he was fully aware of the developments within the company and could recognise its potential.

Initially they took on extra sales people in an effort to bring in more money, but this started to cost them and they eventually concentrated on a clear strategy and the development of a clear niche market positioning.

By 2000 they had released an email marketing software package and had

raised extensive funding in a difficult climate. Midway into 2001 they realised they would need more funding to allow them access to a broader US base so they merged with IQ Commerce and employed a US-based

CEO. So, just 2 years after making the decision to take on someone to focus on the business end of things and concentrating themselves on product development they turned the company around and developed it into a world player, currently employing 70 people.

Development work is still being carried out in Ireland but they are now very clear about their positioning within the industry.

'*Be big in a very small market*', said Dr Lambe, *'look at a niche market where there is little competition that you can defend against new entrants'.* '*Pick one type of business (based on best price, product or customer service) and build your business around it.'*

IdentiGEN

Ciaran Meghen CEO of IdentiGEN presented his case study at the Knowledge Machine workshop.

He was a young student researching his PhD in Trinity when he recognised the potential application of DNA testing as a means of tracing meat samples from farm to fork. In the late 1990's consumer confidence in the beef industry was at an all time low and issues such as the beef tribunal, illegal use of artificial hormones and increasing numbers of BSE cases were affecting sales of Irish beef worldwide.

Using an Enterprise Ireland CORD grant, initial research led to the establishment of a campus company based in Trinity. Under its campus company policy Trinity took a stake in IdentiGEN and helped the company establish itself in one of it's incubation centres. Being associated with Trinity's Institute of Genetics has obvious benefits to the company as they can draw on the very strong research tradition that has been built up in this area.

IdentiGEN's initial focus was on the development of TraceBack™

a DNA based traceability system. This patented technology was piloted by AIBP in conjunction with Superquinn in 1998 leading to is first commercial contract in 1999. TraceBack™ is now operating in a number of countries worldwide and was adopted by Superquinn for its own use in 1999. In fact at the World Meat Congress in Dublin, in 1999, Senator Fergal Quinn gave IdentiGEN a major boost by recommending its TraceBack™ system while giving his keynote speech to delegates representing the top meat companies in the world.

The test methods being used are not unique, however patent applications were accepted on the basis that they were able to prove that their overall system, application and business process was novel. Samples are taken from the animal either in the farmer's field or at the abattoir and stored for verification. Any samples taken further along the food chain can then be matched to its original sample providing a verifiable method of establishing origin. This system has obvious quality assurance benefits as well as many other potential applications such as detection of fraudulent organic claims.

IdentiGEN has licensed local laboratories worldwide and has since developed a qualitative and quantitative GMO testing service based on

DNA isolation and Polymerase Chain Reaction (PCR) analysis.

Ciaran provided some pearls of wisdom for those interested in commercialising their research or setting up a campus company:

You must be able to take an idea, sell it, and show results that impact significantly on the business.

While experience of business broadens extensively, building relationships takes time.

Profit is nice but cash is the killer! If you don't have the cashflow then you don't have a business no matter how profitable it may seem.

The emergence of competitors is flattering and you always have the advantage of having got in there first and having developed a name for yourself. But you must keep ahead of the pack and defend your market.

He quoted Chris Horn who's advice he has followed - *'Don't get too elated or too depressed'*

Finally, he said, he has found that in the end *'traditional persistence prevails'.*

EC issues call for proposals

The European programmes in the fields of education (Socrates), vocational training (Leonardo da Vinci) and youth (Youth) share a common aim to create, at European level, the conditions in which learners of all ages are able to acquire the experience, knowledge and skills they need to live work and actively participate in today's society.

Joint Actions provided for in all three programmes provides funding

for initiatives that go beyond the field covered by each single programme.

The European Commission has recently launched the call for proposals for Joint Actions for 2002 in which three priority themes have been identified:

1. Social integration of target groups
2. Active citizenship of young people
3. Local guidance networks

One project will be selected for each thematic area. Funding will be in the region of €200,000 to €250,000 (theme 3) per project for a duration of 2 years commencing on 1 November 2002.

Potential promoters/participants will be transnational partnerships of organisations with experience at European level in the relevant thematic area. The deadline for completed applications is 30 June 2002.

Magnetic Solutions

Dr David Hurley heads up the campus company Magnetic Solutions Ltd. The company was formed on the basis of research that he and Professor Mike Coey of TCD had developed in the area of permanent magnets. Much of this research was funded by the EU under the CEAM initiative. During the Knowledge Machine, David talked about the challenges the company faced in trying to identify the 'real' market for their technology and took the audience through Magnetic Solution's particular innovation path.

The company is now positioned in what is termed the magneto electronics market and sells to the semiconductor and data storage industries. It is the market leader in magnetic annealing for magneto electronic devices. Customers include Seagate, IBM, Motorola, NEC, Sony, Cypress, TDK and Micron and the company's annual revenues currently stand at €8m with growth rates of 200% year on year. Magnetic Solutions has a strong core of IP and technology development. Head office is in Dublin and there are service support units in USA and Japan. The company currently employs 40 people.

Magnetic Solution's main product is the MRT Annealing Tool, which is an impressive piece of technology used in the manufacture of MRAM chips and high density disk drives. It encompasses leading permanent magnet technology; high vacuum oven technology, optimised process control and automated wafer handling robotics.

So what were the lessons David Hurley had to share with the audience? In terms of developing a company in a campus environment, he had some specific recommendations. He explained that he didn't believe in this concept of a campus company, where the perception is that it's all very relaxed and unstructured. '*There is no such thing as a campus company*' he said, and explained that you either have a company or you don't.

If you are setting up a company, campus or otherwise, it is a legal structure and there are legal obligations and requirements attached to that. In addition there are financial and resource commitments such as employing staff. With that background, David recommended thinking seriously about this aspect, suggesting that there were many structures in the university environment which could be used in the initial stages of the business development, particularly ones which have lower burn rates. He stressed that "being a company is a full-time job, or someone's full-time job" David made a number of other recommendations.

- Have a good lawyer on board, because not only will the other side have a full legal department behind them, but ultimately it can save major problems in the future.
- Put monetary value on things, even in the early days, e.g. equity, IP, use of facilities, college name, your time, etc. which helps you analyse worth in the future.

Research Strategists

Dr David Kennedy one of DIT's 6 Faculty SLIII Research Strategists outlined the main functions of the research strategy SLIII's at the Knowledge Machine conference.

Their functions include the development of a Faculty research plan and a strategy to put this in place. James Walsh (Science research SLIII) is currently working on an overall research strategy based on the individual Faculty reports already developed.

David explained that they also have a role in the establishment of research structures within their own Faculties and in the setting up of research teams to work on particular themes identified as being crucial to the development of research within their Faculties. The SLIII's also help researchers to put together comprehensive research proposals for funding such as those recently completed for Strand III funding.

Further responsibilities include expanding the research student base and developing scholarly activity in general as well as facilitating collaboration between schools, departments and Faculties in DIT and with external partners.

Dr Kennedy also informed delegates that there were currently 70 M.Phil students funded under Strand I, 23 fulltime and 37 part time PhD students as well as 20 postgraduate students applying to PhD transfer. He gave examples of research currently being undertaken with funding from the PRTLI scheme (Focas, radiation and health informatics projects), Strand III, RIF, Innovation partnerships, SFI, Seed, and basic research grants.

Innovation and Industry Services

"The university is at the centre of a vast network of intellectual, social, economic, cultural relationships increasingly global in their reach………The test for universities is, essentially, their readiness to mobilise the enormous talent at their disposal." Prof Malcolm Skilbeck

'The major innovative steps over the past 30 years have resulted primarily from academic research', said Margaret Whelan (Head of Innovation & Industry Services [HIIS], Faculty of Engineering) in her presentation on DIT's new commercialisation services available through the offices of Innovation and Industry Service (IIS). In fact, she said, many new products and processes could not have been developed at all without proper collaboration between academia and industry. Margaret, and Andy Maguire (HIIS, Faculty of Business) were responsible for the organisation of the Knowledge Machine (KM) conference which was the first staff event run by the Heads of Innovation & Industry Services (HIISs) to promote links to the enterprise sector and opportunities for the commercialisation of research.

Professor Skilbeck in his report on the Irish University sector pointed out that in common with other countries, Ireland is now being challenged to meet the requirements of a fast growing economy and changing society. While it is not evident that there is any threat at present to the survival of any of the Irish universities, he said, there are major changes in orientation and style that are called for.

One of his main recommendations was to strengthen links and partnerships with industry, the community and the institutes of technology to achieve a more open style of operation and closer integration with the community. In its own strategic plan DIT has also recognised the importance of working with the

enterprise sector and has chosen 'Closely Allied with and Responsive to Industry' as one of it's key strategies for development over the next 10 to 12 years.

The HIISs function is to work closely with industry and other external bodies to identify and promote applied research opportunities to DIT staff. They will also assist in the organisation and management of these opportunities. As well as bringing industry to DIT through it's newsletter 'Innovation', the HIISs will bring industry into DIT for seminars, workshops and 'Industry Days' to facilitate networking opportunities and greater interaction with the enterprise sector. The Innovation newsletter will also highlight to industry the type of applied research projects already in progress throughout DIT in collaboration with industry partners.

A comprehensive guide to funding which will be regularly updated will be available centrally on the staff intranet over the coming weeks and the HIISs will be on the lookout for funding from external agencies for the establishment of incubator units, campus companies and centres for innovation.

The HIISs can also provide advice and assistance on Intellectual property, patenting, campus company programmes and technology transfer opportunities.

An Innovation and Industry Services site has been set up on the staff intranet but a more comprehensive one is planned for the new website currently being developed by Windmill Lane. A database of research expertise is also being looked into with the research SLIII's and new financial procedures are being put in place to take some of the administrative pressure off researchers themselves. Margaret is providing conference Secretariat support to the Faculty of Engineering's forthcoming International Conference on Materials and Tribology (MT2002).

New alumni officer

Georgina Higgins, a UCC graduate, took up her position as Alumni Officer on 8th April this year. Georgina comes to us from Dundalk IT where she worked as a consultant in the establishment of an alumni relations programme at the Institute. Georgina also worked in Cork IT for six years where she managed a number of EU-funded projects and later established and lead their alumni relations programme. Georgina has several years experience in event management, working as a Conference Organiser for Eutelsat, a pan-European organisation based in Paris.

She is currently working on a number of projects including the establishment of an alumni e-mail directory so regular news bulletins can be sent to alumni by e-mail. The launch of a new affinity credit card and the development of a new alumni website are also on her list. The website, due to go on-line this September, will include an alumni news section, information about events and reunions, on-line registration, an optional e-mail directory and a noticeboard where alumni can leave messages for old friends. There are many ways that the Alumni network can be of benefit to the Institute, for example, in the area of public relations, careers, industry co-operation and life-long learning. Georgina will be pleased to develop or facilitate further areas of co-operation and can be contacted at: tel. 402 3435, e-mail: alumni@dit.ie, Further information is also available on the Alumni website: http://www.dit.ie/admin/ext_affairs alumni/

Start-ups in the biotech industry

The closing presentation at the Knowledge Machine was made by **Dr Robert Erickson**, CEO of nEUtek*Bio*. After working with major pharmaceutical companies for over 30 years as well as being adjunct Professor at Notre Dame University, Dr Erickson moved to Galway where he is currently designing products that optimise treatments for infectious diseases and cancer.

Illustrating his talk with many incisive anecdotes taken from his life as a "serial entrepreneur" in the biotech industry, he told the audience how, in an ideal world, research should be commercialised..

In theory, he said, a scientist makes a discovery, validates it, takes out a patent, goes to the technology transfer office with his patented idea and product development and commercialisation develops from there. But in reality the scientist needs to link directly into the college's technology transfer office and industry links program at the earliest opportunity because they will already have contacts with investors and entrepreneurs and be more knowledgeable about the technology transfer process.

The key players, he explained, in a potential biotech start-up are the scientist, entrepreneur and investor who work closely with each other and with the technology transfer office. The scientist has the knowledge, expertise and links to other experts in the field but needs the entrepreneur to take it to the marketplace, sell the idea and focus on the business elements. The investor has the intuition and knowledge to make the decision to invest and will often have links with the entrepreneur, or be able to put the scientist in touch with one. Entrepreneurs in the US have been known to prowl the corridors and campuses of Universities where leading edge biotech research is taking place, searching out potentially lucrative applications for ongoing research projects.

Within the biotech industry the risks are extremely high but because of the nature of the business and with patent protection, stakeholders and society as a whole can, if successful, reap huge awards. Dr. Erickson recommended using venture capitalists as the source of start-up funds because they know what they are at and understand risk, unlike family and friends, for example, who may be happy to contribute at the beginning but who may have unrealistic expectations and a likely limit to their funds as the project moves on.

Dr Ericksson then showed us how San Diego County became a leading Centre for the Biotech industry primarily through major investment into Biotech research that has led to the establishment of over 300 companies as compared to Ireland where 30 companies (primarily manufacturing) are based.
In summary, he said that in order to develop and maintain fast growing, knowledge based industries there is an absolute necessity for a firm business and intellectual support system to be in place.

Sustainability conference

A conference on local sustainability indicators, hosted by the Pastille research consortium and the European common indicators initiative, will take place at the London School of Economics on the 12th and 13th September. The conference will mark the completion of the Pastille research project, which was funded under the key action 'City of tomorrow and cultural heritage' of the Fifth Framework's 'Energy, environment and sustainable development' programme.

The project analysed the way sustainability indicators are developed through a series of case studies in four cities. Key findings on the ability of indicators to bring about effective change in local policy making will be compiled into a practitioner's guide, to be launched at the conference. The research consortium consists of teams from the UK, France, Austria and Switzerland. The conference will also present the findings from the pilot stage of the European common indicators initiative, involving over 80 local authorities.

The conference is expected to be particularly useful to practitioners and decision makers from all policy areas seeking to develop and use indicators to measure change. The presentations of innovative research are also expected to benefit those involved in sustainable development, urban development and working in these areas. More info from pastille@lse.ac.uk or www.lse.ac.uk/depts/geography/pastille

What you thought

A discussion took place at each of the Knowledge Machine workshops on the "Future of Innovation at DIT". These were summarised by **David Kirk** (Faculty of Built Environment).

Rather than looking at the barriers to innovation the discussions focussed on solutions and a list of suggestions were made to move the process further along.
The findings and recommendations were summarised under three headings: Flexibility, Communication, Innovation Culture.

A precursor David discussed was the recommendation from the groups that a thorough examination of best practice elsewhere should be undertaken at a very early stage to ensure DIT learnt from those that were at a more advanced stage on the route to innovation.

Flexibility within lecturing contracts
was suggested to allow for the equal recognition of innovation in teaching and innovation in research expertise.
Some individuals may not be as interested as others in academic or applied research but were excellent at teaching and at introducing their students to innovative methods of teaching. Those with this sort of a bias could take on more teaching hours leaving the researchers freer to do more research. They felt that the contracts should play to staff strengths and be more flexible in this way.

A more flexible approach to the allocation of teaching hours would also allow lecturing staff complete their teaching hours over two days and leave them free to carry out research on other days. A researcher who successfully applies for research funds should be "rewarded" with a consequent reduction in teaching hours and a clear benefit to the individuals putting in the extra effort.

Staff felt that greater **communication** on research taking place throughout DIT and between staff members interested in research would help to encourage an interest in research among others. Networking events, the establishment of a research "club" and running more research seminars were suggested.

The group felt a Centre dedicated to Research (similar to the Learning and Teaching Centre) should be set up to help researchers to provide advice and information and courses on research related activities. And like the Teaching and Learning Centre's Showcase event, there should be an equivalent Research Showcase event each year with an equally prestigious President's award for excellence in Research.

This Research Centre would complement the work being carried out by existing staff including those in the Innovation and Industry Services Offices, Research strategists, and the Heads of Industry Development and Research.

It was also felt that much more information should be available centrally to alleviate administration overload. A further recommendation was, that DIT should market its research skills to industry through the organisation of events such as Industry Open days.

Finally, the group agreed that one of the most important factors underpinning the expansion of research in DIT was the development of an **Innovation Culture**. The value and benefit of research must of course be recognised by DIT.

Outstanding policies and procedures on campus companies and the generation of IP should be introduced without delay and a pro innovation environment needs to be established. Evaluation of research proposals must be wholly transparent and forums for constructive feedback set up. The commercial potential of research proposals that are put forward for assessment needs to be evaluated and a team of experts in this area developed from within.

In the closing speech, Dr.Brendan Goldsmith congratulated the HIISs for initiating the Knowledge Machine event. In the context of the conference theme, he said that he looked forward to DIT's autonomy which would see the Institute implementing policies and procedures that would facilitate staff in their pursuit of research and innovation activity. He acknowledged the importance of the forum to DIT and thanked all the speakers for their contributions.

Offices of Innovation and Industry Services

Heading up the Industry Development Office is Bernadette McLaughlin who is based in Pembroke St (402 3309). She is responsible for each of the six Innovation and Industry Services Offices - one for each Faculty - and the Industry Centres associated with them.

The position of Head of Innovation and Industry Services has evolved from the old one of Industrial Liaison Officer. The title change is designed to reflect the changing responsibilities and roles of the job and its function within a responsive dynamic organisation.

These Heads of Innovation and Industry Services (HIISs) oversee the development of industry-funded research, development, consultancy and training activities in addition to interacting and supporting our Industry Centres, of which there are currently twelve across a range of disciplines.

Each HIIS identifies and facilitates research, consultancy and development opportunities for his/her faculty. They also keep abreast of EU and national funding programmes that may provide opportunities for faculties to develop research activity.

The Heads of Innovation & Industry Services can also provide advice on technology transfer, intellectual property and the setting up of campus companies.

Working together as a team the HIISs have a number of projects in the pipeline including Innovation seminars, a series of newsletters and a Guide to Funding.

Over the next few months they will conduct a marketing campaign to inform industry of the wide range of expertise available throughout DIT.

Research Support

As part of the ongoing development of the Research Support Unit, Colin Cooper, Head of Research Administration at UMIST has been invited to give a presentation to DIT. The presentation will focus on details of UMIST's Research MIS system. Those who may be interested in attending should contact their Head of Innovation & Industry Services

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Newsletter items

If you have any items that you would like to include in forthcoming newsletters or if you have any comments on the content of this issue please forward to Jean Cahill, Head of Innovation & Industry Services, Faculty of Tourism & Food, Cathal Brugha St, Dublin 1.