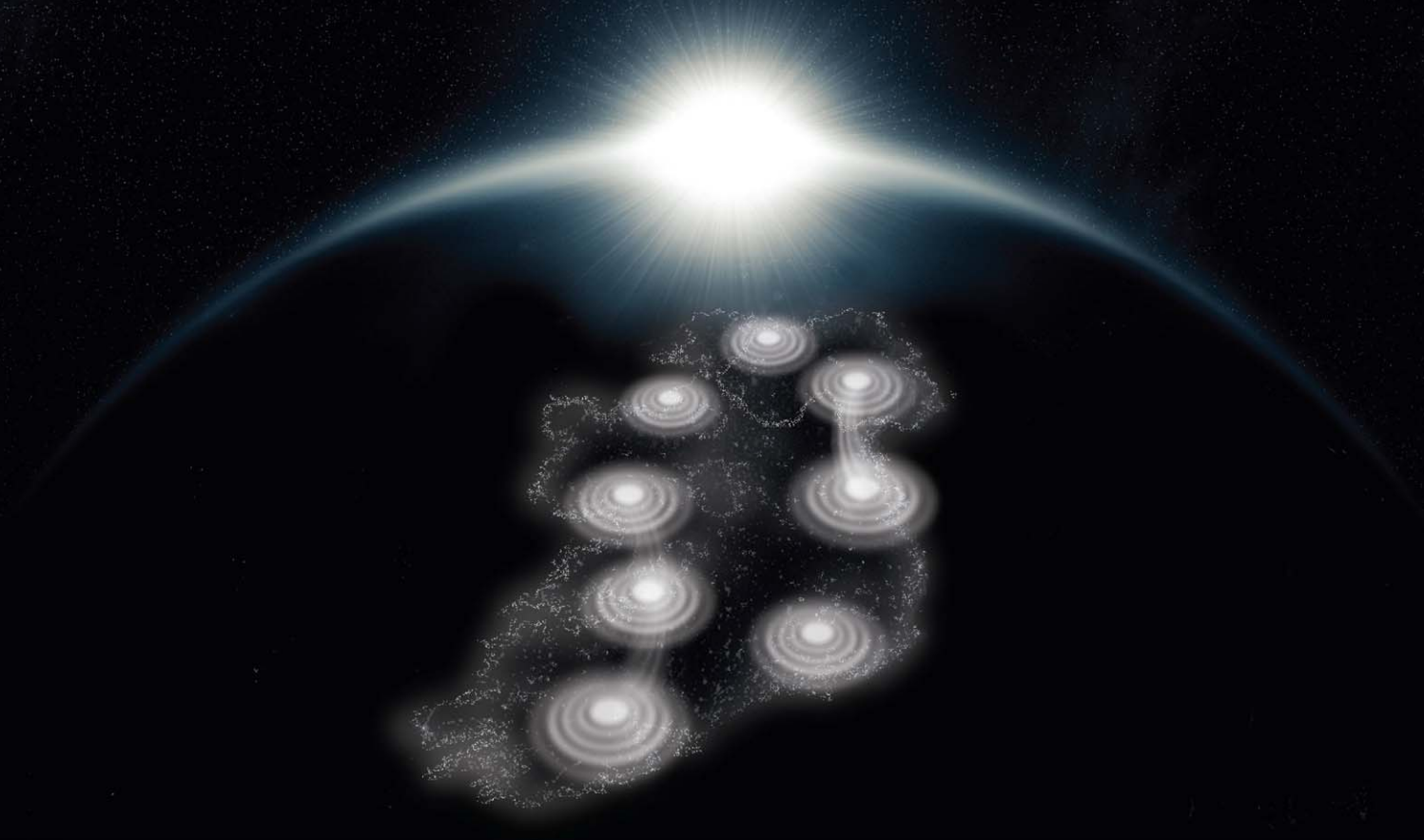


# Infrastructure for an island population of 8 million



February 2010

## 04 | TASKFORCE MEMBERS

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Chairman, Veolia Environnement Ireland, formerly Chairman, National Roads Authority

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formerly Managing Director, ESB International

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Environmental Consultant, formerly Director, Environmental Protection Agency

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Dublin City Engineer and Director of Traffic

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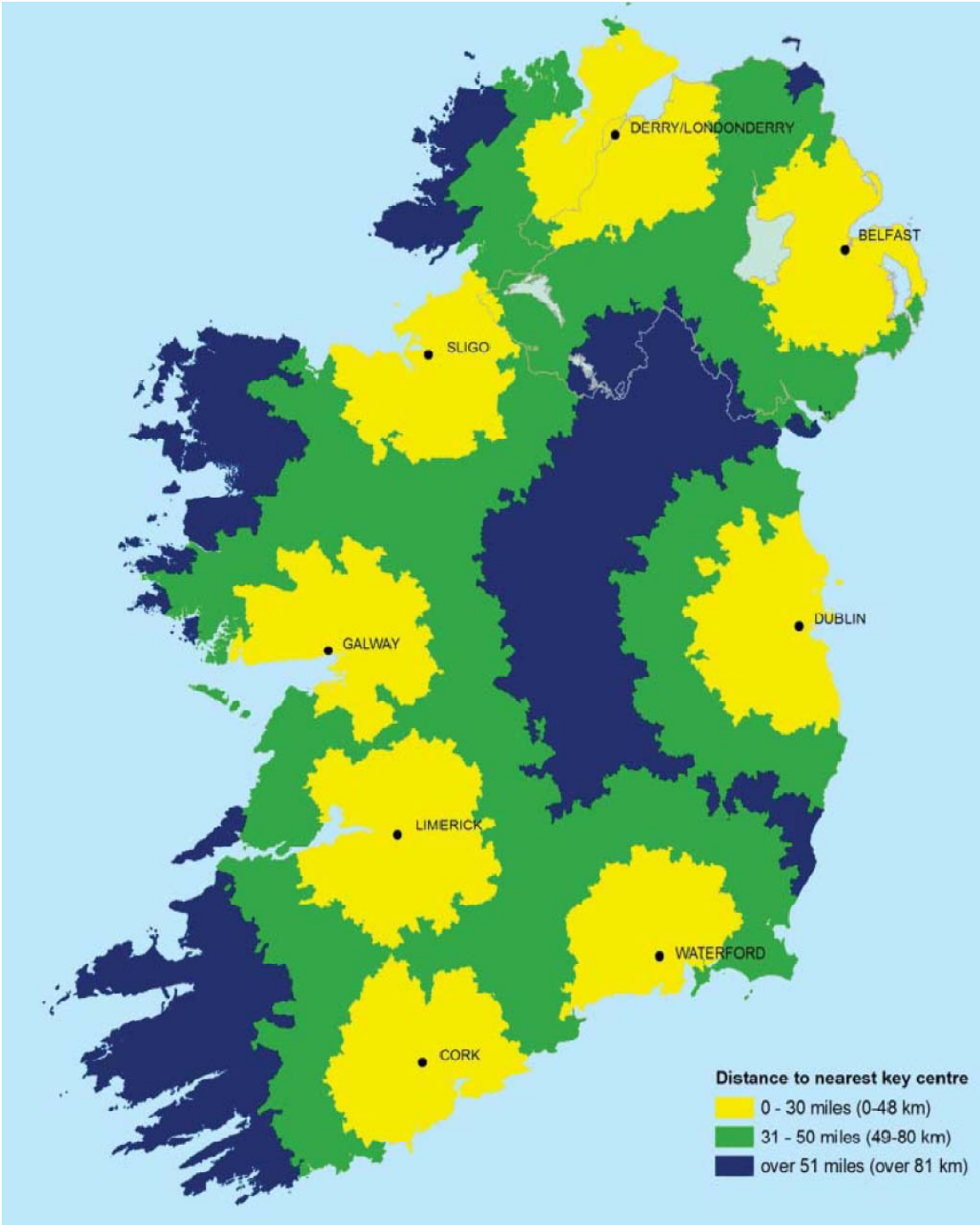
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**Tom Weymes**

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# Key Recommendations

## City Regions

- Concentrate on improving the competitiveness of the eight City Regions
- Plan for greater urbanisation and an increase in the population density in cities by one third by 2030
- Develop the Dublin-Belfast Corridor with appropriate infrastructure investment between both cities and the important nodal points along the Corridor
- Promote a South Western Corridor linking Cork, Limerick and Galway

# Key Recommendations

## Transport

- Improve transport connections, including a high speed, high frequency intercity rail system, between the cities of Dublin and Belfast
- Develop a second transport corridor along the South Western Corridor between Cork, Limerick and Galway
- Improve the motorway network to meet the projected increased traffic flows between the eight principal cities and links to ports and airports
- Determine the complementary role of road and rail when planning to improve traffic flows between the main centres
- Make capacity available in Dublin Port by relocating the Oil Zone to a new dedicated port with pipelines to supply aviation fuel directly to Dublin Airport
- Develop Dublin Airport, complemented by Belfast International, as a major international hub to improve worldwide connectivity for business on the island.

# Key Recommendations

## Energy

- Prioritise investment in research and development of offshore wind, marine renewables and smart grid technologies
- Determine the optimum share that gas, coal and nuclear should contribute to the non-renewable segment of electricity generation
- Prioritise the location of new wind farms adjacent to the high tension electricity grid
- Increase energy security by providing long-term strategic storage capacity equivalent to 20% of annual natural gas usage on the island in line with international norms
- Make district heating a requirement in all new high-density residential and commercial developments.

# Key Recommendations

## Environment

- Base development plans for all City Regions on clear sustainable principles
- Establish appropriately sized waste to energy (WTE) plants and strategically locate them to cater for residual waste from the City Regions
- Manage demand for water with an emphasis on conservation, loss reduction, metering and on an economic charge for water
- Develop a shared water mains network which will allow for bulk transfer of water between sources of supply and population centres
- Undertake a programme of sewer renewal in urban areas. Have separate storm and foul water sewers where practicable

# Key Recommendations

## Climate Change

- Increase the energy efficiency of residential and commercial buildings
- Develop new non-greenhouse gas (GHG) emitting baseload electricity generation, coal or gas with carbon capture and storage technology and imported nuclear power
- Plan for the protection of cities in coastal areas and river basins against flood damage and rising sea levels
- Establish a register of critical infrastructure vulnerable to climate change. Carry out a flood risk assessment for each critical infrastructure asset identifying its frequency of exposure to a hazard, its resilience to exposure and the consequences of its failure
- Focus climate research on identifying key parameters critical for infrastructure design

# Key Recommendations

## Information & Communications Technology (ICT)

- Develop a high speed and large capacity information highway which will match the performance of that in the most advanced global economies. Prioritise the high density population corridor linking Dublin and Belfast and also the South Western Corridor
- Harness the potential of advanced IT and communications technologies to improve efficiencies and enable a sustainable competitive economy
- Establish a direct connection to Europe, in addition to routes through Great Britain, using advanced communication technology, thus enabling Ireland to be a virtual extension of the main internet exchanges in mainland Europe.

# Key Recommendations

## Enterprise

- Encourage the development of specialised industrial clusters and innovation hubs in each city
- Maximise the enterprise opportunities arising from the island's climate advantage
- Support research and development (R&D) and innovation in higher education institutions. Support industrial investment in R&D

# Key Recommendations

## **Engineering for Health**

- Build an advanced IT infrastructure within the healthcare system linked to the broadband network, which will enable the use of sophisticated personal-use diagnostic devices and allow for early detection of life-threatening events

# Key Recommendations

## **Infrastructure Integration**

- Adopt an integrated approach to all infrastructure planning to ensure improved efficiency, effectiveness and competitiveness at minimum cost

# Key Recommendations

## **Economic Assessment**

- Finance the development of infrastructure using a combination of innovative financing sources including the Exchequer, public private partnerships, a possible island of Ireland infrastructure bank, capital markets and the European Investment Bank

# Communications

- The report was presented to An Taoiseach, Brian Cowen TD, at Government Buildings and to Martin McGuinness MP MLA at Stormont
- Presentations on the report have been made to:
  - Director General Department of Transport
  - Conor Lenihan TD, Minister for Science & Technology
  - Enterprise Ireland
  - ICTU
  - The Fine Gael National Conference
  - Fergus O'Dowd TD, Fine Gael Front Bench Spokesman for Transport
  - The Ireland Infrastructure Conference
- There was extensive media coverage by all the main newspapers, radio and TV

# Engineering Research and Economic Development

## Taskforce Members

**Prof John Kelly** (Chairman), Formerly Registrar & Dean of Engineering, UCD

**Prof Thomas Brazil**, Professor of Electrical Engineering UCD

**Prof Patrick Cunningham**, Chief Scientific Advisor to the Government

**Prof Martin Curley**, Director, Intel Labs Europe

**Prof Patrick Dowling**, Formerly Vice-Chancellor of Sussex University

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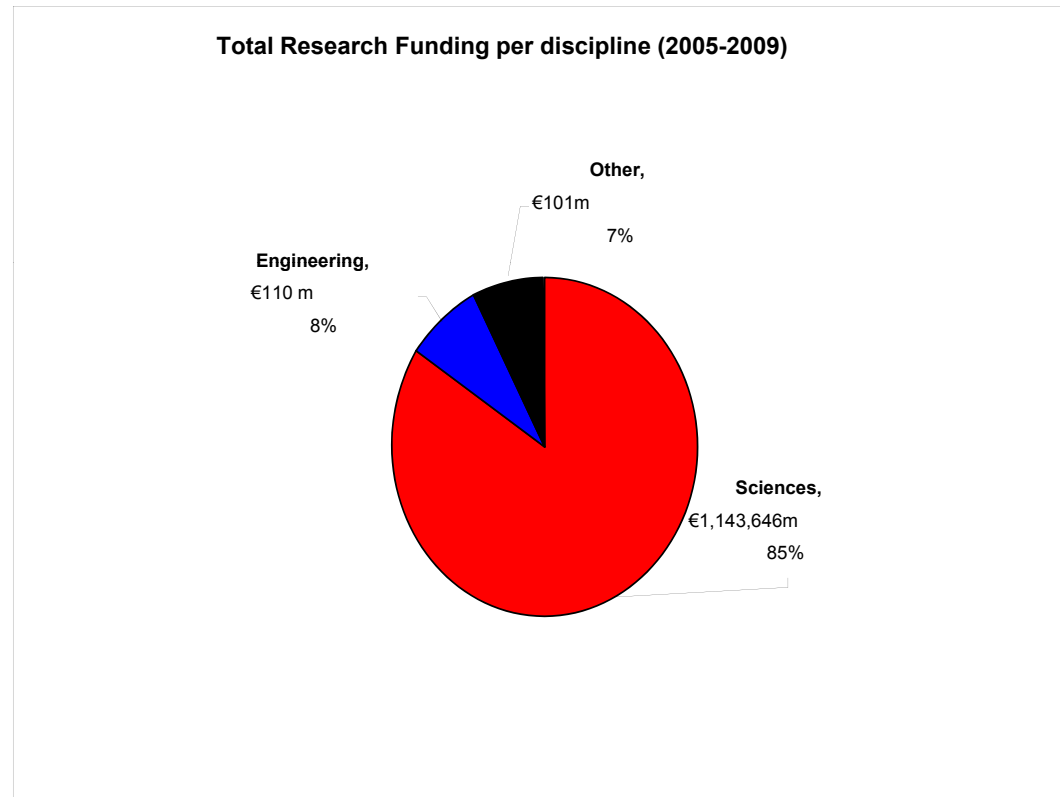
**Dr. Carl Jackson**, Chief Technical Officer, SensL, UCC start-up company

**Dr. Patricia Kiernan**, Senior Lecturer Chemical Engineering, UCD

**Prof. Brian Norton**, President, DIT

**Don Moore** (Project Facilitator), Formerly Managing Director, ESB International

# Issue is the Underperformance of Engineering Research



Research Funding 2005 – 2009, Combined SFI, IRCSET & HEA/PRLTI

## **Meetings have been held with:**

- Eoin O'Driscoll, Chairman Forfás
- Prof Frank Gannon, Director General SFI
- Martin Hynes, Executive Director IRCSET
- The HEA
- Prof. Roger Whatmore, Tyndall National Institute
- Prof Gerry Wrixon
- Conor Lenihan TD, Minister for Science & Technology

# Intel Seminar

## **Engineers, Entrepreneurship and Wealth Creation**

Participants will be senior figures from:

- The hi-tech sector (Google, HP, Medtronic, Smartbay)
- Academia
- Research funding agencies

Keynote speaker: Prof. Elliot Carayiannis, Georgetown University

Seminar will be opened by Conor Lenihan TD, Minister for Science & Technology

# Key Recommendations

- Establish Engineering Research Platforms which will promote collaboration between engineering schools in areas with potential for future economic development
- Resolve the intellectual property issues which are inhibiting collaboration between the universities
- Introduce undergraduates to research through project assignments related to local or national engineering industries
- An internship year in industry should form part of the engineering degree course
- Entrepreneurship, including “***Starting your own business***”, should be a core module in the engineering PhD
- Introduce robust procedures for evaluating the effectiveness in the national economy of all engineering and scientific research grants. In this regard, the UK peer research model, Research Assessment Exercise (RAE), used to evaluate research in UK universities, should be examined

# Key Recommendations (cont.)

- Establish an engineering doctorate degree, as distinct from a PhD, where the student carries out research in an industrial engineering setting instead of a university laboratory, with an industrialist jointly supervising with a university professor
- Industry experience of candidates should be an important selection criterion in academic appointments to engineering schools. Engineering departments should also appoint senior persons from industry as adjunct professors with specific responsibilities in both teaching and research
- Reduce the number of agencies providing funding for research and ensure that their mandate includes applied research relevant to Ireland's economic development.
- Establish Industry Boards to provide advice to the engineering schools on curriculum development and research directions.
- Incentivise industry to fund engineering research