



Beyond the Storm

A submission to the Innovation Taskforce

19th October 2009

- Ireland's commitment to Science began in 2000 and has been delivered to date. Up to 2008, both business and Government have ramped up STI investment faster than in most other countries.
- Our purpose is unapologetically aimed at ensuring future prosperity of the country. Recent experience says this linkage works.
- This model of knowledge-driven economic development has delivered enduring prosperity elsewhere, as in the Scandinavian countries, Switzerland and the US.
- In Ireland, we are half way to where we intend to be. If sustained, this growth phase will be largely complete in less than decade. By that time, we will have built an internationally competitive research community, linked to economic objectives, and partnering and anchoring high-tech industry here.
- This is an essential part of the longer-term transformation of Ireland to a leading, smart economy.
- The present crisis has forced a crash reduction in public spending across the board – including allocations for STI. The critical thing is to return to the plan and vision of the NDP in an ordered way.
- The crisis should be used to reassess, retarget and reconstruct the current programmes to deliver more, for less.



Does Investment in STI¹ Pay Off?

The broad answer is yes². In the U.S, they estimate that between 50 and 85 percent of the growth in the economy over the past half century – and two thirds of productivity gains in recent decades – are directly attributable to scientific and technological advances³. This general conclusion is widely accepted and reflected in the policies of developed countries. In fact, the pattern is that the more economically successful a country is, the higher the investment it makes in STI.

For a small and ambitious country like Ireland, there are two particular challenges. First, our small scale means that we must specialise more than others. Our increased investment has in fact been channelled to support IDA (and latterly EI) led development targets. The second challenge is that the time-lag between public investment in STI and a pay-off in society is long and variable – typically ten years or more. It is just a decade since we took off from a low base, so the full harvest of benefits is still in the future. In this sense, investment in STI is very similar to the investment in secondary and higher education more than two decades ago – the tiger years were the return for that earlier investment (Slide 3).

New Targets?

In the decade to 2008, public investment in STI (R&D) grew steadily at about 13 percent per annum in real terms (Slide 7). It increased from €320m in 1999 to almost €1bn in 2008, and went from 0.30% to 0.63% of GNP. This was paralleled by business investment in R&D which grew at the same rate. Measured as both investment in and benefit from R&D this has brought us to a position about half way up the list of EU-15 states⁴. This year's SSTI budget will be 15% down on last year's and 26% below the 2009 allocation in the National Development Plan.

When economic growth resumes, the task of completing our national R&D capacity should, and no doubt will, resume. An important and relevant question is whether there should be new targets. The broad ambitions for R&D investment by European countries were set at 3% of GDP, a figure chosen to bridge the gap with U.S and Japan. From Ireland's low starting point, this was seen as over ambitious within the time-frame to 2012, and a more modest national target of 2.5% of GNP emerged. With falling GDP/GNP, these ratios are easier to achieve. As the economy recovers, Ireland's resumption of planned growth in its R&D capacity should have the objective of moving from below average into the top quartile of the EU and OECD countries (Slide 8). This should be achievable within a decade.

Using the Recession

Finland and Korea are both quoted by the OECD⁵ as examples of successful recovery from past crises based on reinforced investment in innovation. The same OECD report

¹ Science, Technology & Innovation.

² Assessing the Impact of Science Funding, Julia Lane. *Science*, 5 June 2009, Vol. 324. no. 5932, pp. 1273–1275.

³ Statement of Dr. John P. Holdren, Director-designate Office of Science and Technology Policy Executive Office of the President for the Committee on Commerce, Science, and Transportation, US Senate, February 12, 2009.

⁴ European Innovation Scoreboard 2008, Maastricht Economic and Social Research and Training Centre on Innovation and Technology (UNU-MERIT), January 2009.

⁵ Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth, OECD, June 2009.



noted that many of the countries which have put stimulus packages in place for 2009 and 2010 are devoting significant stimulus funds to enhanced R&D and education. For example, Sweden, Australia, U.S and Germany are respectively providing additional funds equivalent to 0.29%, 0.25%, 0.11% and 0.10% of GDP for R&D and innovation. Australia, Germany and U.S are in parallel adding 1.40%, 0.60% and 0.58% of GDP to their education budgets.

Ireland, for good reasons, does not have a stimulus package. Nevertheless, there are good precedents for sustaining investment on both education and STI as part of a crisis recovery strategy. In addition to the international evidence, the shift in IDA-supported inward investment towards R&D and innovation (56 out of 130 new investments in 2008)⁶ confirms that future FDI into Ireland will require us to have a productive, internationally respected and competitive research base.

In the meantime, the crisis should be used to reassess, retarget and reconstruct the current programmes to deliver more, for less.

STI in Context

Total public expenditure this year will be in the order of €64 billion. It is under unprecedented pressure. Special case arguments can be made for most sub-heads. So why should the public investment in STI receive special consideration? The basic reason is because it is an essential investment in the future productive capacity of the country. Three quarters of our annual budget is in the nature of sustaining current services, social needs, health and general standard of living, i.e., spending for today. One quarter is investment in our future – 12% on physical infrastructure, 13% on education and 1% on R&D (Slide 4). However, as pointed out by a recent World Bank study⁷, 83% of the wealth of this country lies in its intellectual capital, that is in educational levels, in the efficiency of our social and business structures, and in our general capacity to be productive and efficient in a competitive modern world economy. In short, the principal area where we can invest in future prosperity for the country is in our capacity to grow the knowledge society.

⁶ End of Year Statement 2008, IDA Ireland, January 2009.

⁷ Where is the Wealth of Nations?: Measuring Capital for the 21st Century, World Bank, 2006.



Conclusion

We should:

- Recommit to NDP targets (Scandinavian vital statistics by 2013)
- Tidy up funding agencies and structures
- Shift money progressively from block grant (currently 40%) to competitive, accountable programmes at perhaps 5% per year for five years
- Continue EI innovation measures (VC, grants, tax-credits, other supports)
- Strengthen IDA science linkages to SFI and other public sources

The vital statistics of STI

The European Innovation Scoreboard uses 29 separate indicator statistics. Broadly, these can be grouped as:

Enablers

- Education (% with higher education)
- Public Funding of Innovation (% of GDP on STI)
- Finance (VC)

Firms

- Business R&D expenditure (% of GDP)
- SME innovation
- IP

Outputs

- Employment (% in high-tech sectors)
- Sales (% of high-tech sales and exports)



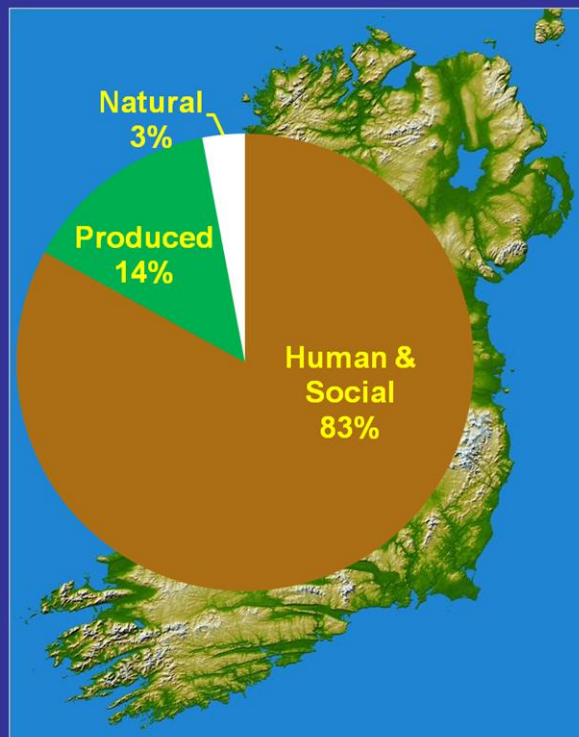
Beyond the Storm

Patrick Cunningham

Innovation Taskforce

19th October, 2009

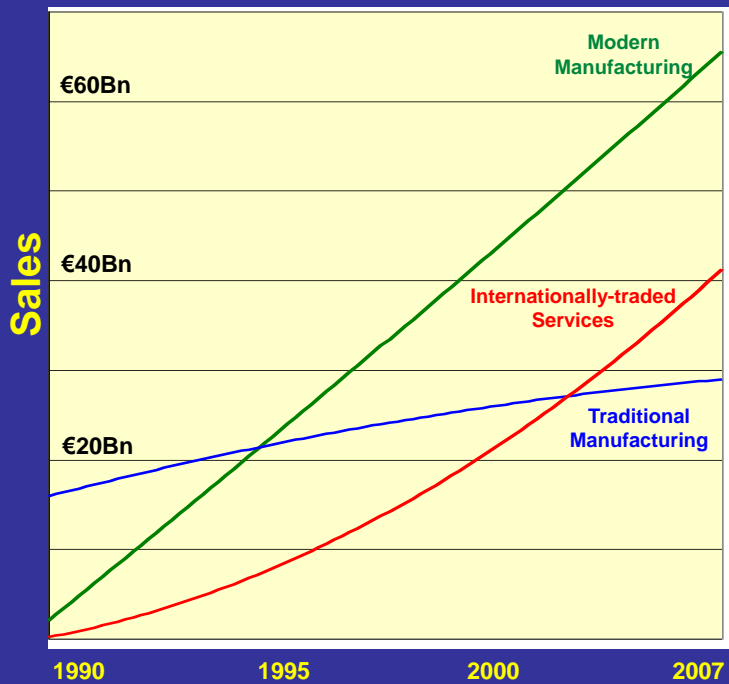
The Wealth of Nations



Source: *Where is the Wealth of Nations?* World Bank, 2006.



The Tiger Years



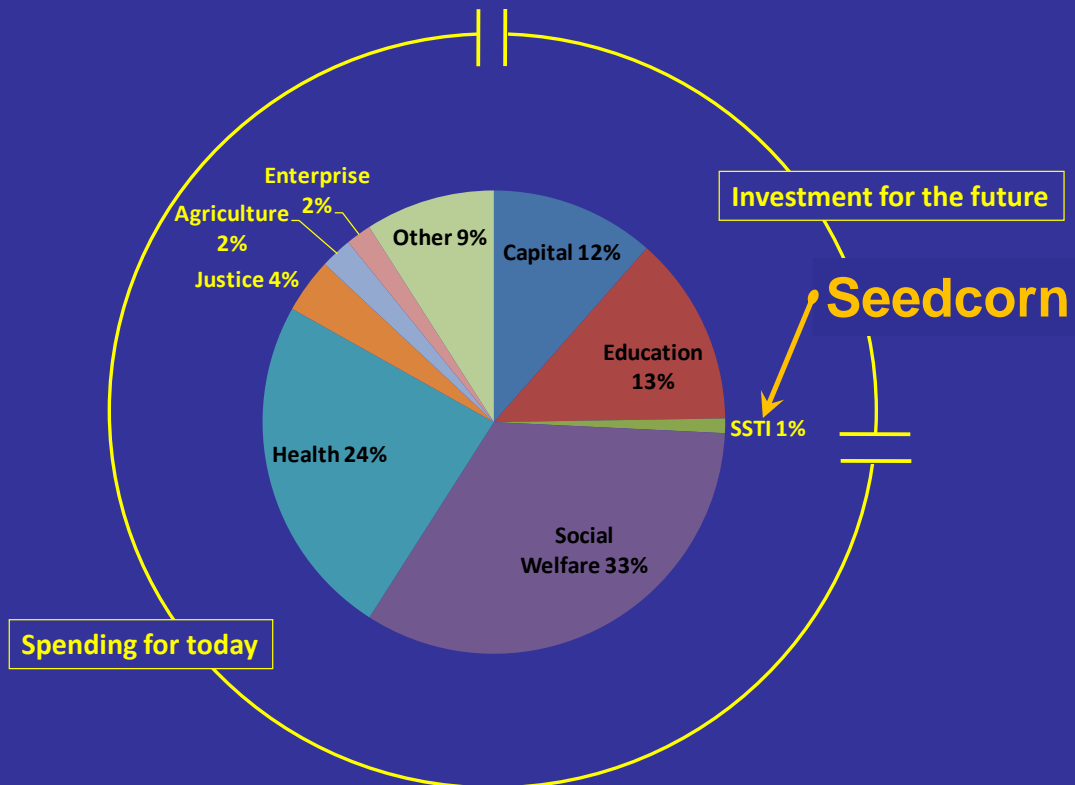
Roots:

- EU / Euro
- Tax
- Education

Source: Forfás, 2008

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Exchequer Expenditure 2009 (€64 bn)

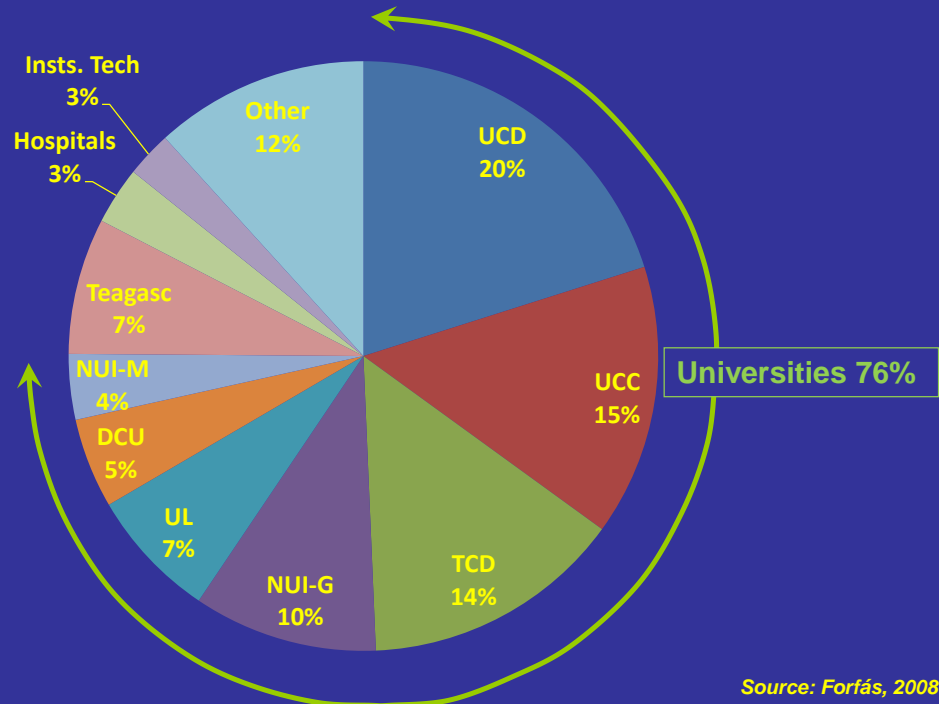


Sources: Revised Estimates for Public Services, DF, April 2009; SSTI Finances, DETE, May 2009

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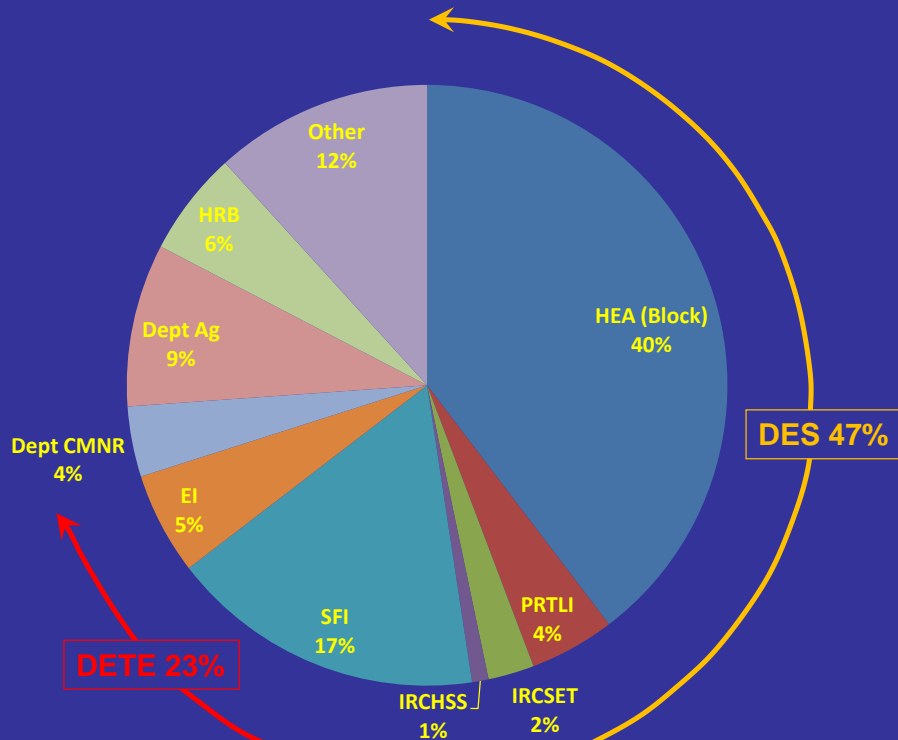
Performers of Publicly-funded Research in the Government and Higher Education Sectors, 2006 (€604M)



Source: Forfás, 2008

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Public Funders of Research in the Government and Higher Education Sectors, 2006 (€604M)

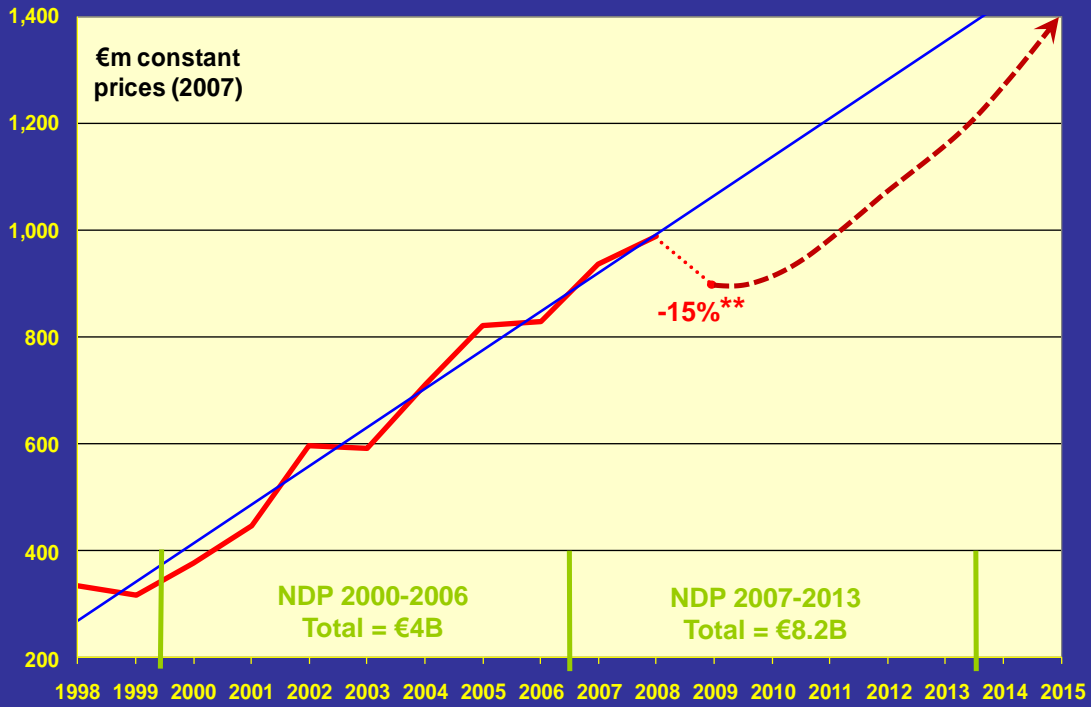


Source: Forfás, 2008

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Public Investment in R&D*



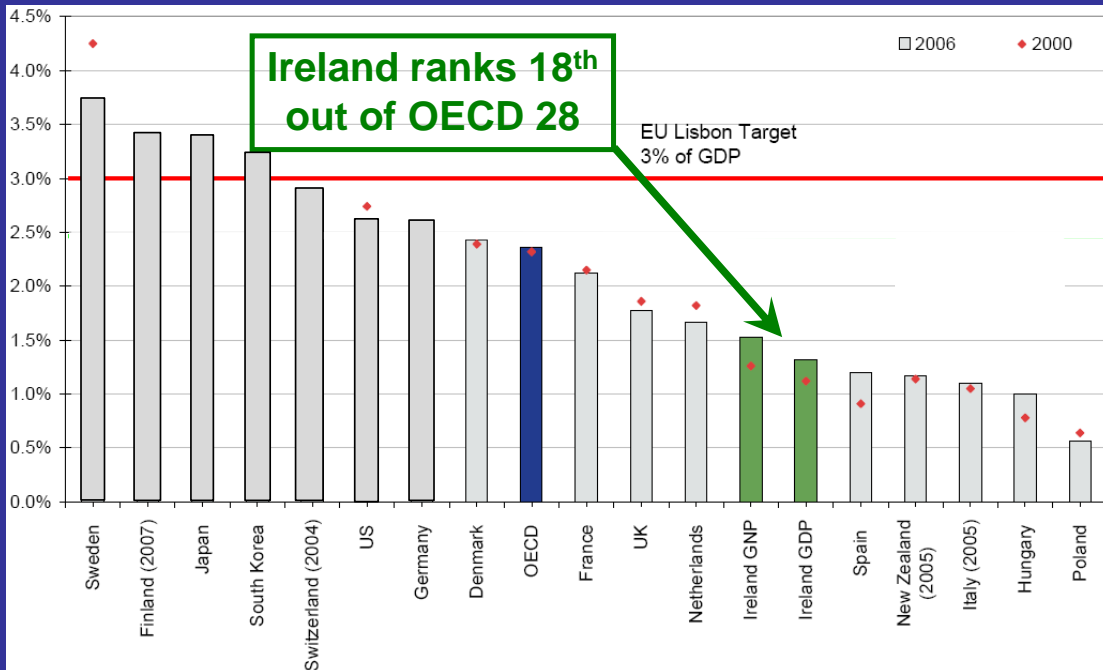
* Government budget appropriations or outlays on R&D.

** Indicative: SSTI relative to 2008 (nominal). The SSTI drop is -26% relative to original NDP provision for 2009.

Source: Forfás, 2009

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Gross Domestic Expenditure on R&D as % GDP



Source: Annual Competitiveness Report, NCC, 2009

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