Strategic Policy Intelligence – setting priorities and evaluating impacts – Ireland

Helena Acheson

Head of Division – Enterprise Policy

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Forfás

Working to gain economic advantage from investments in S&T

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About Forfás

▶ Forfás' mission is to shape, and to support implementation of, ambitious, coherent and widely understood **long-term** enterprise and science policies aimed at developing Ireland as one of the most competitive and successful economies in the world.

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Forfás

Forfás, its Sister Agencies and Advisory Councils
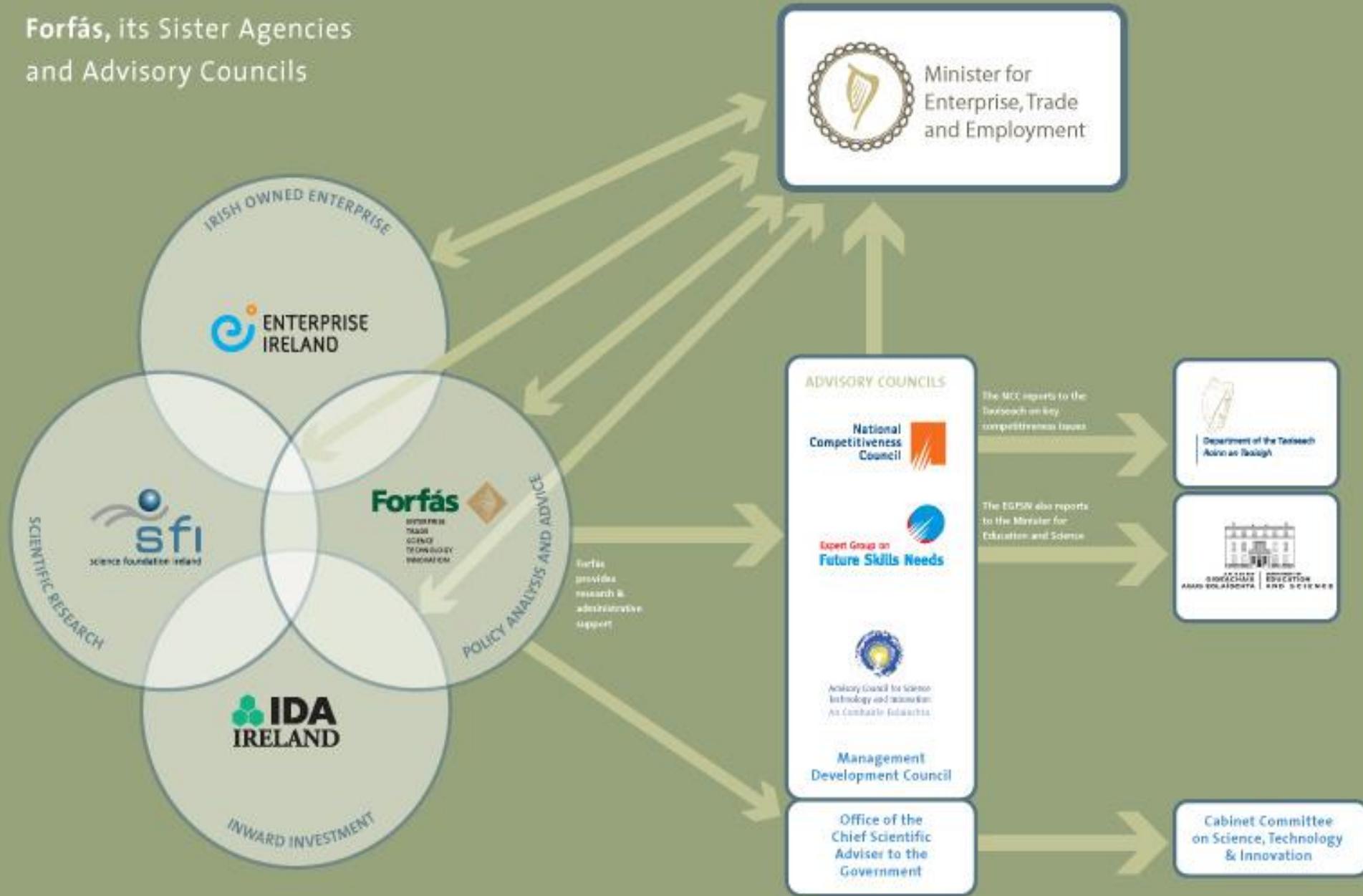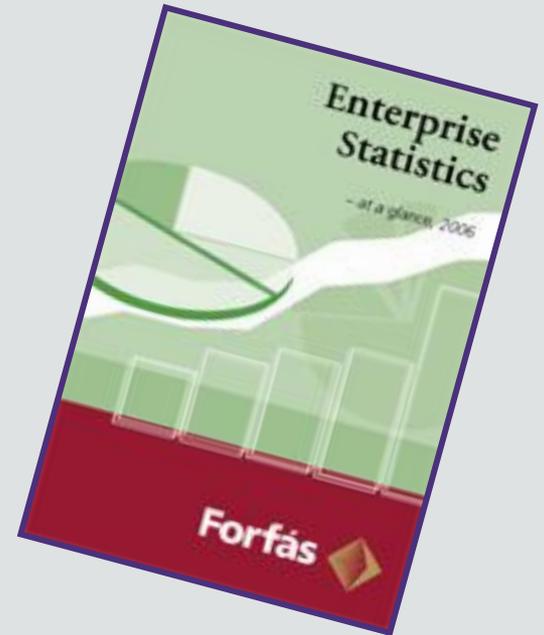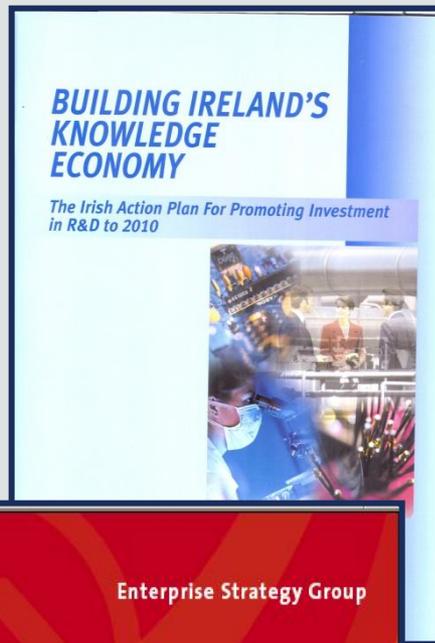
Mechanisms for Prioritisation of State Expenditures on Science and Technology

December 1998

The challenge of setting priorities has been exercising the minds of Irish policy makers for some time.

- Fadó, Fadó….. (1998)

Context for Irish Foresight exercise:

► 1996 White Paper on Science, Technology & Innovation *indicated the need for a technology foresight exercise.*

► 1998 request from the Minister for Science, Technology & Innovation to ICSTI to undertake the exercise **to identify strategic S&T priorities for investment under the National Development Plan .**

► Complete in time for integration in the National Development Plan (2000-2006)

► Heretofore, STI spending was 'derived' from the wider policy objectives of each Department – no clear system discernible in relating STI expenditure to these policy objectives

► **For the future, need to make Investment Choices based on Strategic priorities**

Technology Foresight Ireland (1999)
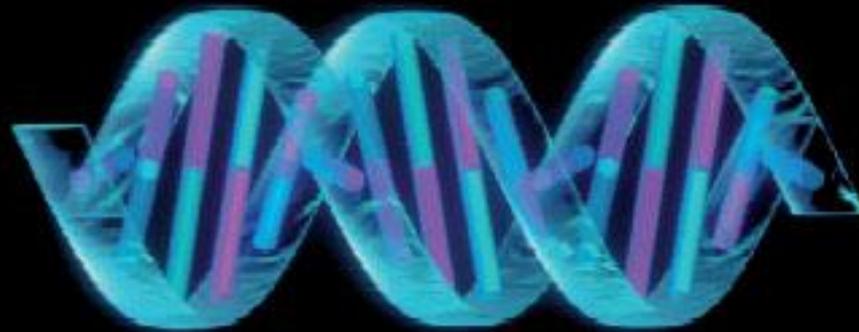

Technology Foresight Ireland

An ICSTI Overview
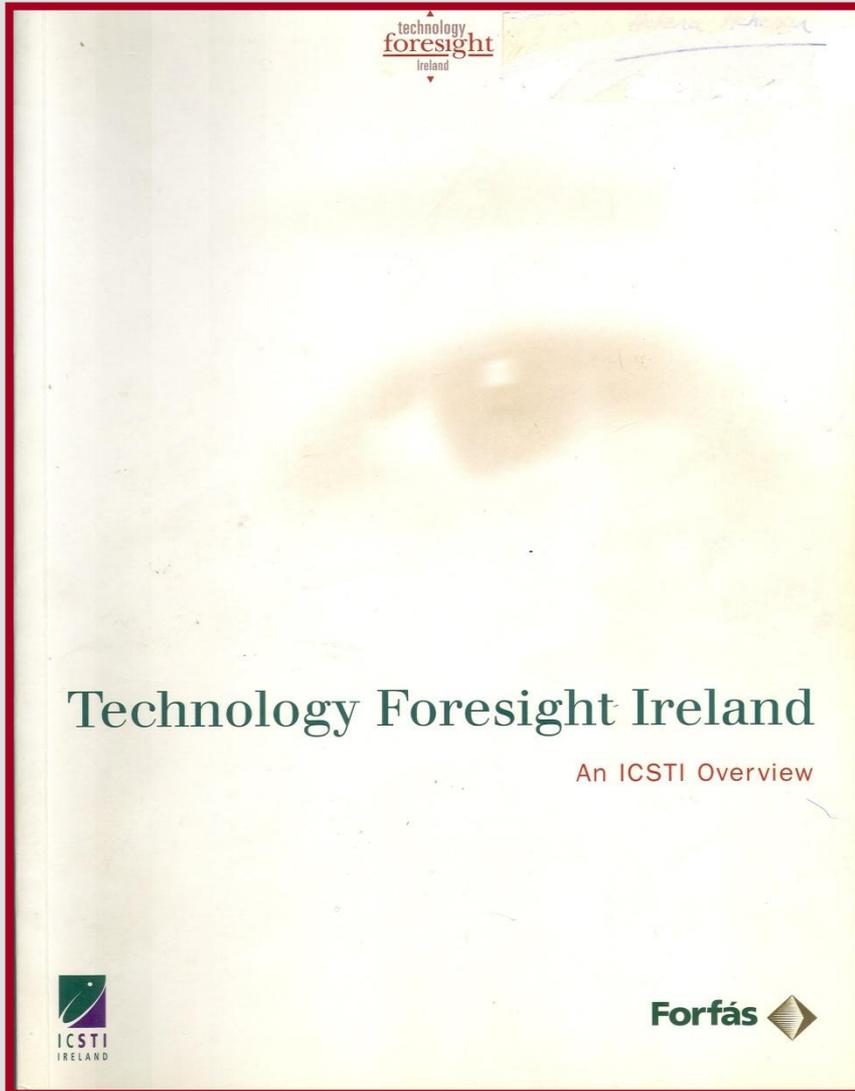
▶ Each Government Department to incorporate sectoral Panel Report conclusions in their own strategic planning

▶ Significant investment needed for basic research in niche areas of ICT and biotechnology :

two pervasive technologies underpinning strategically important sectors in the Irish economy

Technology Foresight changed the mindset and culture for subsequent National Development Plans

The recommendations in the Foresight report lead to a <u>decisive shift in public policy and funding</u> – commencing in the (2000-2006) and now being continued in the (2007-2013) NDPs

►Establishment of a Technology Foresight Fund by Dept. Enterprise, Trade & Employment (~ €700 million) and establishment of Science Foundation Ireland (SFI) to manage the Fund

►Expansion of Programme for Research in Third Level Institutions (PRTLI) funded by the Higher Education Authority (Dept.Education & Science)

►Government Departments incorporated Foresight Panel Report conclusions in their own strategic planning (Dept.Agriculture and Dept. Environment)

# *Strategy for Science, Technology and Innovation (2006 – 2013)*

► **I**mportant to ensure that our investment in excellent research also has regard to economic and social needs and that these should play a guiding role in where investments are made.

► *"The Technology Foresight Exercise….__prioritised__ ICT and Biotechnology. Focused investments in these areas have been supplemented by specific sectoral investments in health, agriculture, environment, marine etc…"*

► *"Research & Technology Assessment underway (to develop __options__) for Nanotechnology……based on the following principles:*

- *the potential for quality research & critical mass*
- *the potential to create an international uniqueness for Ireland in the research area e.g. converging or emerging technologies*
- *relevance to Ireland's current and future industrial, economic and social development"*

The wider S&T rationale for Technology Assessment

► Ireland is a small, open economy making (internationally) relatively small investments in the S&T base

► Need for coherent national strategies towards emerging S&T areas

► Request from Department of Enterprise, Trade & Employment to Forfás to pilot a TA exercise – capability building with respect to a strategic policy intelligence 'tool' to contribute to better decision-making

► D/ETE Chair the Inter-Departmental Committee for Science & Technology; reports to the Cabinet Committee on S&T – part of the new governance structure for S&T policy in Ireland

► Seeking improved policy coherence and more 'joined up' thinking and implementation by the different actors in the National Innovation System

The TA Process...to develop options
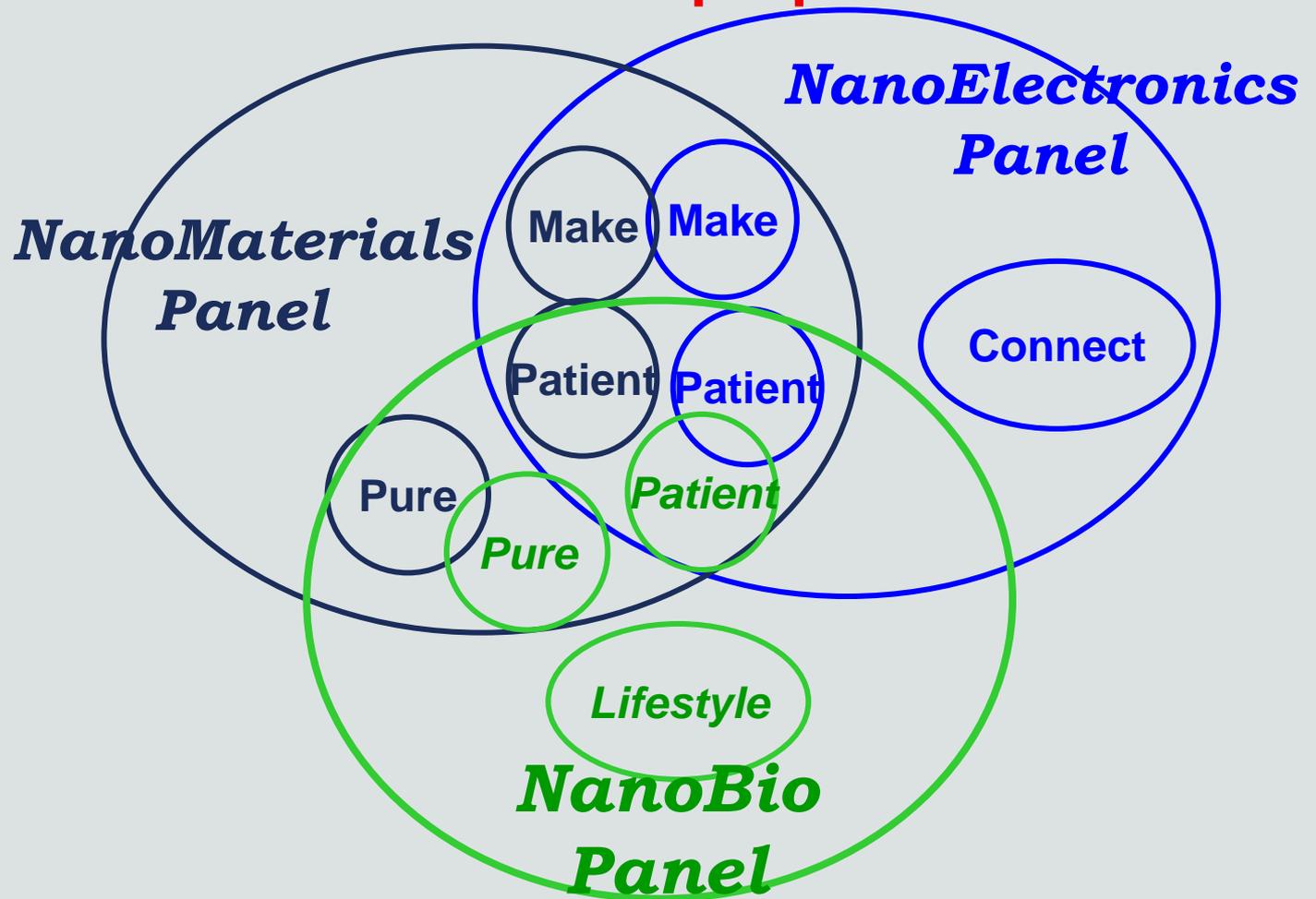
Areas of strategic interest to Ireland requiring nanoscale capability

NanoHealth & Lifestyle
- ▶ Diagnostic Chips and Sensors
- ▶ Active ingredients
- ▶ Protective coatings
- ▶ Implants – biocompatible; neuron-implants

Agrifood
- ▶ Intelligent packaging
- ▶ Nano-emulsions
- ▶ Targeted herbicides & pesticides

Energy
- ▶ Photosynthetic-based solar cell

ICT & Electronics
- ▶ Logic and storage technologies
- ▶ Data processing and transmission
- ▶ Component assembly
- ▶ Quantum and DNA computing
- ▶ Photonic crystals
- ▶ Ubiquitous computing systems

What the experience taught us :

▶ Minister as client with a real need (NDP),

▶ Kept implementers 'on side' throughout

▶ Industrialist as Champion (Chairman)

▶ Strong industrial participation in panels also gave credibility

▶ Realistic project timeframe with widespread consultation

▶ 'user-friendly' reports and the overarching message was simple

▶ More cross-panel deliberations – innovative 'hot spots' and could have pushed stronger on certain issues e.g. sustainable development

▶ (Perhaps) more developed implementation modes e.g. stand-alone Research Centres

▶ Change of mindset at Cabinet level. Responsibility for S&T (Tánaiste)

▶ Foresight Fund 'ring-fenced' in 2002 Budget

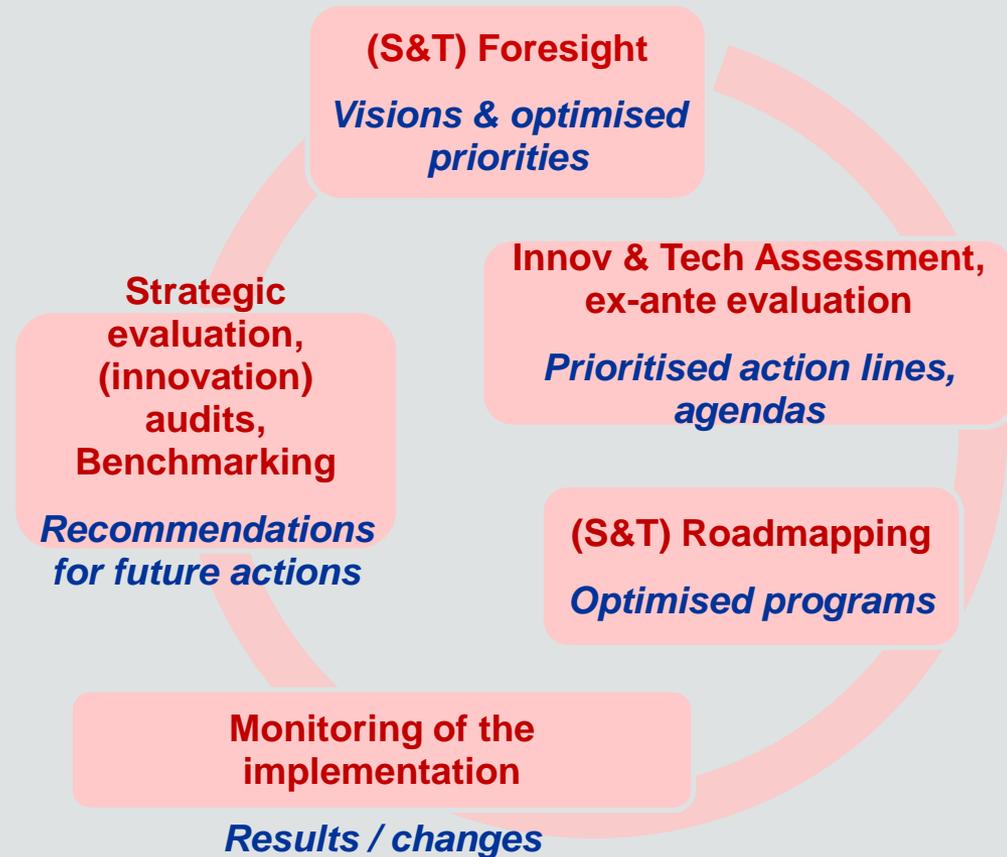▶ **Forfás continued to develop its long-term perspective in public policy making**

RTDI Measures for Staying Competitive

► Supporting changes in Innovation Systems (IS):
- Stimulate knowledge generation, diffusion, absorption
- Develop new understanding of IS (actors, outreach, …)
- More multifaceted 'innovation' policy (trans-policy-fields, -sectoral, -governance levels, -national, …)

► Adapting Framework Conditions (soft and hard):
- Competencies and values, entrepreneurship culture, tech. standards,
- legal and work regulations, institutional & social capital, ….

► Using more Strategic Policy Intelligence (SPI) more intelligently:
- Strategic analyses of (trans-)national / regional / sectoral innovation
- systems and processes
- Benchmarking, policy monitoring & evaluation
- Technology Foresight & Assessment, inclusive policy design

Strategic Policy Intelligence (SPI) Tools

The set of activities to search, process, diffuse & protect information in order to make it available to the right persons at the right time,
so that they can take the right decisions.

➢Related to Research & Innovation (RTDI) policies this includes such policy support instruments as foresight & technology assessment, monitoring, benchmarking, regional innovation auditing, strategic evaluation, ….

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(S&T) Foresight

Visions & optimised priorities

Innov & Tech Assessment, ex-ante evaluation

Prioritised action lines, agendas

Strategic evaluation, (innovation) audits, Benchmarking

Recommendations for future actions

(S&T) Roadmapping

Optimised programs

Monitoring of the implementation

Results / changes

Advantages of SPI-based Approaches

They address complexity, uncertainty and ambiguity, provide basis for better decisions and investments *(better informed, more broadly based & consensual, more credible and implementable and, on average less risky and more optimum)*

o early recognition of economic and social opportunities

o early warning against negative impacts

o procedures for mitigating conflicting situations

o reducing costly errors – or costly missed opportunities

► background knowledge for planners & designers, decision aid for technology developers, users, regulators

► contributions to resilient system (improved functionality, consensual co-ordination, policy coherence), socially and environmentally compatible design

► attracting more investments also from other sources, incl. FDI

► SPI can help upgrade Innovation Systems and Increase Competitiveness

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Why SPI tools can work well in smaller territories

➢ Geographical closeness is important for the final translation of knowledge into economically relevant activities, and for organising 'learning' capacities through multi-actor networks and PPPs

➢ Technology trends may be predictable, but not long term applications

➢ Foresight works best with short term possibilities & long term probabilities

➢ As S&T issues are inextricably linked with a wide range of economic, societal & political factors Foresight is relevant to all aspects of development

➢ Successful Foresight has strong bottom up elements

➢ Great impact may be achieved also in poorer, less confident regions, because Foresight makes people think creatively - takes them out of their current 'mental environment'