Health Research Stakeholder Consultation Report

on the Successor to the Strategy for Science, Technology and Innovation

Submitted to the Inter-Departmental Committee on 26th March 2015

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The views expressed in this report are those of the health researchers who participated in the workshop and do not necessarily reflect the views of the Health Research Board or the Department of Health.

Key Findings from the Stakeholder Consultation

1. Ensure a balanced portfolio that includes basic as well as applied research.
2. Recognise and measure the impact of health research in achieving societal as well as enterprise goals through quantitative and qualitative means.
3. Reward and prioritise excellence.
4. Adopt whole-of-Government, joined-up, cross-sectoral, multidisciplinary approaches, with connectivity across industry and between primary, secondary and tertiary healthcare, as well as other sectors.
5. Develop and offer incentives to national and international collaborations and networks.
6. Attract and retain researchers at all stages of their career, particularly at post-doctoral level, including support for mobility across sectors.
7. Address barriers to research across a range of areas, particularly ICT and ethics.
8. Create an infrastructure to support access, sharing, linkage, utilisation and development of data analytics, including development and maintenance of registries, unique patient identifier, electronic records and data analysis capacity.
9. Engage in a meaningful way, at a system level, with all stakeholders, including patients, patient organisations, healthcare staff and industry.
10. Embed the practice of research within the healthcare system, including leadership by a Director of Research, protected time for all staff and consideration of the establishment of a National Institute for Health Research.

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Background

In February 2015, the Interdepartmental Committee on Science, Technology and Innovation published a consultation paper for the successor to the *Strategy for Science, Technology and Innovation* (SST&I). The consultation paper highlights progress already made in developing a research and innovation system in Ireland and notes opportunities for adopting a new whole-of-Government approach in this area. It indicates that the new strategy will articulate a vision for Ireland's research and innovation system, identify its defining characteristics and set out agreed goals and targets.

In order to give stakeholders involved in health research an opportunity to participate in the consultation process, the Health Research Board and the Department of Health convened a stakeholder consultation with 89 participants (*see Appendix 1*) on 11th March 2015 in the Westbury Hotel, Dublin. The consultation took the form of a half-day workshop consisting of presentations, group discussions and a Q&A session (*see Appendix 2*). This report presents the findings from this consultation.

Contribution of health research within the broader SST&I

Health research is of strategic and practical importance within the overall research and innovation context. It contributes to:

- addressing key challenges in our society, such as chronic disease, changing demographics and supporting health and well-being;
- new and improved treatments and models of care, with consequent improvements in the effectiveness and efficiency of our health services;
- direct cost savings and employment, international competitiveness, R&D investment and high-tech employment;
- developing the skills and expertise of key stakeholders;
- informing good decision-making in health policy;
- improvements in public health;
- accelerating progress in key areas, such as health/business intelligence, ICT and e-health, process improvement and resources management.

Purpose of consultation

The overall purpose of the stakeholder consultation was twofold:

1. To collate the views of health researchers on key areas presented in the Interdepartmental Committee on Science, Technology and Innovation consultation document.

2. To identify areas of importance in respect of health research and innovation to be taken into account in the new *Strategy for Science, Technology and Innovation*.

Outline of consultation process

The consultation was held over a 3-hour period at the Westbury Hotel on 11th March 2015. The process was chaired by Dr. Graham Love, CEO of the Health Research Board (HRB), and the opening address was followed by contributions from Dermot Curran, Assistant Secretary, Department of Jobs, Enterprise and Innovation (on the background to the SST&I) and Frances Spillane, Assistant Secretary, Department of Health (on the health perspective for the new SST&I) (*see Appendix 2*). Focused 'roundtable' discussions then took place across 10 groups, guided by background information and specific questions that directly reflected those set out in the consultation document. The discussion areas were distributed across different groups and focused on the following five topics:

1. Public investment in research.
2. Building capacity and leadership for all areas of health research.
3. Creating and sustaining the infrastructure to support health research.
4. Generating new knowledge for health.
5. Supporting Irish health system objectives and challenges through research.

A rapporteur from each group presented the feedback on responses to the key topic for their roundtable. A question-and-answer (Q&A) session took place at the end of this reporting session, chaired by Dr. Graham Love of the HRB and with a panel comprising Dermot Curran (Department of Jobs, Enterprise and Innovation) and Frances Spillane (Department of Health). The feedback session and the Q&A session were both digitally recorded and information transcribed for ease of analysis. Additional hand-written information collated during the course of discussions at each table was also analysed and used to supplement the feedback given by the rapporteur.

Key issues arising are now presented. The participants' ambitions for the new *Strategy for Science, Technology and Innovation* are presented first and followed by a summary of key issues on each of the five topics.

Ambitions for a successor to the Strategy for Science, Technology and Innovation

Each group was asked to consider what Ireland's ambition across a range of areas should be in the new *Strategy for Science, Technology and Innovation* (SST&I). The main feedback that emerged is presented in Box 1.

Box 1: Ambition for Ireland in a new SST&I

- **Improve the quality of the research and improve the quality of the impact.**
- **Include *translating for the future* as well as *translating for now* so that an innovation gap does not emerge. This includes means funding basic research and applied research, supporting bottom-up research and looking to the longer term.**
- **Recognise and support the societal as well as economic value of undertaking health research.**
- **Reward and prioritise merit.**
- **Prioritise health research, including population health and well-being. Within this, a programmatic approach can be sufficiently broad to include the full trajectory from basic biomedical science to applied research.**
- **Build research capacity across the spectrum from basic to applied/transitional research.**
- **Achieve policy goals for Ireland and their intended impact.**
- **Adopt 'demonstrable success' as a measure of whether the strategic approach is working for society and is better for science.**
- **Engage with all stakeholders (including, for example, industry, patients, the general population, nurses, scientists and clinicians) in a meaningful way.**
- **Have a good, strong reputation from basic research all the way through to clinical research.**

Topics addressed during the consultation

Each group was allocated one of the five topics, namely:

1. Public investment in research.
2. Building capacity and leadership for all areas of health research.
3. Creating and sustaining the infrastructure to support health research.
4. Generating new knowledge for health.
5. Supporting Irish health system objectives and challenges through research.

It was also provided with a synopsis of information linked to the SST&I pillars, along with a set of key questions on the topic developed by the Health Research Board and the Department of Health. The information and key questions provided are now used to preface the findings that emerged from the group discussions on each specific topic, presented below.

Two issues were consistently raised irrespective of the topic area under discussion and these were:

1. **the need for a balanced portfolio** which takes account of both basic and applied research. In particular, it was noted that without basic research, "the pipeline of research will dry up" and this will have an impact on innovation as there will not be anything to translate in the future. While it was recognised that this would require a longer-term approach to funding, the current approach has led to a significant gap in the system and this needs to be addressed.
2. **the importance of research to meet the goals of society as well as those of enterprise** was also highlighted across topic areas. It was strongly recommended that investment in research needs to take account of societal issues and their impact across areas as diverse as education, health, environment, energy as well as enterprise.

These issues are also highlighted in the findings from different topic areas in the following sections.

Topic 1: Public investment in research

Research covers a diverse range of activities and encompasses the entire journey from the generation of new ideas, through their transformation into something useful, to their implementation. Health research spans the spectrum of activity from biomedical research, life sciences and emerging technologies, through clinical research and on to population health sciences and health services research. Health research involves many actors, including, among others, academic researchers, healthcare professionals, the education sector, industry and charitable groups.

Questions for consideration:

1. What should Ireland's ambition be in a new SST&I (generally and with regard to health research specifically)?
2. Where would we target increased funding and how could this be justified?
3. How can research prioritisation best identify emerging areas of opportunity and challenge (i.e. horizon scanning)?

Key points from roundtable discussions

Topic 1: Public investment in research

- Public investment needs to take account of **societal issues** such as health, education, energy and environment, as well as enterprise.
- **Joined-up**, whole-of-Government thinking is required, as well as collaboration and interaction across various sectors, agencies and funding bodies.
- **A balanced portfolio** of basic and applied research is essential.
- **Barriers include**: the absence of a single **ethics** committee; a lack of a **unique patient identifier**; poor **career pathways** for researchers; the absence of a **National Institute of Health Research** for Ireland; a failure to conduct and adopt **systematic reviews** for implementation of best practice.

There was a consensus that the purpose and scope of public investment in research should go beyond the current focus on enterprise and job creation to also take account of wider societal issues, such as health, education, energy and environment. It was also noted that an important ambition for SST&I should be that 'demonstrable success', particularly in terms of copper-fastening the national prioritisation exercise, is used to measure whether:

(a) the system is working;

(b) is better for science.

Concerns were expressed with the current situation, where university rankings are going down and 'there have not been huge strides in improving healthcare'.

The importance of joined-up, whole-of-Government thinking and collaboration, across various sectors, agencies and funding bodies, was highlighted, including Science Foundation Ireland and the Health Research Board. Joined-up interaction between the Chief Science Advisor and the Chief Medical Officer was considered to be very important in terms of the overall agenda. It was stated that, in terms of basic biomedical research, the current approach has led to a 'big gap in the system' which needs to be repaired and it was suggested that inspiration on bridging this gap could be drawn from countries such as Denmark, Finland and Scotland.

Achieving a balanced portfolio of basic and applied research was considered absolutely essential since without both, the 'pipeline of research will dry up'. While prioritisation was deemed important, it was noted that it should be fair, equitable, reflect the strengths currently in place and also take into account 'blue skies' research, which will provide many of the new ideas and technologies for future development. Prioritisation, it was felt, could also emphasise the importance of cross-university, clinical-based collaborations, which could be thematically positioned.

It was agreed that research prioritisation could better serve the national objectives of a strong, sustainable economy – where Ireland could set trends, rather than follow them – if key barriers that currently exist were addressed. In short, these barriers include:

- poor career pathways for researchers, which could be assisted by the removal of the fixed-term workers' application that greatly restricts researchers' careers;
- an absence of a single ethics committee, which would surmount much of the wasted resources, time and effort that go into the multiple committees that currently exist;
- a lack of a unique patient identifier, which is critical to developing medical research;
- the absence of a National Institute of Health Research for Ireland;
- a failure to conduct and adopt systematic reviews for implementation of best practice.

Adopting a balanced portfolio approach, which includes fundamental research, biomedical and translational research, was considered fundamental to ensuring Ireland can train the next generation of entrepreneurs, basic, clinical and translational scientists. It was also highlighted that grants do provide jobs and people who are researchers in laboratories are employees themselves who work and contribute to society. This issue was discussed in greater detail under Topic 2 (*see below*).

Topic 2: Building capacity and leadership for all areas of health research

People are the engine of the Irish research ecosystem. Health research needs the talent and expertise of a wide range of professionals (clinicians and non-clinicians) and at many different levels, from PhD students through to post-doctoral fellows, investigators and research leaders. We need to support research in academic, policy and clinical environments, investing in training and career development which ensures that research is integrated into practice and policy, thus improving healthcare decision-making and health outcomes. The scale and range of skills and expertise required put the development of human capital for health research beyond the scope of any one agency. In practice, training and career development in health research is a shared responsibility between all relevant stakeholders.

Questions for consideration:

1. What should Ireland's ambition be in a new SST&I for capacity-building and leadership (generally and with regard to health research specifically)?
2. What additional steps can Government take to ensure the development of human capital across the population to ensure the success of the new strategy?
3. How can the new SST&I support and strengthen the reforms taking place under the Higher Education Strategy, aligned to the new National Skills Strategy to develop that capacity that will enable Ireland to deal with new and emerging health challenges across the full breadth of Government strategies?
4. How can those individuals active in research (and those seeking to be), both in the public and private sectors, be best supported to perform and progress, including through optimum researchers' careers, recognition and mobility mechanisms?
5. How can we better leverage our research talent into the economy?

Key points from roundtable discussions

Topic 2: Building capacity and leadership

- Think **long term** health education not short-term economics
- **Career pathways**, particularly at post-doctoral level including **instructor positions, industry opportunities and science writers.**
- Fund and invest in both **basic and applied research**.
- **Measure impact on societal goals**, as well as enterprise
- **Reward and prioritise excellence** to attract and retain personnel.
- Recognise that **undergraduate and postgraduate education** is important in attracting **industry**.
- **Additional programmes** with higher numbers needed.
- **Mobility** across countries, sectors and disciplines is key. Consider **PhD passport.**
- Provide **greater system** supports
- Appoint a **Director of Research** to the HSE.

There was agreement in the discussion of this topic that now that the current employment situation in Ireland has improved, the focus should shift from a short-term strategy for science to a more long-term approach, and that this should include funding for both basic and applied research. Again, there was some consensus that rather than focusing only on the creation of jobs, consideration needs to be given to:

1. what is best for the science environment in this country in terms of attracting industry;
2. what is best for the education of students at all levels;
3. what is best for health innovation.

It was suggested that the impact of investment be evaluated by establishing Key Performance Indicators (KPIs), using quantitative measures and a balanced scorecard approach.

Challenges were identified in respect of the absence of a priority pillar for research excellence in funding opportunities and it was suggested that excellence should be rewarded and prioritised since this is not currently happening. This is exemplified by the current SFI policy on linking Irish research with Horizon 2020, which results in some very highly esteemed scientists being considered ineligible for funding because their research is 'not applied' enough. Renewed investment in basic research was considered necessary to support retention of existing basic scientists and also to support the return of those who have left the country as a consequence of the current lack of investment. It was strongly recommended that there be renewed investment in basic research to support retention of personnel.

It was also suggested that in order to attract industry, the education of third-level students at undergraduate, Masters and PhD levels is vitally important. It was noted that the Population and Health-services Research Education Programme (SPHERE) is currently the only structured PhD

programme in the area and, while greatly welcomed, needs to have multiple tranches of students entering every year.

Additional programmes, with higher numbers of participants, are necessary and these programmes need to:

- have an international mobility component across countries, sectors and disciplines – this was considered key;
- be collaborative and multidisciplinary;
- provide intersectoral experiences for students (including industry, hospitals and other settings);
- provide participants with additional learning skills (including project management and networking).

The question of mobility was considered key and in that regard, the concept of a PhD passport to increase mobility was raised. It was also noted that it is important not to overproduce the numbers at PhD level and the focus should be on where there were needs and gaps.

Greater supports, including competitive salaries, are required for building capacity across the system. There was agreement that if you fund the best people, they will be internationally recognised, publish good papers, create and innovate, and also educate students. It was also pointed out, however, that most researchers do not go on to become a group leader and the options at post-doctoral level were considered to be very limited. Supports for additional opportunities, such as instructor positions similar to the USA or encouragement to go into other areas such as journalism, also need to be considered.

A disconnect between service delivery and research and development was identified. It was noted that the capacity to track and monitor health status and healthcare delivery to the whole population required expertise in areas of epidemiology, biostatistics and healthcare economics. The appointment of a Director of Research to the Health Service Executive was identified as critical and necessary to:

- embed research within the system;
- create interconnectivity between science-based research councils and health service delivery agencies;
- build an ethos where research is at the core of, and embedded within, the healthcare delivery system;
- deliver structures to support research;
- improve data at national level to support more efficient research;
- drive prioritised research and build the career structures of young investigators, which would allow them to emerge in areas of excellence.

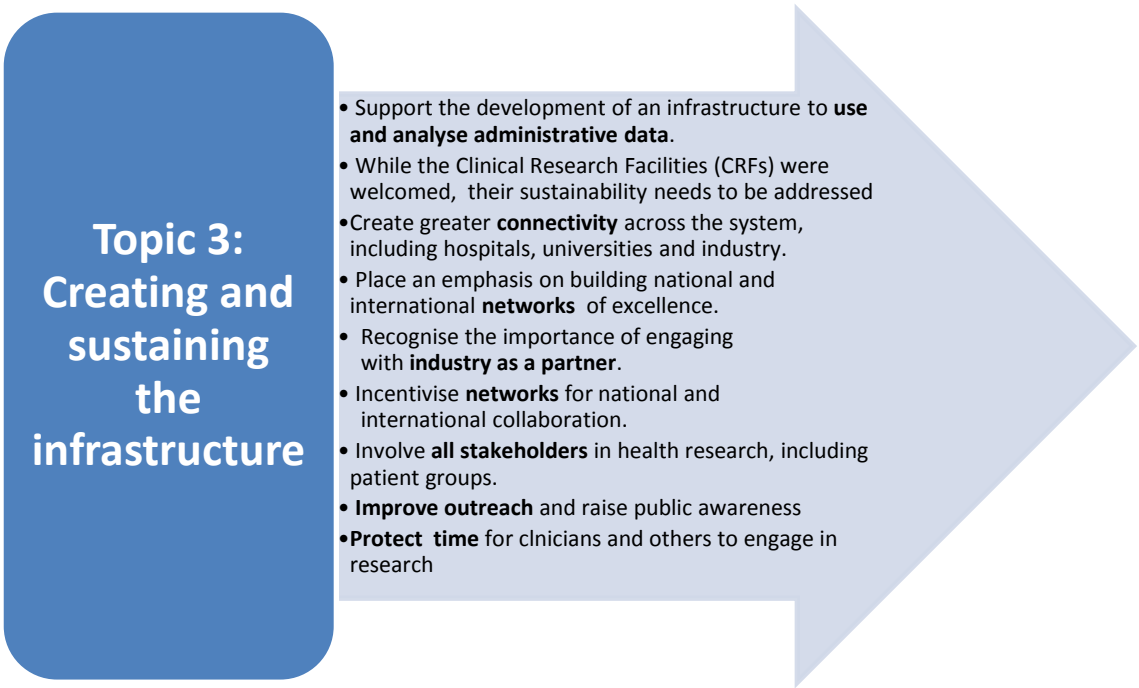
Topic 3: Creating and sustaining the infrastructure to support health research

In order to effectively translate research into social and economic benefits, Ireland needs a fully functioning and coherent research infrastructure. In health, such an infrastructure includes strategic coordination of all aspects of biomedical, clinical, health services and population health research, including networking of facilities, technologies and personnel; a supportive environment for clinician scientists and researchers; a coordinated approach to study development and portfolios; an increased number of high-quality patient-oriented studies and trials (commercial and investigator-led); and an increased profile internationally.

Questions for consideration:

1. What should Ireland's ambition be in a new SST&I for research infrastructure (generally and for health specifically)?
2. What could we do to further enhance our research landscape and institutional arrangements to maximise the impact of our investment on research for the well-being of Irish citizens?
3. How can we further increase/strengthen the effectiveness of our national collaboration and engagement across all areas of research in pursuit of economic and societal goals?

Key points from roundtable discussions



In the discussion of this topic on the creation and maintenance of infrastructure to support health research in Ireland, there was strong support for the development of each of the following areas:

- Resources are needed to support the development, use and analysis of administrative data, to track and monitor the health status of the population and impact of healthcare delivery. This requires an infrastructure that includes:
  - integrated data systems, including interconnectivity between primary, secondary and tertiary data sources in areas such as emergency medicine;
  - capacity to conduct healthcare research in areas such as epidemiology, biostatistics and healthcare economics;
  - development of an electronic patient record with a link to a social insurance number, which would allow for greater linkage across society;
  - support for registers so that the ICT, data analytics and medical device industries can all interact with the healthcare system, which is not currently possible.

It was noted that greater connectivity across the system is required and this should include a combination of strategic decisions about the areas to be funded, coupled with a more bottom-up approach where excellence emerges from the system and funding is directed towards those areas. There is also a need for a greater emphasis on building national and international networks of excellence in order to continue to build world-class researchers, with a focus in Ireland on areas where we are internationally competitive. The importance of engaging with industry as a partner was highlighted and it was noted that, while this is happening across the world, the environment in Ireland is not conducive to this, except in sporadic cases. These networks all need to be offered incentives and funding should be dependent on network collaboration, both within the country and with experts in other countries.

The involvement of all stakeholders in health research was considered important, including patients, the general population, nurses, scientists and clinicians. It was suggested greater public awareness of research was needed. It was noted that if these stakeholders are not fully engaged, they will not be able to compete internationally and will not produce the high-quality research required. While there is some engagement taking place at an individual level, this needs to be expanded so that it becomes normal practice. This will create the knowledge capital resulting in jobs and advancement of society. A greater emphasis on improving outreach needs to take place, particularly to the public and also to politicians on developments taking place. It was strongly recommended that patient groups become an intricate part of our research infrastructure.

Topic 4: Generating new knowledge for health

Internationally competitive research provides us with the knowledge needed to address societal and health challenges. It helps Ireland and Irish researchers to become recognised as world leaders in specific areas of research. In health, it helps us to understand better how to maintain and promote health and well-being; how to prevent, treat and manage illness; and how best to organise our health system. Research is needed to understand the link between health and environment; to address the increasing incidence of chronic and infectious diseases; and to deal with the impact on society and individuals of an ageing population and lifestyle risk factors.

Questions for consideration:

1. What should Ireland's ambition be in a new SST&I for the generation of new knowledge (generally and for health specifically)?
2. What more can we do to harness the potential of our knowledge base for sustainable economic and societal well-being?
3. Should research and innovation performers be supported to engage citizens more actively in the innovation process to achieve optimal outreach to the public?

Key points from roundtable discussions

Again, the point was made in respect of generating new knowledge for health that basic research is the only way to generate new innovation – one cannot work without the other. Within this, industry is very important and it must be recognised that innovation is critical to attracting and retaining both industry and also PhD students, clinical scientists and others. The recent loss of a number of clinical researchers, it was suggested, needs to be considered in this context and there is a need to 'shine a light' on attracting and retaining researchers as something that could be done better. There was emphasis on the need to have a strong reputation from basic research through to clinical, including the linkages between them.

In terms of harnessing the potential of knowledge, it was noted that much needs to be done in terms of health information and ICT is crucial to this. The point was made that if better health information systems are put in place, people with rare diseases, cancer and chronically debilitating diseases, among others, will have better care and also have access to better research. In the area of clinical research, it was suggested that many of the developments have arisen as a result of information through registries that were already working and functioning, and that this has brought research to this country. It was considered crucial that we consider this question in the context of

what research means for people who are sick and dying, and also what it means for our society – not just about what it means for jobs. It was suggested that other countries do not just take jobs into account when they make funding decisions: they think about it in a more long-term way.

It was also noted that within the health system, there is a need for protected time for everyone within the system – from porters to clinicians – to engage with research.

The final point was to look at how patients and patient organisations are engaged. It was strongly suggested that this needs to be done in a meaningful and appropriately funded manner, rather than in a tokenistic way (which may only require 'ticking a box'). It was suggested that the United Kingdom can provide some guidance in the area.

Topic 5: Supporting Irish health system objectives and challenges through research

The Irish healthcare system has a growing need for timely and relevant high quality research, information and evidence to inform health delivery, public health policy and clinical decision-making. Such research programmes are concerned with evaluating the effectiveness, equity and appropriateness of healthcare interventions in real-world settings. It is also about developing the knowledge base needed to adopt and implement evidence-informed interventions, policies, technologies and guidelines for optimal impact. There is a national imperative to support not just evaluative research in the Irish health system, but also implementation science and quality improvement research, where scientific methods are used to adapt, adopt and integrate evidence-based knowledge.

Questions for consideration:

1. What should Ireland's ambition be in a new SST&I for the achievement of stated policy goals (generally and in health specifically)?
2. How can research further the Government's reform priorities (e.g. improved patient outcomes, reformed operational systems, innovative funding models)?
3. How can a new SST&I enable research programmes to optimally support policy development and actions to address key challenges in health?
4. How can Ireland, through its research, address national health challenges while at the same time creating economic opportunities?
5. How can Ireland harness the opportunities presented by big data such as longitudinal and other cohort studies and linkage of datasets to advance the health and well-being of Irish citizens?

Key points from roundtable discussions

Feedback on this topic again highlighted the importance of basic as well as applied research and suggested the necessity of providing a different lens to take account of both 'translating for now' and 'translating for the future'. It was noted that while the emphasis is currently on applied research, it is clear that if basic research is not funded, there will be an innovation gap in 5 to 10 years' time, when there will be nothing to translate. It was noted that without innovation, we will not have a unique Irish perspective that can 'sell' us internationally. While it was understandable that the focus over the last few years was on attracting jobs, now that the economy is stronger, it was recommended that the current 'stranglehold' on enterprise-linked research needs to be loosened. This would achieve two things:

1. facilitate an increase in innovative research that is driven by researchers themselves, rather than industry needs, since currently there is a sense that some of this research is almost like 'contract research';
2. assist in attracting individuals into research, training them properly at all levels and retaining them. It was suggested that it would take significant investment to re-build the capacity that has been lost over the last few years.

It was considered that the ambition should be to improve the quality of the research and to improve the quality of its impact. This could be stimulated by measures such as:

- abolishing VAT (at 23%) on capital and consumable expenditure for national funding, which, since it does not apply in some competitor countries, would create challenges in being competitive;
- engaging with multinationals to conduct research (which differs from the development work they conduct) and facilitating contact at the appropriate level in these companies (which should take place with Research Directors rather than Sales Directors);
- take advantage of the datasets available in Ireland through big data analysis, registries and unique identifiers, with projects that already have capacity, being well-positioned for future projects;
- exploiting what we are good it, which may not necessarily be what Government policy is focused on;
- building on the unique cohorts with specific healthcare needs in Ireland through personalised medicine approaches, the availability of an innovation fund that can help to scale-up pilot studies and carry out, implement and develop research at national level.

It was recommended that the sector 'unite in a singular way' about prioritising health on the overall agenda. (There was an acknowledgement that this did not happen with the last SST&I exercise.) This should take place at a programme level, which would allow for the range of research, from basic biomedical research, across the trajectory, to applied research focusing on the societal and health impacts, as well as patenting and commercialisation benefits. There is a need to recognise and support the value of undertaking health research in terms of societal impact, as well as supporting the economic impact and benefit.

It was suggested that addressing research challenges, while at the same time creating opportunities, is not all about the economy. A focus on population health and well-being would ensure issues around employment and research were not mutually exclusive – 'You need healthy people to do jobs'. National challenges in ageing, chronic diseases, increased birth rate, lifestyles, drugs and alcohol all impact significantly on the economy. The point was made that significant breakthroughs in how we treat, prevent and manage diseases also need to be applied to policy research and can help to answer questions such as: What are the best policies? What advice should be given to Government? What are the impacts of policies on people's health? What are the most cost-effective interventions? It was highlighted that it is necessary to demonstrate the impact of what is being done and to look at how investment can take place to achieve our policy goals.

This type of focus in the new SST&I strategy would, it was noted, be an explicit acknowledgement of reform priorities as outlined in several Government policies, including:

- Healthy Ireland
- National Positive Ageing Strategy
- Dementia Strategy
- Better Outcomes, Brighter Futures
- Sustainable Development Strategy
- Smarter Travel Strategy
- Smart Ageing

The point was raised that the new SST&I could provide a strong connection between existing Government policies across a range of areas, not just employment. Other benefits could include being able to demonstrate economic benefits of good health, using intellectual property gained through commercial collaborations, encouraging international grants and through providing jobs for researchers.

Feedback on this topic also considered that harnessing opportunities presented by big data requires an investment in ICT since this is currently a weak link. Many previous developments have led to the availability of big datasets and these need to be looked at in order to understand better how they can be utilised, analysed, sustained and developed (with appropriate regard to ethics, data protection and other issues) by patients, researchers, industry and pharma. Examples given of these developments include, for example, the HRB-funded molecular medicine PhD programme; the University-led PRTLI programme; the National Longitudinal Studies of Older People (TILDA) and Children (Growing Up in Ireland); and Bio-banks funded under research initiatives. These have created big datasets that can support research, inform policy and generate innovation and technological developments. A more integrated approach to this requires the creation of a system where:

- a registry is created;
- awareness is generated;
- access is facilitated;
- unique identifiers can be applied;
- capacity to analyse is developed;
- datasets are integrated;
- there are strong linkages with clinical systems.

It was suggested that some guidance on this may be drawn from the UK *Atlas of Health*, where data across England has been used to streamline the approach to treatment in particular areas. There was also deemed to be a need to have a joined-up approach to the research taking place around Ireland and in that regard, a repository and IT bank may be needed. This could also be facilitated by the development of a National Institute of Health, where there could be more national and international collaboration, and this in itself could provide economic advantages. It was recommended that the area of research ethics needs to be addressed, with a streamlined and national approach required. There was also seen to be a need to develop a roadmap for researchers who want to do research.

Research capacity was also considered critical. Rewarding merit and prioritising merit are both crucial to ensuring stellar researchers and academics are eligible for funding and are successful in getting it. Protected time for research was felt to be important and critical to embedding the ethos within our healthcare institutions. It was also seen as important to build, augment and support research capacity in policy areas such as the Department of Health. This may include the creation of a scientific group within the Department in order to keep science close to decision-making. The appointment of a Chief Academic Officer within each of the new hospital groups was welcomed and the necessity of similar posts being created in community organisations was also recommended.

Q&A session

The roundtable discussions were followed by a question-and-answer (Q&A) session, chaired by Dr. Graham Love, CEO of the Health Research Board, with a panel comprising Frances Spillane, Assistant Secretary, Department of Health, and Dermot Curran, Assistant Secretary, Department of Jobs, Enterprise and Innovation. The main themes arising during this session are now presented.

Opportunity to participate welcomed

Workshop participants strongly welcomed the initiative by the Health Research Board and the Department of Health to consult with health research stakeholders and to listen to scientists and clinicians. They were particularly appreciative of the opportunity to participate in the workshop, noting that despite the disparate group (*see list of participants in Appendix 1*), there was much consensus across the different areas. The views of the stakeholders were also welcomed by the panel, particularly the concrete suggestions made.

Participants at the workshop were assured that the Department of Jobs, Enterprise and Innovation (DJEI) was anxious to maximise input into the consultation process and as many stakeholders as possible from the health and other sectors (including, for example, education, industry, agriculture) were being encouraged to make submissions. Participants were assured that the report of the findings from the workshop would feed into the process and it was also noted that the report would inform discussions of the Interdepartmental Committee on Science, Technology and Innovation, which includes the Department of Health.

Participants were urged to make additional submissions if they wished and were also asked to promote engagement with the consultation to other interested persons. It was suggested that group submissions could be more productive, effective and influential than individual submissions. In addition to identifying problems, stakeholders were particularly asked to identify practical solutions and be constructive in their responses. Where possible, it was noted that proposals should include both actions and associated measurements.

The three issues that generated the most commentary at the Q&A session were:

- Measuring excellence and impact
- Applied *versus* basic research
- Capacity and workforce issues

Measuring excellence and impact

It was noted by workshop participants that the consultation documents made reference to the concept of 'excellence' a number of times, although within this, measurement was of a qualitative nature and limited in focus. It was suggested that there were a number of quantitative measures that could be used, including, for example, being in the Top 20 in science-performing nations (as opposed to falling outside that list); having scientists within the Top 10 most cited researchers in the world; and the impact of this on perceptions of Ireland's economy. These measures would broaden the understanding of impact beyond the number of jobs created or other economic measures.

Another participant challenged the focus on jobs as impact, noting that while we often hear about a certain number of jobs being created over the next 5 years, this was very rarely followed-up or measured. It was suggested that this needs to be taken into account when thinking about other

impacts of basic research, which can, and are, objectively measured, for example, through citations and publications.

Another workshop participant noted that while prioritisation is important in other countries, its impact is not measured simply in terms of jobs. The participant also suggested that although the public are angry about measures imposed during the economic crisis, they do support research and there is evidence around this. It was noted that it was important to decide what 'impact' really means in our society and while we have come out of 7 years of recession, it is also important to remember that 'we were able to find billions to put into other things in this country'.

Some economic issues that could be taken in investing in health research were highlighted by various workshop participants, as follows:

- One quarter of current Government spending is now going to the healthcare system and the HSE is the largest employer in the State. It is essential to know whether this money is being spent in the most efficient manner because of the huge overhead for the country.
- There is a need for evaluation of what is happening at present as well as for identifying new interventions in healthcare in order to maximise investment in people's health as well as their healthcare.
- It was stated that more people now live with cancer than die from it, and while there were 300,000 unemployed, there are a large number of people alive today in Ireland because of an investment in research.

The representative from the Department of Jobs, Enterprise and Innovation (DJEI) noted that there are currently two broad areas of measurement – (1) scientific review through international peer review with robust qualitative assessment; and (2) demonstrable impact.

The same panel member drew attention to the complexity of measurement, which, it was noted, is constantly being refined by Science Foundation Ireland. Attention was drawn to the difficulties in measuring the success of research prioritisation, although it was stated that industry investment has gone up exponentially in terms of the co-funding of research centres. While the purpose of co-funding may ultimately be commercialisation, it was noted that this also drives excellence.

Attention was also drawn to an exercise currently underway by the DJEI, which is trying to plot expenditure of the funding agencies under its aegis on the Technology Readiness Level (TRL) scale. This scale is a standard international 9-point scale used to measure the type of research (basic – commercialised) funded. Preliminary findings suggest that the scale is currently skewed towards basic-level research in Ireland. Other measurements identified included the Innovation Score and in that regard, Ireland ranked No. 1 across 28 EU Member States in maximising the output from the investment put in, outstripping countries such as Denmark and Finland.

It was also noted by the representative from DJEI that economic outputs and outcomes are considered by Government to be a very important part of demonstrable impact. In societal terms, it was suggested that these are also important measures, particularly in view of the importance of breaking the cycle of disadvantage, narrowing distance from the workplace and intergenerational poverty, among others. The cost of borrowing means that there has to be an economic dividend from the research and it is important to acknowledge and realise this. However, he noted, this is not the full range of criteria either required or used.

Finally, the representative from DJEI suggested that the 'collective wisdom' of the workshop participants could be very useful if it were harnessed and a balanced score card or other alternative

approach to impact measurement were developed. This could, he considered, highlight the societal as well as economic impacts of research investment.

Applied *versus* basic research

Understandably, given the focus of the roundtable discussions, the issue of funding for basic as well as applied research emerged and there were a number of contributions from participants, as well as the panel. Mention was also made by workshop participants of a forthcoming 'open letter' to the Government, which has been signed by 800 researchers and which focuses on the need to fund non-orientated basic research.

It was suggested by the representative from DJEI that the focus should be on trying to quantify for Government what the value of basic research is, so that it is clear there is an economic and a societal value from basic research, rather than setting one (applied) against the other (basic). Using the analogy of a cake, it was suggested by the representative from DJEI that it should be about trying to 'grow the funding cake' rather than getting 'a larger slice of the same size cake' and more could be done in that regard. The panel member also suggested that the focus should be on those clinical areas where Ireland can actually demonstrate excellence (such as that demonstrated in the area of immunology) rather than on a basic *versus* applied argument. This would allow for a more bottom-up organic approach, which could facilitate societal as well as economic outcomes.

While the panel member cautioned against the creation of a distraction or side-show by focusing on a division between basic and applied research, one participant strongly indicated that the stakeholders attending the workshop were drawn from a broad constituency of basic, clinical and other areas of research and that the issue of applied *versus* basic was a real issue for this group. The development of a balanced research portfolio that included the range of research areas was urged.

One participant highlighted that what was coming from the floor was not so much about applied *versus* basic research, but rather questions of 'When Ireland is going to be innovative?' and knowing 'How is Ireland going to be innovative in 10 years' time'. It was noted that the answer to those questions cannot be sought in 7, 8 or 9 years' time, but instead planning has to start for that now. Although there are people who have the capacity to be truly innovative, what is being asked of the new Strategy for Science, Technology & Innovation is that they be supported by the infrastructure in a way that allows really tough questions to be answered so that significant advances can be made. While this cannot be done in the short term, there is, however, a chance of being able to do it in 10-15 years' time if the supports are in place. It was pointed out that there are some real fears that an innovation gap is emerging.

An example (relating to diabetes) of the importance of basic research to the applied situation was given from by one of the workshop participants and it was noted that the major breakthrough took place when funding was provided for basic microbiology researchers to conduct non-orientated research. It was suggested that there are many more similar examples that could be used to persuade politicians and others of the importance of funding basic research as well as applied research.

Capacity and workforce issues

It was reported by a workshop participant that in the previous SST&I, institutions were asked to double the number of PhD graduates and this was done. However, it was suggested that the number of PhD students registered as a whole at this time in the University sector is now dropping 'quite

alarmingly' and if this continues, it will have a significant impact on employers as well as others. There was general agreement from the panel that human capital is hugely important from an enterprise, research and teaching perspective, and it is an issue that will be under review.

Another participant indicated that good research has to become embedded as part of how we work and how we are educated, and that in the healthcare system it needs to be part of everyone's job description. It was also suggested that we need to look at the human capital already in place in the health services and acknowledge that there is huge capacity already in place, with scientifically trained people who have the equipment, machinery and expertise, but who do not, for whatever reason, always use the resources available.

Being able to lobby effectively for research resources was considered important and it was noted by one workshop participant that many researchers do not have a job description or a professional body to represent them. This gives an impression that research is not an important job. If, however, Ireland wants to attract and retain researchers, there is a need to invest in the people, irrespective of whether they do basic or applied research.

It was also suggested that there needs to be some form of research accreditation and some professional body in Government to which researchers can belong, receive training and be recognised as researchers.

Finally, the representative from DJEI noted that while the Department of Jobs, Enterprise and Innovation has responsibility for science policy, it does not have all the funding, all the agencies or all the responsibilities. The Department of Education and Skills, for example, has responsibility for the academic careers' issue and the Department of Health has responsibility for funding levels for the HRB. This means there is a distributed model where the Department of Jobs, Enterprise and Innovation has a coordinating role.

Other issues arising

Six additional issues were raised at the Q&A session and these focused on prioritisation; learning from experiences in other jurisdictions; the forthcoming report on data infrastructure; engagement with cross-sectoral groups; and greater attention to policy research.

The extent to which the prioritisation process is 'copper-fastened'

It was noted that the current research prioritisation document* explicitly states that '*there is little value to Ireland for researchers who collaborate with industry outside of Ireland*'. This was identified by a workshop participant as problematic and reconsideration was urged on the basis that the more Irish scientists and researchers are visible, the greater the advantage to Ireland. It was also suggested that there would be 'an unfortunate disconnect' if the new SST&I raised a new set of priorities without some room for accommodating them. There was some agreement with this by the panel and the representative from DJEI noted that it is the intention of the Government to review the 14 research priority areas in 2017.

* Research Prioritisation Project Steering Group (2011) *Report of the Research Prioritisation Steering Group*. Dublin:, Forfás. Available at: http://www.djei.ie/publications/science/2012/research_prioritisation.pdf

Learning from other jurisdictions

It was noted by the representative from DJEI that Denmark has had prioritisation as a big part of their agenda for some time and that the recently published UK Research Strategy has 'Deciding on priorities' as their No. 1 action. It was also reported by this Panel member that Denmark has reduced both the number of funding agencies and the number of third-level institutes performing research, so their approach has become much more concentrated.

Chief Science Advisor

It was stated by a workshop participant that the way in which the position of Chief Science Advisor is set up in Ireland is controversial, whereby the same person who provides advice to Government is also the head of a funding agency that is aligned with just applied and oriented basic research. One solution proposed was that advice on scientific matters to Government should draw on a broader range of expertise, including, for example, an expert in applied research, an expert in translation research and an expert in basic research. It was also noted that although this had been raised previously in the media, a response had not been made and it would be useful if this was followed-up.

Forthcoming report on data infrastructure

The need for a data infrastructure that can support access, sharing and linkage of data was highlighted. It was noted that the Health Research Board has been working on a report on this area, which will be published in the next few months.

Engagement with cross-sectoral groups

It was suggested that cross-sectoral groups, such as the Irish Academy of Medical Science and other similar groups, could take a leadership role in the area of health research and that this current report on the proceedings of the SST&I stakeholder consultation could be circulated to them.

Greater attention to policy research

Workshop participants welcomed an approach that would place an additional focus on policy research, although it was noted that this type of research would require additional funding since it is very limited at present. Another participant reiterated the need already identified for more health services research, noting that the Department of Health, through its Clinical Effectiveness Unit, was in a position to identify some of the evidence gaps in this area. The development of a funding loop to fund the review of systematic reviews and updates of clinical guidelines was highlighted as being important.

Summary and conclusions

This report presents the views of health researchers who attended the stakeholder consultation in response to the DJEI consultation document on a successor to the *Strategy for Science, Technology & Innovation* (SST&I). Focused discussions took place in groups across 5 broad topics and these were: public investment in research; building capacity and leadership for all areas of health research; creating and sustaining the infrastructure to support health research; generating new knowledge for health; and supporting Irish health system objectives and challenges through research. These discussions were followed by a Q&A session, with a panel of representatives from the Department of Jobs, Enterprise and Innovation, and the Department of Health. Analysis of key issues took place based on feedback presented by rapporteurs, supplemented by written notes from each group and information arising from the Q&A session. The findings from these sources are presented in this report.

Despite the engagement of a disparate group of participants with different topics for consideration, there was much consensus among stakeholders. In particular, they highlighted the need to:

1. Ensure a balanced portfolio that includes basic as well as applied research.
2. Recognise and measure the impact of health research in achieving societal as well as enterprise goals through quantitative and qualitative means.
3. Reward and prioritise excellence.
4. Adopt whole-of-Government, joined-up, cross-sectoral, multidisciplinary approaches, with connectivity across industry and between primary, secondary and tertiary healthcare, as well as other sectors.
5. Develop and offer incentives to national and international collaborations and networks.
6. Attract and retain researchers at all stages of their career, particularly at post-doctoral level, including support for mobility across sectors.
7. Address barriers to research across a range of areas, particularly ICT and ethics.
8. Create an infrastructure to support access, linkage, utilisation and development of data analytics, including development and maintenance of registries, unique patient identifier, electronic records and data analysis capacity.
9. Engage in a meaningful way, at a system level, with all stakeholders, including patients, patient organisations, healthcare staff and industry.
10. Embed the practice of research within the healthcare system, including leadership by a Director of Research, protected time for all staff and consideration of the establishment of a National Institute for Health Research.

Appendix 1: List of participants at stakeholder consultation

The following stakeholders (arranged alphabetically by surname) participated in the consultation:

Name		Role	Organisation
Nuala	Bannon	Assistant Secretary	Department of Environment
Paul	Barry	Company Secretary MMI	Molecular Medicine Ireland
Sarah	Barry	Researcher	Trinity College, Dublin
Stephen	Bartley	Principal Officer, DoH	Department of Health
Emma	Benton	*Delegating for* Dr. Aine Carroll	Health Service Executive
Adrian	Bracken	Researcher	Trinity College, Dublin
Fiona	Brennan	*Delegating for* VP Research	Dublin City University
Molly	Byrne	HRB Research Leader	NUI Galway
Pamela	Byrne	CEO	National Food Safety Authority of Ireland
Vinny	Cahill	Dean of Research	Trinity College, Dublin
Grace	Cappock	Public Affairs & Comms Manager	Medical Research Charities Group
Anne	Cody	Clinical and Applied Biomedical	Health Research Board
Sarah	Condell	Nursing Unit	Department of Health
Sarah	Craig	Health Information systems	Health Research Board
Sally-Ann	Cryan	Researcher	Royal College of Surgeons, School of Pharmacy
Brian	Cummins	Communications Officer	Health Research Board
Roisin	Cunniffe	*Delegating for* Marita Kinsella	Pharmaceutical Society of Ireland
Dermot	Curran	Assistant Secretary	Department of Jobs, Enterprise and Innovation
Amanda	Daly	Research Manager	Irish Cancer Society
Naomi	Elliott	Researcher	Trinity College, Dublin
Becky	Farrell	Research Officer	Royal Irish Academy
Ursula	Fearon	Health Promotion Policy Advisor	Department of Health
Caitriona	Fisher	Manager, CEO Ofice	HPRA
Godfrey	Fletcher	Interim Chief Executive	Cystic Fibrosis Registry
Tony	Flynn	PO, Health Structure Reform	Department of Health
John F.	Forbes	Researcher	University of Limerick, School of Medicine
Patricia	Gilhealey	Chief Executive	Mental Health Commission of Ireland
Catherine	Godson	Head of Department	University College Dublin, School of Medicine
Audrey	Hagerty	PO, Research & European Unit	Department of Health
Caroline	Hanley	Research Officer	MRCG
Orla	Hardiman	Head of Academic Unit	Trinity College, Dublin, School of Medicine
Maura	Hiney	Policy and Evaluation	Health Research Board
David	Hughes	Researcher	Royal College of Surgeons
Gerard	Hurl	Executive Director	Irish Academy of Medical Sciences
Fionnuala	Keane	Development Lead	NCRF
Joe	Keane	Consultant, HRB CSA	Trinity College Dublin and St James Hospital
Avril	Keenan	CEO	Debra Ireland
Brendan	Kennedy	Researcher	University College Dublin
Louise	Kenny	APO, Research & European Unit	Department of Health

Name		Role	Organisation
Chantelle	Kiernan	Science & Technology Advisor	Industrial Development Authority
Ulla	Knaus	Research	University College Dublin
Aideen	Long	Researcher	Trinity College, Dublin
Graham	Love	Chief Executive Office	Health Research Board
Joanne	Lysaght	Researcher	Trinity College Dublin
Teresa	Maguire	Population Health and HSR	Health Research Board
Gillian	Markey	Communications Manager	Health Research Board
Eilish	McAuliffe	Professor of Health Systems	University College Dublin
John	McCormack	Chief Executive	Irish Cancer Society
Noel	McElvaney	Researcher	Royal College of Surgeons
Hilary	McMahon	Researcher	University College Dublin
Deirdre	McNamara	Researcher	Trinity College, Dublin
Owen	Metcalfe	Associate Director	Institute of Public Health
Anne	Molloy	Researcher	Trinity College, Dublin
Ros	Moran	Data Project	Health Research Board
Eibhlin	Mulroe	Director	IPPOSI
Sean	Mulvany	Commercilisation Specialist	Enterprise Ireland
Diarmaid	Ó Donghaile	Director	Irish Blood Transfusion Service
Mairead	O'Driscoll	Director RSF	Health Research Board
Donal	O'Gorman	Director	Centre for Preventative Medicine, DCU
Eileen	O'Herlihy	Researcher	University College Cork
Stephanie	O'Keefe	National Director, Health and Wellbeing	Health Service Executive
John	O'Leary	Researcher	Trinity College, Dublin
Colm	Ó Morain	Clinician	AMNCH, Tallaght
Ciaran	O'Neill	Researcher	NUI Galway
Mary	O'Sullivan	Researcher	Trinity College Dublin
Siobhan	O'Sullivan	Ethics Officer	Department of Health
Miriam	Owens	Healthy Ireland Team	Department of Health
Stephen	Pennington	Researcher	Trinity College, Dublin
Jochen	Prehn	Researcher	Royal College of Surgeons
Jackie	Reed	Health Innovation Hub	Health Service Executive
Irene	Regan	Council member	Academy of Medical Laboratory Science
Tony	Reilly	Chief Pharmacy Advisor	Pharmaceutical Society of Ireland
Thomas	Ritter	Researcher	NUI Galway
Kenneth	Rogan	Communications Manager	IPPOSI
Ann	Ryan	Research	NUI Galway
Elizabeth	Ryan	Researcher	University College Dublin
Afshin	Samali	Researcher	NUI Galway
Peter	Scott	*Delegating for* Des Fitzgerald	University College Dublin
Hamish	Sinclair	Director, Health Information and Evidence	Health Research Board
Frances	Spillane	Assistant Secretary	Department of Health
Ray	Stallings	Vice President for Research	Royal College of Surgeons
Cormac	Taylor	Researcher	University College Dublin

Name		Role	Organisation
Douglas	Veale	Academic Clinician	St. Vincent's University Hospital
Abel	Wakai	Medical consultant	Midland Regional Hospital
Cathal	Walsh	Researcher	Trinity College, Dublin
Jenny	Watson	Research Officer	MRCG
Mark	Watson	Head of Programmes	Molecular Medicine Ireland
William	Watson	Researcher	University College Dublin
Maev-Ann	Wren	Senior Research Officer	Economic and Social Research Institute

Appendix 2: Workshop Programme

The following half-day Workshop was held at the HRB/Department of Health Stakeholder Consultation for a new *Strategy on Science, Technology & Innovation* (SST&I) on 11th March 2015 in the Westbury Hotel, Dublin.

PROGRAMME OF EVENTS

1.15–2.00pm	*Light lunch for attendees*
2.00–2.05pm	**Opening of consultation** (Graham Love, CEO, Health Research Board)
2.05–2.25pm	**Background to the new SST&I** (Dermot Curran, Assistant Secretary, Department of Jobs, Enterprise and Innovation)
2.25–2.45pm	**Health perspective on new SST&I** (Frances Spillane, Assistant Secretary with responsibility for research, Department of Health)
2.45–2.50pm	**Information on roundtable discussion** process and outputs (Graham Love, CEO, Health Research Board)
2.50–3.50pm	**Roundtable consideration of key topics and questions**
3.50–4.10pm	*Coffee break*
4.10–5.00pm	**Rapporteur feedback** on roundtable discussions
5.00–5.30pm	**Panel Q&A** and consideration of vision/ambition of a new SST&I (*Chair*: Graham Love; *Panel*: Dermot Curran, Frances Spillane)