



MATRIX
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SCIENCE INDUSTRY PANEL

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MATRIX Response to Barnett IREP

1. Background and Context

- 1.1 The priority of the Northern Ireland Executive is to halve the productivity gap in the private sector between Northern Ireland and the UK (excluding London and the South East of England) by 2015. Despite the successful efforts, in growing jobs and bringing in greater Foreign Direct Investment, over recent years by DETI and Invest Northern Ireland the productivity gap has been increasing. The Barnett review on economic policy was initiated by the DETI Minister in December 2008 to ascertain what changes in policy might be needed to reverse this relative decline.
- 1.2 The review acknowledged that many of the sectors that bring our productivity average down are outside the remit of DETI – These are agriculture; construction; transport and distribution. The review therefore concentrated on Exporting Sectors within the DETI remit as a start in addressing the issues.
- 1.3 Measures were identified in the review to attract inward investment and to grow indigenous companies. In particular the review encourages the greater prioritisation of innovation and R&D investment but also acknowledges that because of the recession and credit crunch and with the likely ensuing greater budget competition between departments a “More for Less” approach will be required. The review also highlighted that EU grant aid will diminish as a result of changes in state aid rules.
- 1.4 In proposing changes to economic policy the review noted that HM treasury’s drivers for growth in productivity are insufficient for our region and that technology transfer was a key driver of productivity.
- 1.5 MATRIX is Northern Irelands Science and Industry Panel and its role is to provide a regional business, academia and government strategic advisory input

on how to better harness regional science and technology through technology transfer to the greater benefit of our knowledge driven economy. We provided informed advice through our October 2008 reports into the DETI Minister. Our focus was on a demand-led view of what was needed **across government** for Northern Ireland to realise the full potential of its science, engineering and technology base. MATRIX has continued into a second phase to renew and review its thought leadership on Innovation Communities, Technology Transfer, Leveraging Public Procurement and has established new panels to advise on business opportunities in Clean Energy and Telecoms.

- 1.6 The work of MATRIX is very relevant to the Barnett review as well as important to the Regional Innovation Strategy action plan. Therefore before taking a detailed look at the Barnett IREP recommendations it is helpful for consistency to revisit the MATRIX views on the RIS action plan.

2. Relevance and Appropriateness of the RIS Action Plan Imperatives

- 2.1 Why innovation is important to Northern Ireland and the rest of the UK is clearly set out in the Sainsbury Review – *“The best way for the UK to compete, in an era of globalisation, is to move into high-value goods, services and industries. An effective science and innovation system is vital to achieve this objective”*.
- 2.2 An efficient and effective innovation ‘ecosystem’ must take a global perspective in order for us to compete in this ‘make anywhere sell anywhere’ world.
- 2.3 The challenge of getting more return from our R&D investment is everyone’s: Business, Universities and the Public Sector all working together to get something greater than the sum of the parts. We need government to encourage and facilitate mechanisms that allow business to leverage University skills and knowledge without compromising academic excellence.
- 2.4 An essential element in all knowledge driven economies is that they have an education system that is fit for the purpose of sustaining it. There must be greater engagement between business and the education system to ensure skills are matched to requirements.

3. Delivery Mechanisms of the RIS Action Plan

- 3.1 On our own Northern Ireland does not have the financial, people, markets or other resources to deliver the growth rates which we require. Our action plan needs to provide ways for us to leverage and gear our solutions, drawing on value adding partnerships with individuals and organisations outside Northern

Ireland. We need innovation mechanisms that actively encourage collaboration in UK, ROI and wider EU programmes.

- 3.2 Our innovation activities need to build on our Foresight identified strengths in Agrifoods, Health and Life Sciences, Information and Computing Technologies (ICT), Advanced Materials and Advanced Engineering (Transport Sector). We need mechanisms that encourage cross sectoral and interdisciplinary working in these areas to get 'The Power of One'.
- 3.3 We need mechanisms to enhance career progression and continuous training to maximize the opportunities for all our people to realise their ambition and to be active participants in the wealth and well being of our community.
- 3.4 We need to simplify and improve the effectiveness of University and Further Education College, knowledge transfer interfaces with business particularly with regard to Small and Medium size Enterprises (SMEs).
- 3.5 We need a mechanism that will deliver an ongoing dynamic interface between our knowledge suppliers and knowledge exploiters.
- 3.6 We need new mechanisms that will encourage and facilitate cooperative venturing and proof of concept funding to enable the growth of more successful businesses.

4. Any Potential Gaps in the RIS Action Plan

- 4.1 Much will come down to precisely how the strategic objectives are put into action by the respective owners. There may be a case for setting up a cross Government, University and Business advisory body to oversee the implementation of the strategy. Things in life rarely fail for lack of strategy but usually from a lack of implementation.
- 4.2 Innovation is delivered by people and entrepreneurial networks, which are free to challenge the status quo. Innovation is disruptive to the status quo and individuals and organizations with a vested interest in maintaining the status quo are resistive to change. The plan will need to ensure that this does not happen.
- 4.3 The STEM strategy must take account of primary education as the cause of numeracy problems start there.
- 4.4 Public sector procurement can provide enormous drivers for change and innovation pull through. This should be properly strategised and public

procurement rules adjusted to be inclusive of SMEs.

5. MATRIX Comments On The Barnett IREP Recommendations

Policy Development

- 5.1 MATRIX supports the view that innovation policy should be led and set within DETI, taking full account of the Executives economic policy. To facilitate this it would be helpful to continue to take independent advice from MATRIX. The current engagement between the cross Government Implementation Group and MATRIX should provide the basis for this. MATRIX and the Government implementation group could usefully take inputs from economic specialists in its membership. The execution and delivery of the strategy should continue to reside within Invest NI but as developed below and where it is appropriate, in the spirit of “more for less”, delivery should be outsourced from Invest NI. Indeed this should become the rule rather than the exception.

Policy Delivery –Invest NI

- 5.2 MATRIX agrees that a stronger emphasis on developing both R&D and Innovation in NI as a way of attracting, developing and retaining high value investments is important. But one should not be done at the expense of the other. While obviously strongly supporting the focus on R&D and Innovation, the balance toward Innovation to the detriment of other support/facilitation mechanism could put NI indigenous industry at a competitive disadvantage.
- 5.3 The tactics, processes and quality of processes for the delivery of policy should be developed and clearly set out by Invest NI in their Service Level Agreement with DETI. These processes should be open to all businesses and not the select view and should be based on a ‘function not form’ style. One possible mechanism to support businesses meeting the criteria to engage in these innovation support processes could be to equip them with vouchers so as to empower them to buy quality assured and approved services in a market competitive manner. The suppliers of these services could be quality benchmarked and the benchmark might include speed of delivery.
- 5.4 Vouchers would not cover 100% of the cost to encourage the beneficiary to be a discerning customer. The percentage contribution of the vouchers can be flexed depending on the market failing, nature of service, state aids etc. as well as budget constraints.

- 5.5 Vouchers would form only part of the armory of support mechanisms for innovation and training, however, the purpose of this approach is to encourage more contribution from business to the service cost as well as service delivery. Opening the delivery market will encourage competition between public (NDGB's, Universities, FE Colleges) and private (NISP, Businesses with under-utilised corporate services, specialist consultancies) sector bodies offering services. The best providers and services will thrive and grow and poor suppliers and services will decline. Banking services and investment functions should remain in the private sector, the innovation processes within Invest NI can take full account of investors "investment ready" criteria in order to optimise deal quality and flow.
- 5.6 Skills and training are key functions to support inward investment. Balancing the supply of skills to meet market demand is a key government responsibility. MATRIX would recommend that education providers be consulted in the design and provision of these courses and delivery outsourced via vouchers as above to both private and public sector bodies, recognising that not all skills needed in business are learnt in the school/college classroom.
- 5.7 MATRIX welcomes the suggestion that Invest NI transfer its budgets relating to tourism accommodation back to DETI to be redistributed to a more appropriate body as activity in this area is misaligned with the mission of Invest NI.

Portfolio of Innovation Policies

- 5.8 MATRIX welcomes the emphasis on the need for new innovation policies and, in particular, that industry led innovation communities, as suggested in the MATRIX report, should be developed as a pilot in collaboration with business, academic and government. However, it should also be recognized that businesses who want to or who are capable of independent innovation should continue to be supported.
- 5.9 The Panel does believe that these communities provide a focus for improved market intelligence and market channel development for innovation to succeed. They also provide a means for defragmenting the Innovation Ecosystem in Northern Ireland.
- 5.10 It is difficult to say that this can be achieved by importing a component like the VTT institute from Finland without taking a holistic view of that country's innovation ecosystem. There is benefit in exploring the opportunities of a new institution for commercially-oriented research but more work needs to be carried out on the effectiveness of such a model in Northern Ireland. The recommendation needs better articulation and planning before it should be

taken further.

- 5.11 The challenge in both Northern Ireland and many countries including Finland in developing their knowledge driven economies is how to balance and synchronise their respective investments in Knowledge Generation (Research) and Knowledge Monetisation (Innovation). In most cases the investment in monetisation of knowledge is incommensurate with that spent on R&D. Profitable growth only correlates with R&D expenditure in companies who actively pursue innovation strategies. Before building new research capacity we need to make better use through raising demand for our existing institutes including those in the ROI (e.g. Tyndall Institute) which we have free use and access to. However, we should be careful to avoid being seen to support existing activities that are not well aligned with priorities at the expense of new initiatives in agreed research areas.
- 5.12 The industry led innovation communities provide an important route for aggregating our SMEs and to co-operate to move up the market value chain. The defragmentation of our innovation eco-system will come from a partnership approach to innovation with industry leading, government facilitating and academe (HE & FE) providing inspiration. Incubating innovative businesses through such a partnership model must continue to be encouraged, for example by enhancing the role of the Northern Ireland Science Park (NISP) and its Connect programme, and working with relevant universities, FE colleges and agencies engaged in incubation activities, and so on. Incubation providers in such a model own and hone the process but delivery leverages resources from all those in the partnership – in effect “a more for less” exemplar.
- 5.13 Whilst exports are a key driver for the economy and we need to raise our professionalism in this area, MATRIX believes that further analysis is needed to identify the most appropriate model for NI.

Policy Delivery (DETI)

- 5.14 MATRIX has undertaken business opportunity reviews in Clean Energy and Telecoms areas at the request of DETI. In order to project the regional opportunities into the UK National agenda, MATRIX recommends a closer working link with the TSB (including Knowledge Transfer Networks) and the Northern Way (a co-operation between the North West, Yorkshire and North East regional development agencies) in addition to current engagements with the ROI and Scotland.

Policy Performance

- 5.15 Performance and progress against plan should be reported annually and policy and practice reviewed. It is right to constantly be innovative in the delivery of the plan but new initiatives should be brought in and old ones they replace stopped. The open market voucher based delivery outlined above will bring a market dynamic to this.

Finance

- 5.16 Assessing and managing financial risk in business is the specialist work of the banks, venture capital funds and business angels and not government. There is a case as argued by HM Treasury for government and private sector partnerships in Enterprise Capital funds to bridge the equity gap in the market between £100,000 and £1million. One method for connecting these to appropriate investment ready deal flows could be through the NISP and its successful CONNECT programme. Extending the reach of NISP throughout the region is worth encouraging, and one means for this could be through networking and partnerships between NISP and the FE colleges.

Project Appraisal

- 5.17 MATRIX supports the view as set out in its 2008 report that market led innovation should not be at the expense of technology led innovation. Monetisation of knowledge is more costly than research by a considerable margin and these resources come in the main from business which is why MATRIX firmly believes that industry must lead innovation in partnership with government and academia. The larger risk in innovation is market rather than technical knowledge.

Further Research

- 5.18 It is sound business practice not to hold capital assets on the balance sheet that are not directly linked to an organisations core business. On this basis it is difficult to understand the rational for the land assets of Invest NI. High value sectors are often attracted to skilled workforces. This has been the experience in North Carolina, moreover, nearly two thirds of the skills are not graduate but vocational skills taught in an industry responsive manner at community (FE) colleges. Invest NI could benefit their mission by working more closely with DEL and leverage the FE colleges in support of inward investment opportunities.

Co-ordination of Economic Policy

- 5.19 MATRIX welcomes the recommendations in the Report which puts the economy as a top priority and advises that the skills agenda is fully integrated into the ambit of economic policy. There are clear benefits to be gained from more effective liaison arrangements between DETI, DEL, and Invest NI, in particular, to ensure we match skills supply to the demand of our local employers and, especially, to future investors. It is worth noting that the Northern Ireland Adviser on Employment and Skills, who has an important advisory role to ensure that business and industry skill needs are communicated to government, has already established a task group to take forward work in this area and considers this to be a key priority area of work going forward.
- 5.20 On our own Northern Ireland does not have the financial, people, markets or other resources to deliver the growth rates which we require. Our action plan needs to provide ways for us to leverage and gear our solutions, drawing on value adding partnerships with individuals and organisations outside Northern Ireland. We need innovation mechanisms that actively encourage collaboration in UK, ROI and wider EU programmes. Emphasis should be placed on industry leading to defragment our innovation ecosystem. The cross government implementation group and MATRIX provide an excellent base to deliver this working in partnership.

Governance Arrangements

- 5.21 It is a no brainer that resources be aligned to priorities. MATRIX believes that a manufacturing innovation and design advisory service (MIDAS) should be established by Invest NI. The delivery of this service should be outsourced to the FE colleges so as to leverage their resources and provide an out reach at a level of granularity matched to our SMEs.
- 5.22 Whilst we envisage that the “front door” to the service can be provided at little cost via the college network not all the services need be provided by the colleges. They can administer and quality certify the services on behalf of Invest NI but open some services where appropriate to delivery by the private sector. We would favour a voucher scheme from Invest NI to access services where the service cost is in part borne by the service recipient. This system could be used to encourage larger businesses to assist with the training in business skills not learnt in the class room.
- 5.23 In welcoming the recommendations around the structure and focus of the Invest NI Board, it would be useful to recommend greater representation of

R&D exploitation experience to compliment international experience. The report does not make reference to a Chief Scientist / STEM Advisor however, a Chief Scientist / STEM Advisor should, at least, be a member.

Skills

- 5.24 Recent research from the UK Skills & Employment Commission shows that a one percent rise in productivity would help generate a significant increase in jobs and an additional £400 million for the local economy. Driving productivity requires the skills agenda to be effectively integrated into the region's economic plan and requires significant investment at all levels.
- 5.25 It is generally recognised that locations containing high productivity firms, offering high wages will attract and retain skilled workers. It is, therefore, important to raise our aspirations from lower level skills and low paid jobs, to encouraging and investing in our people to raise their skills levels, so that we can sell higher skills and attract higher paid jobs to Northern Ireland.

In summary

MATRIX welcomes the IREP and the contribution it makes to the ongoing discussions on improving our economic performance. We should try new things and in the spirit of innovation challenge the status quo and not hesitate to stop initiatives that have outlived their usefulness. A partnership approach to a healthy wealthy economy is essential. The innovation agenda in Northern Ireland must engage all – business led, government facilitating and academia providing the skills and inspiration. Invest NI should own and set out the processes for innovation in a partnership and best practice approach. Delivery of services connected to these processes should be outsourced with voucher schemes providing a percentage of the cost in order to get more for less and use market forces to drive quality and value. Greater use can also be made of resources such as those at the NISP, in business and in academia (HE and FE). Our economic growth must move at the pace of business and our market competitors. Through business we must forge partnerships in innovation with other regions such as the Northern Way and ROI and use our skills base to attract and retain inward investors.

MATRIX, the Northern Ireland Science Industry Panel