

## **OVERVIEW & UPDATE ON GOVERNMENT RESPONSE TO MATRIX REPORT**

### **Preamble**

1. MATRIX-The Northern Ireland Science Industry Panel produced its first report in October 2008 and this paper is an update on how the implementation of the Government Response to that report has been progressing, and an overview of the proposed next steps.
2. It should be noted at the outset that the production of this paper does not represent the beginning of the government response and wider implementation process. Implementation of MATRIX' report is already well advanced and DETI - with Invest NI - has led the way, working closely with other government departments and agencies to support industry in delivering the proposals of the MATRIX report for some 10 months now. The considerable progress which has been made is set out in the course of this paper.
3. However, the formalisation of this phase of the government response does mark what is anticipated to be a significant gearing-up of concerted and coordinated ministerial & cross-departmental support for prioritising the objectives of MATRIX in a cross-departmental and joined up way. The work which has been conducted to get us to this stage of development reflects the fact that the recommendations set out in the MATRIX' report deserve to be taken seriously. Moving forward implementation will require a coordinated innovative and future focused approach to ensure that the opportunities for the Northern Ireland economy are fully exploited.

### **Introduction – MATRIX & The Horizon Programme**

4. MATRIX was established as a business-led, market-focused panel of experts to advise government on the development of an approach which, over time, will help Northern Ireland to become an internationally leading region in terms of the economic exploitation of science, technology and R&D.
5. MATRIX' emphasis has not been on scientific or academic excellence, but rather on the commercial and economic advantage for Northern Ireland which

can be derived from exploiting high technology opportunities in the global marketplace. In this regard MATRIX' main focus is fully aligned with the Executive's Programme for Government objective of "halving the private sector productivity gap with the UK average (excluding the Greater South East of England)", and in particular it addresses the Executive's Public Service Agreement (PSA) 1 to "Promote higher value-added activity through innovation and the commercial exploitation of R&D".

6. MATRIX has to date had strong support from government and academia, but the most notable feature is that since its launch in February 2007 more than 60 high tech firms have been consistently involved in the MATRIX process. As such MATRIX has become a key voice of high technology business in Northern Ireland, and it enjoys the support of many of our significant employers and business leaders.
7. The MATRIX' report – through its future focused Horizon Programme - makes specific recommendations for business to exploit emerging opportunities in the Life & Health Sciences, Agrifood, Advanced Engineering (Transport), Advanced Materials, and ICT sectors. These are now in the public domain as a high quality source of market intelligence for our leading high tech firms to use<sup>1</sup>. It also makes clear recommendations for government regarding the more effective use of Public Procurement to encourage innovation in small and medium sized businesses. But perhaps the most interesting and important work emerging from MATRIX has been in the opportunities identified in spaces across and between high technology sectors, and it is on this area of the highest value added return that the Government Response to MATRIX has and will continue to primarily focus.
8. This paper therefore sets out the steps that the NI Executive can now take to turn MATRIX' blueprint for Northern Ireland's future prosperity into reality.

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<sup>1</sup> For more information MATRIX full 8 volume report can be accessed at : [www.matrix-ni.org](http://www.matrix-ni.org)

## Context for Implementing the MATRIX Report

9. Northern Ireland has an economic legacy and inheritance which in the past was based on world leadership in the development and exploitation of materials, manufacturing and engineering, and aerospace technologies and aeronautical design<sup>2</sup>. In the past we have also been adept at keeping ahead of new technological developments and have often benefited from the convergence of traditional industries with new scientific advances, for example in key areas of agricultural production where selected renewal through the adoption of new science has kept aspects of this industry competitive for many years<sup>3</sup>.
10. The legacy of that tradition is everywhere to be seen. It permeates all of our main business sectors - agriculture & food, advanced materials, advanced engineering, construction, software, telecommunications, life & health sciences, the service sector and the growing renewable energy sector.
11. But in an increasingly competitive global market there is nowhere for mediocrity to hide and no rewards for second place. The MATRIX' report recommends that Northern Ireland needs to find its niche areas in a select number of global high technology markets to allow it to secure a leadership position in those specialisms over timelines of 2, 5 and 10 years.
12. This is an important strategic shift. The world economy will double in size over the next decade<sup>4</sup> and we need to be ready to marshal our resources in the most efficient and effective way to seize the advantage that offers.
13. MATRIX, representing high tech industry and working across many sectors, has given us thought leadership and guidance – across all Northern Ireland departments we must ensure that we support the implementation of these recommendations to maximise the value to the economy.

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<sup>2</sup> Marine engineering, textiles and aerospace dominated the Northern Ireland economy until the last quarter of the 20<sup>th</sup> century. Residual effects of this dominance can be seen across many contemporary sectors & manufacturing remains more important to the NI economy than too many other UK regions – see *MATRIX Report Volume 8: Technology Capabilities*, Chapter 4 “Advanced Manufacturing” & Chapter 5 “Advanced Materials”.

<sup>3</sup> See *Vision twenty – twenty: Food Strategy Implementation Partnership Report of Foresight Leadership Group*, Sept 2006

<sup>4</sup> HM Government, *New Industry, New Jobs*, April 2009

## MATRIX Recommendations

14. MATRIX has thus brought forward recommendations which if implemented fully would help lead to a significant re-gearing of support for economic development, spearheaded by Northern Ireland's high technology and knowledge based firms. It proposes a more dynamic relationship between the key stakeholders in the economy – one that is Business led, Academia Inspired and Government Facilitated.
15. This reflects the reality that it is not governments and civil servants who are best placed to identify and exploit the market opportunities which allow for regional competitiveness and global success<sup>5</sup>, but industry itself. A modern economic strategy for a region like ours needs to increasingly build on collaborative business-led activities and networks, actively supported by government and academia. It is well established that the most effective regional economic policies identify existing or emerging commercial strengths and build on them in a way that encourages collaborative activities to evolve. It is encouraging to note Northern Ireland has already made some considerable strides in this area through the Invest NI Collaborative Network Programme<sup>6</sup> and this provides a platform to take this to the next level.
16. While *all* viable<sup>7</sup> collaborative activities should be encouraged support needs to take into account the inevitable variations in the ability of companies or groups of companies to aspire to market leadership positions and must be provided in a systematic and balanced way. Business collaboration with clear business sector leadership is central to the MATRIX objectives. Consequently its practical recommendations to achieve a step change in the growth of the Northern Ireland economy through the exploitation of science, technology and R&D, are:
  - to encourage and facilitate the formation and development of “Industry-led Innovation Communities” (IICs);

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<sup>5</sup> Michael E. Porter, *The Competitive Advantage of Nations*, 1998, p. 656

<sup>6</sup> Invest NI's Collaborative Network Programme was developed in October 2006. MATRIX work has now helped to take this process to a new level to progress and develop this initiative.

<sup>7</sup> Porter, *On Competition*, pp.264-265

- for industry to create business and technology exploitation road maps within each of these communities;
  - to seek the development of a world class Intellectual Property infrastructure in Northern Ireland;
  - to develop a flexible and responsive skills system in Northern Ireland which aligns with evolving industry needs; and
  - to seek a responsive regulatory framework within government which can accept and manage a higher level of risk<sup>8</sup>.
17. MATRIX recommends that these are the areas on which government should target its support in the first instance. Notable areas of focus should be in: facilitating business to lead the practical development of new IICs; ensuring better, more timely advice and sign-posting for IICs and firms within IICs to access available government support, building on the support currently available and taking support for the existing networks to the next stage by matching skills provision to company/IIC needs; improving the range and quality of IP support and advice to firms; and creating a less risk averse approach to providing government support to R&D programmes – possibly including renewed consideration of the use of a portfolio approach to the dispersal of risk .

### **Context for MATRIX Approach & The Role for Government**

18. MATRIX' objectives are timely and must be set in context of wider developments in the economic landscape of the region. It reflects a significant shift in economic policy and planning which is emerging from the growing realisation of both the challenges and the opportunities which Northern Ireland's economy must address as we enter the second decade of the 21<sup>st</sup> century.
19. As a small, open regional economy which has a preponderance of indigenous SMEs Northern Ireland's firms are often too small to compete to maximum

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<sup>8</sup> MATRIX, Report to DETI, Volume 1, pp. 41-43, October 2008,

effect in the global marketplace by themselves. Increasingly, however, a number of our more forward focused and innovative companies have recognised that by collaborating with one another and seeking to share their complementary strengths and capabilities they are much better positioned to compete nationally and internationally than they ever could alone.

20. This movement towards more inter-firm collaboration is emerging organically from within our business sector itself. Other actors in the Northern Ireland economy - going much wider than MATRIX - have noticed and encouraged this emerging pattern of growing economic renewal from within our own business community<sup>9</sup>. If the first task of government is to provide a robust macroeconomic platform for business to build on, underpinned by sustained political stability<sup>10</sup>, it is encouraging that in the current climate business is now showing a real desire to collaborate to achieve new opportunities for wealth creation.
21. Therefore the conditions need to be fostered which will help our economy move to the next level. It is clear that government's second key role is in supporting and driving forward the improvements needed in the structure of the wider economy to ensure: an effectively educated workforce; an appropriate physical infrastructure; accurate and timely economic guidance and information; and, ongoing improvements to the institutions that provide them. Such inputs are required across the entire economy and are a foundation on which everything else is built.
22. Government must also establish the rules and incentives which will encourage productivity growth within the high technology business communities. In the context of a devolved administration this could include factors such as: encouraging investment in intellectual property; addressing the legal and financial needs of industry; regulating to protect the rights and needs of the consumer; and setting out a regulatory environment which promotes innovation rather than "freezing the status quo".

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<sup>9</sup> Invest NI Collaborative Networks & Centres of Competence exemplify this recent trend.

<sup>10</sup> Porter, *On Competition*, p.261

23. With these objectives in mind, Invest Northern Ireland is increasingly engaging with collaborative networks and clusters of companies as they come forward to pursue agreed and mutually beneficial business opportunities. Unsurprisingly many of these first business consortia are from the leading edge high technology sectors, and are representative of the MATRIX findings. But it is increasingly apparent that this marks a new emerging approach to business development in the Northern Ireland economy right across the board, not just the high tech sectors, and it could in time offer new opportunities for all the business sectors of our economy.
24. MATRIX' report is therefore straddling what might be seen as a transitional period in our economy over the next decade. It suggests that we should increasingly seek to stimulate and focus our support and resources on business-led, market focused consortia of firms with aspirations to trade internationally. Such a paradigm shift should not, of course, be limited to science and R&D based initiatives, but in the first instance that is what MATRIX – as the Northern Ireland Science Industry Panel – has focused on, and that is therefore where this paper will focus

### **Possible Role of Industry-led Innovation Communities (IICs)?**

25. Industry-led Innovation Communities (IICs) might be seen as the natural outworking of this new impetus for collaboration between businesses, government and academia across all of our key sectors and throughout the economy. Cross-sectoral, multi-disciplinary communities ultimately offer an innovative new dimension to help seek out new market opportunities. It is an approach which can build further on our strengths and which has the potential to put us ahead of many competitor regions in the exploitation of key niche high technology market areas.
26. These proposed IICs have the potential to make a major contribution to Northern Ireland's economy and society by:
- Creating new, high value added & sustainable employment;

- Encouraging the creation of additional ancillary employment to support the development of the Industry-led Communities' wider supply chains and the broader social and economic support systems (e.g. financial services, legal services, retail, construction, hospitality etc);
- Generating new wealth and profit for the economy;
- Generating a Global leadership position for Northern Ireland in the exploitation of key strategic niche areas of high technology industry;
- Potentially drawing in new Foreign Direct Investment;
- Improving and enhancing the region's R&D capabilities;
- Developing and enhancing the region's skills base;
- Proving and deploying new technologies which can be used to create additional public value through improved public services while also reducing costs to the tax payer (e.g. Traceability of Food, Connected Health, Energy Security, wider use of procurement etc);
- Developing a sustained partnership model involving Business, Government and Academia in a new and dynamic way which, when proven, can be rolled out across all aspects of Northern Ireland's economy and society to help alleviate some of the effects of the current recession.

27. The role of government now is to take steps to put in place the necessary mechanisms which can support and facilitate key Northern Irish business leaders – with the support of FE and HE leaders as well - in delivering against these major opportunities.

28. It is important to be clear that IICs should not be selected by government, nor should they be drawn from academia on the basis of research excellence. It is absolutely essential that IICs are created and developed by industry based on a

verifiable potential international market opportunity (over the medium to long term of 5- 10 years if necessary)<sup>11</sup> .

29. An IIC should not proceed where there is no clear and identifiable business leadership in place. While government can help to facilitate the private sector to achieve this it should not attempt to select for businesses the market opportunities they should pursue. That does not, however, preclude government from assisting with the development of market intelligence and assisting with plugging market failure around medium to long term business planning, and the creation of MATRIX itself, and the market intelligence of its Horizon reports are an example of this in practice.
30. To drive forward this new model will bring new challenges to business in adapting business models and sharing risk and rewards. It will also bring new challenges to government in facilitating this new approach not least in recognising the need to be able to provide support where the specific outcomes are uncertain and may take some time to come to fruition. Academia will also be challenged by the need to adapt to new models driven by industry needs. However if all parties are determined to overcome these challenges the Matrix report identifies new opportunities to drive growth in the Northern Ireland economy which will be worth the effort by all the parties.
31. While it is clearly true that high quality R&D is the lifeblood of most new economic development in the modern world, the formation of IICs should not be based on technology push from the research base, however good that research might be. Neither can it rest on a public sector brokerage initiative which seeks to conjoin firms artificially. This reflects some of the learning from past “cluster” based initiatives which were tried in Northern Ireland<sup>12</sup> and it also reflects the experience of more contemporary consortium/cluster based programmes and activities which are identifiable internationally<sup>13</sup>.

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<sup>11</sup> MATRIX, First Report to DETI, October 2008, “The Innovation Gap & Fragmentation” pp.32-33

<sup>12</sup> Various approaches to clusters were promoted, for example, by Northern Ireland Growth Challenge during the 1990s. Cluster propositions also featured strongly in the DETI-led policy document *Strategy 2010* published in March 1999, though these mainly leaned towards the development of sectoral groupings.

<sup>13</sup> Internationally, other approaches which have informed the development of MATRIX’ IICs Proposal include examples from UK regions, France, Finland, Sweden, Germany, New Zealand, and the USA (notably San Diego).

32. The simple premise which can move towards maturation as an IIC should be that a consortium of companies is facilitated to coalesce around an agreed market opportunity which they themselves have identified and have the ability to exploit. This business-led element is the key as neither government policies nor academic research can ever substitute for the business sector's own understanding of the market. This places emphasis on government in facilitating the growth of the IICs and working as a partner with the firms involved, but not directing them. The full range of attributes and capabilities which a mature IIC might aspire to are set out below in *figure 1*.

***Figure 1: Ideal Attributes & Capabilities Which Characterise a Successful IIC***

<b>Industry Leadership</b>	The community is led by a grouping of industries sharing a common platform for individual and collective success. This is the primary indicator that an IIC has or will emerge.
<b>Market Trading</b>	The community has a clear roadmap on how to reach and trade in a specific global market and understand the exploitation mechanisms to that market to achieve consumption.
<b>IP Focused</b>	The community utilise NI academic and research capability and is generating IP that creates value added to it.
<b>NI Capability</b>	The community is using existing capabilities in NI as a platform and developing further capabilities to the benefit of the NI economy.
<b>Community Formation</b>	The community has formed and includes NI companies (Multi-Nationals and SMEs), academia and international collaborations of both an academic and company nature.

<b>Funding</b>	The community understands that while it sets directions, funding can emerge from a variety of sources including Industry, Venture Funds, Invest NI, InterTardelreland, wider NI govt, European Frameworks, ESPRC etc and that all funding gets united on common platforms.
<b>Policy</b>	The community understands that it needs to influence the regulatory and policy framework in NI
<b>Alignment</b>	to support its development but that this is a lagging indicator
<b>Portfolio</b>	The community understands that it needs a portfolio of projects / initiatives over a variety of timescales to ensure a consistency of approach and support and also to gain momentum.
<b>Management</b>	
<b>Human</b>	The community understands that it has an obligation to inform the relevant groups on shaping the multidisciplinary skills that will support its future.
<b>Capital</b>	

33. It is worth reiterating that IICs will have different models depending on the market opportunity and organisations taking part and as they evolve may contain not only high-technology firms but also the full range of supply chain organisations needed to sustain the community’s ambitions. This might include, among others, legal services, financial services, specific skills providers – both FE and HE - and a range of sub-supply firms from diverse backgrounds and sectors, including many SMEs supplying basic goods and non-high tech components, and including primary producers as well as processors. IICs might also draw in third sector and voluntary organisations where they have a role to play. In short IICs will present new opportunities across the whole economy. For more information an outline model of MATRIX’ view of what a mature IIC might look like is attached at **Annex 1**.

34. Since the MATRIX report was launched in October 2008, DETI and Invest NI have worked closely with industry to facilitate the early stage development of Industry-led Innovation Communities coming out of the business sector. It is a clear measure of MATRIX' credibility and success that many companies have taken on board its findings and are already forging ahead with the establishment of networks and consortia which can – in time – evolve into IICs<sup>14</sup>. Notably, more companies than originally engaged with the MATRIX process are now showing interest in building consortia-based approaches and could soon begin moving towards embracing the IICs concept.

### **IICs' Development – The Current Position**

35. DETI and Invest NI have provided innovative support to key Northern Ireland based firms – in some cases building on existing collaborative networks. This has included facilitating the development of consortia and networks so industry can start moving towards new market opportunities, creating new jobs and securing existing employment. As a result business areas which are now being developed as collaborative opportunities with future IIC potential include: Renewable Energy Technologies; Smart Grid Technologies; Composite Technologies; Connected Health; Traceability; and, Software. It is from the support provided to date across these areas that the first tranche of what have the potential to evolve into the first IICs has begun to emerge.

36. To date independent analysis has revealed that, even in the current economic climate, the emerging IICs have contributed to securing 330 existing jobs and the creation of another 303 new jobs<sup>15</sup>. It seems self-evident that if such success can be scaled across the whole Northern Ireland economy it would be a notable positive development.

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<sup>14</sup> More than 60 companies contributed to and participated in a MATRIX conference on 24 March 2009, at which a series of MATRIX / Invest NI facilitated workshops analysed and helped to establish several emerging Industry-led Innovation Communities. This followed a sustained year long consultative process which commenced at an earlier conference on 7 February 2008.

<sup>15</sup> PA Consulting Preliminary Assessment of IICs Progress for DETI/MATRIX, May 2009.

## Government Facilitation & Interventions for the Development of Early Stage IICs

37. This government response to MATRIX' first report therefore focuses primarily on creating sustained, practical and effective facilitation for the development of Industry-led Innovation Communities. As stated at the outset, this fundamentally represents a paradigm shift in economic planning activity in this region with the emphasis being increasingly focused on the development of collaborative networks and consortium based business activities. While business must lead on the identification of market opportunities, and academia must work to match knowledge, skills and research to the needs of these communities, government has a key role to play in managing and facilitating the space in which this happens.
38. But the role of government as a facilitator is not to be interpreted as a passive one. While governments should not seek to manage markets or to curb market forces, there is an important strategic and guiding role that government can play in helping businesses meet the challenge of trading in a global economy. Government also has a role to play in ensuring that new market opportunities driven by government procurement are fully exploited to drive innovation and commercial advantage. The recent DBIS policy document "New Industry, New Jobs" states:

*Government can promote investment, growth and jobs ... through more policy consistency across departments, greater regulatory certainty, smarter public procurement and a readiness to intervene where necessary. This involves Government acting creatively and pragmatically in new ways to supplement the market, not the Government substituting itself for the market.<sup>16</sup>*

39. In this spirit of proactive facilitation a cross-departmental group of senior officials has been established under DETI leadership to develop and oversee the creation of new support systems to implement the MATRIX proposals as

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<sup>16</sup> HM Government, *New Industry, New Jobs*, April 2009, p.21

well as unblocking impediments identified by the IICs. As well as DETI the other participating departments are DARD, DEL, DoE, DE, DHSSPS and DFP. Executive agencies and delivery bodies of the relevant departments are also represented, including Invest NI, InterTradeIreland, the Agrifood and Biosciences Institute (AFBI), the Health & Social Care R&D Office and the (DE) Schools Inspectorate.

40. This cross-government group has already made considerable progress towards developing a coordinated and consensual multi-agency and multi-departmental approach to the actualisation of the MATRIX vision. The senior officials' group will remain in place and provide an open and ongoing interface with the MATRIX Panel and with wider industry as the MATRIX report is implemented.
41. Existing support services from across DETI/Invest NI<sup>17</sup>, with additional support from DARD, DHSSPS and DEL, have been combined in a provisional package and provided to the emerging IICs and related networks with significant early success. Experience so far suggests that public sector support for the IICs will be derived from across all of the participating departments and agencies, but, unsurprisingly, Invest NI has been and will remain the main source for support to the communities through the provision of facilitation, and its wider suite of programmes. It is therefore worthy of note that many of Invest NI's programmes already align to the needs of Innovation Communities. Invest NI has undertaken to continue to work with MATRIX to meet the needs of the IICs and has already taken positive action to provide support to the nascent communities. Existing Invest NI support provided to the MATRIX IICs model has come through:
  - The realignment of the Invest NI Intellectual Property (IP) support programmes to help meet MATRIX ambition for Northern Ireland becoming recognised as leading region for high quality IP;

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<sup>17</sup> Key support from, among others, Invest NI's R&D Programme, Collaborative Networks Programme, IP Programme, and DETI's Innovation Policy Unit and MATRIX Secretariat

- The MATRIX influenced development of a new Centres of Competence programme which will be important in the provision of key R&D and knowledge for the development of IICs; and
  - The recently reorganised Invest NI R&D Programme which is already improving the timeliness and quality of the support available to R&D based companies working within the early stage IICs.
42. Other government departments and agencies have also responded well to the MATRIX recommendations. For example, DEL has adapted its Skills Strategy to match the priorities identified by MATRIX; DARD has aligned the innovation strand of its Evidence & Innovation Strategy with many of the MATRIX recommendations; DFP are also working with the MATRIX secretariat to consider new approaches to the use of public procurement; DFP, DETI and Invest NI are also working on practical measures to bring forward new, more efficient ways of supporting R&D exploitation projects with industry, as well as giving renewed consideration to a portfolio based approach to risk management more generally; and within Health & Social Care Connected health has been integrated into the new regional Public Health Agency and major businesses will be contracted to deliver services..
43. So, it is evident that across both the private and the public sectors much is being done to bring the work of MATRIX to fruition. But this is only the beginning, and it is necessary to build on this momentum to take this process to a higher level.

### **Preliminary Phase Industry-led Innovation Communities Programme**

44. To take this forward in a manageable way, better mechanisms to support collaborative business ventures will be developed. This will initially entail working closely with the first tranche of Industry-led Innovation Communities that have emerged as the most developed to date. This work has already commenced and it proposed that over the next two years appropriate support mechanisms will be refined to better support a collaborative business model.
45. Some early business networks which are already emerging as potential IICs through the efforts of some of our most innovative companies are: Advanced

Materials; Smart Grid Technologies; Renewable Energy; Traceability; and Connected Health.

46. During the preliminary IIC phase it is proposed that the emerging support mechanisms should be kept under continuous review and assessment. The objective is to use the initial period to test the concept, work closely with the participating firms and consortia, and seek to align government support to the actual needs of this new way of encouraging business growth and development. It will involve new learning for all concerned.
47. Efforts must be made to “fast-track” support into the first phase of developing IICs and such support may embody a more progressive approach to risk taking.
48. This will be a major challenge for Northern Ireland Government, but it is imperative that we learn to support collaborative business ventures in the most effective way. The specific proposals for Government action are set out below.

#### **Government Proposal 1 – “Government Innovation Gateway” & On-Line Portal**

49. Whilst significant progress has been made to date in supporting the emerging IICS this report focuses on how cross government support can accelerate this process and exploit the economic opportunity to its maximum advantage. What has become clear is the role of the Innovation *Community Facilitator* will be key and act as a conduit for information flow, catalyst, challenger, problem solver, broker and promoter for the IIC. They will establish linkages for and on behalf of the IIC. They will facilitate the IIC to develop complex webs of internal and external linkages, as well as patterns of both competition and cooperation. They will understand the strategic direction of the community and act as a change agent for the IIC. They will have the skills to facilitate team decision making, but not steering or leading in a traditional sense. They will ensure balanced inclusion within the IIC. Further details of the role of the Facilitator are included in **Annex 2**.
50. However from DETI and Invest NI’s experience of working with businesses as they form networks and early stage communities it is clear that many of

Northern Ireland's existing support structures for industry are designed to interface with individual companies, not with consortia or groups of firms. Invest NI has already made some notable moves to address this, but for many areas of government, and indeed business and academia as well, this way of working represents a cultural challenge. It is a challenge we must address as a matter of urgency.

51. Business has clearly expressed the view that there is already a significant level of relevant financial and other public sector support already available. However, based on the wide-ranging feedback from more than 60 high technology firms engaged in the MATRIX consultation process, one of the biggest constraints on maximising the use of public support programmes is that many companies, especially SMEs, find it difficult to navigate their way to the appropriate support available from across a number of departments and public sector organisations.
52. The reality is that there is currently no one single source of guidance or advice for business which can align the complex and various needs of a consortium to the many programmes which exist to meet those needs. Progress has been made in recent years to address this within Invest NI, but there is clearly scope for more to be done across the full range of support offered by government as a whole. A mapping exercise conducted by the MATRIX Government Implementation Group has revealed numerous available support programmes (see **Annex 3**), with the recognition that there are likely to be more related sources of support available.
53. Simplifying the means to access support for the IICs – and making that support more tailored to the multiple and complex needs of consortia – must be the first priority for government action. This will enhance and drive a “can do” attitude, improve efficiency and ensure better and timelier delivery of support for collaborative business structures.
54. DETI and invest NI, therefore, will work with DEL, DARD, DHSSPS, DFP, AFBI, InterTradeIreland - and other interested Departments and Agencies - to

create a new “Government Innovation Gateway”. This will effectively be a “first stop shop to government support” to help facilitate the development of the IICs, drawing together the miscellaneous strands of public support available into a single, easily navigable point of contact. This has the potential to make a significant contribution to reducing the bureaucracy and red-tape which collaborative business ventures are perceived to face, as well as potentially reducing the layers of bureaucracy across departments and agencies by drawing together existing support in a more efficient and manageable way. The Government Innovation Gateway will be the primary route through which the community will navigate through cross-government support and will be a key resource for the IIC Facilitator to maximise government support to drive forward the objectives of the community.

55. Moving forward it is possible that the Government Innovation Gateway may eventually comprise a small dedicated team with an in-depth knowledge and awareness of the full range of public sector support available.
56. But to ensure that the preliminary/prototyping phase of the first tranche of Innovation Communities gets up and running quickly, it is proposed that an interim mechanism to test this concept and develop the structures necessary for the Government Innovation Gateway, should be established under the direction of the MATRIX Secretariat and the MATRIX Government Implementation Group. This interim mechanism could draw on existing resources from across a number of government departments and agencies, and existing staff resources should be identified and assigned to it from participating departments and agencies.
57. The Government Innovation Gateway will have the primary task of ensuring that timely and high quality advice and guidance is targeted on the specific needs of the companies engaging in the first stage IICs programme. It will provide a brokerage and facilitation service in bringing together viable public sector funding and other forms of support in a highly structured and coordinated way, from wherever that support might be situated across the public sector

58. Consideration will also be given to how best on-line support can be developed which sets out an easily navigable and straightforward record of support services to industries working in the IICs.
59. In the first instance it is proposed to test the Government Innovation Gateway strictly within the confines of the first phase of IICs. But that in no way represents the development of a two tier support programme. Rather, over the two years of the first phase of the IICs programme the Government Innovation Gateway will be assessed, evaluated and remodelled as required to meet the needs of industry by working closely with the companies engaged in the first tranche of communities. Once established the Government Innovation Gateway approach will be scaled to match the evolution of the IICs and in this way it will become open to all firms participating in the IICs programme as it grows. A possible outline for how this might be taken forward by the MATRIX Government Implementation Group can be found at **Annex 4**.

## **Government Proposal 2 – Developing Support Mechanisms to IICs**

60. IICs access to existing government support and funding mechanisms will be made more responsive and efficient by virtue of the development of the “Government Innovation Gateway”. But more still needs to be done to ensure that the first phase IICs are to get the sort of interventions they need to grow and prosper.
61. It will be at the early stage of establishing the IICs that there will be the greatest need for financial intervention by Government. It will not be until the IICs are showing substantial stability and signs of making their own way into new markets that real private sector investment (via Venture Capital, banks or business angels etc) is likely to come into play. Indeed, without the government sponsored support and facilitation to date there would not be a nascent IIC programme already in development.
62. While existing support arrangements have helped to establish the existing IICs, there may be merit in exploring new, more innovative means of delivering financial support to collaborative business proposals. This could

include revision of the existing R&D and Innovation assessment methodology as well as consideration of employing a portfolio approach to managing the dispersal of risk. DETI, DFP, Invest NI and DARD will therefore consider the merits of a new approach to assessing R&D and Innovation projects, including the dispersal of risk. Any changes to current methodology will clearly impact on all R&D and Innovation proposals and not just those brought forward by IICs.

63. In recognition of their potential to contribute to a step-change in Northern Ireland's economy, within the parameters of the IICs preliminary programme it might be feasible to "fast track" financial support by virtue of using a Portfolio approach to managing the dispersal of risk. While such an approach across the wider knowledge economy might represent too much change in one go, in the confines of the IICs there is an opportunity to test the concept in a controlled and well monitored environment, thus creating minimal risk.
64. As with the Government Innovation Gateway, the fast tracking of support to the first phase of the IICs programme should not be seen as marking the development of a two tier support programme for industry. Rather it recognises the unique challenges faced in delivering timely and effective support to companies which seek to participate in innovative new collaborative and consortium based market focused activities. Over the first two or three years of the establishment phase of the IICs concept any fast tracking of support will be kept under continuous assessment and evaluation and the resultant learning from this opening period will help to inform support for all firms participating in the IICs programme as it evolves. A possible outline for how this might be taken forward by the MATRIX Government Implementation Group can be found at Annex 4.

### **Government Proposal 3 – Enhanced Role for the Further Education Sector in IICs**

65. Northern Ireland's Higher Education sector remains of critical importance to the development of the "Industry-led Innovation Communities" both in terms of the provision of high quality R&D and in producing the well skilled graduates needed for the economy as a whole. This is reflected in the fully integrated role the universities have had in the MATRIX process to date, and they will continue to provide thought leadership, guidance and inspiration to the MATRIX Panel itself with each institution remaining represented at pro-Vice Chancellor level and at academic expert level across all MATRIX & Horizon Foresight Programme sub-panels.
66. Both Queen's University and the University of Ulster are central to economic development and their R&D, skills and wider international knowledge networks are indispensable to the further development of the Industry-led Innovation Communities proposition. Already, through their involvement with the emerging IICs, Northern Ireland's Higher Education institutions are providing invaluable world class knowledge, skills and research strengths to the start-up stage of the programme. This will continue to be developed, and the ongoing support of initiatives such as Invest NI's Centres of Competence & R&D programmes, the DARD R&D Challenge Fund, and DEL's Connected Programme (linking SMEs, FE and HE), will continue to place the universities at the heart of the MATRIX implementation process.
67. But while it is increasingly evident that Northern Ireland's businesses generally have a strong HE pool to draw from, it is at the level of technical and more general skills that companies report the largest gap. In that respect the Further Education sector also has a key role to play and must be encouraged to engage with the IICs in new and innovative ways.
68. As already suggested, through initiatives such as the DEL Connected Fund conspicuous progress in addressing this gap has been made. But there remains a strong and sustained demand from industry to create a more developed and enhanced role with and for the FE sector in contributing to a stronger base for a flexible and adaptable knowledge economy, incorporating good basic skills development with an increased volume of key specialisms, targeted where possible on the needs of smaller firms.

69. FE has a major role to play in assisting the development of IICs and this could be built upon. FE has many advantages when engaging with the range of firms which will be found in the community structures, such as: good existing linkages with the SME & micro-business base; good geographical spread; and the scope to work with small companies to address technical needs.
70. The Further Education Colleges – as well as DARD’s College of Agriculture, Food and Rural Enterprise (CAFRE) – must therefore be given the support and guidance from key government departments and agencies to align their support to the needs of Industry. This will support the development of preliminary IICs phase and provide an enhanced service to the development of such communities.
71. Therefore over the two to three year preliminary IICs period FE support to the communities should be analysed for its effectiveness and appropriate recommendations developed to improve its focus and ease of availability to smaller firms in collaborative relationships. As a result proposals for a new and sustained suite of FE support to companies working in the IICs will be brought forward. An existing platform to be considered from the outset might be the support currently provided by the Manufacturing Advisory Service (MAS) in other UK regions. A possible outline for how this might be taken forward by the MATRIX Government Implementation Group can be found at Annex 4.

#### **Government Proposal 4 – New Approach to Public Procurement to Encourage Innovation in Northern Ireland Industry**

72. MATRIX established a joint Business/Government Panel to investigate the potential for the public sector in Northern Ireland to use public procurement as a means of improving service delivery and also to provide stimulus to Northern Ireland’s high technology companies.
73. The Panel concluded that the Northern Ireland departments had an opportunity to ensure mainstream public procurement practices could become more “innovation friendly”. This could be achieved by making fuller use of the

guidelines issued by the Office of Government Commerce and the European Commission.

74. As a result MATRIX has now proposed that the Northern Ireland Executive should establish a pilot scheme using public procurement as a stimulus to encourage the exploitation of new technologies. This proposal is based on a pre-commercial procurement model.
75. In order to test this concept it is proposed that a pre-commercial approach to public procurement should be piloted across a number of government departments in partnership with DETI and CPD. The application of this approach is likely to have within it the potential for indigenous Northern Ireland SMEs to build mutually beneficial partnerships with larger companies to bring innovative solutions to public service needs.
76. This approach would be valuable to the development of Industry-led Innovation Communities and may identify new market opportunities around which industry can coalesce however **it will go much wider and will be open to the wider market.** The application of innovative forms of procurement will have a major impact in terms of more flexible, cost effective and innovative solutions to public service delivery. It also offers opportunities for stimulating new market opportunities and innovation for businesses. A possible outline for how this might be taken forward by the MATRIX Government Implementation Group can be found at **Annex 4.**

## **Conclusion**

77. The proposals set out here represent the commitment of the Northern Ireland departments to the delivery of the first MATRIX Report. This two to three year preliminary phase of the IICs will allow the MATRIX implementation process – and chiefly the Industry-led Innovation Communities concept – to be rigorously tested and assessed in a relatively low-risk environment. Much will be learned from this exercise.

78. The Government Implementation Group will monitor the effectiveness of its contribution to the delivery of MATRIX in close consultation with the MATRIX Panel. It will tailor its response in light of progress and as new needs arise.

## WHAT ARE MATRIX “INDUSTRY-LED INNOVATION COMMUNITIES”?

### BACKGROUND

1. The Matrix report to Government, launched in October 2008, identified N. Ireland’s potential to create an international leadership reputation for innovation in strategic markets through the development of business-driven communities, facilitated by government, inspired by academia and enabled by FE. This Industry Innovation Communities (IIC) approach was proposed to:
  - address a new and emerging collaborative approach to commercialise science and research based on a truly tripartite model across industry, academia and government; and
  - provide a mechanism to build on the strategic market opportunities identified in Matrix’ Horizon Panel reports, which, ever vigilant to rapidly evolving global challenges, has the flexibility to continuously review market focus.
2. Matrix proposed that such industry-led, innovation communities would seek to restore within industry the ambition, confidence and drive that the macroeconomic environment of the past 30-plus years has stifled. Matrix recognised that this new model would require courage from businesses to provide leadership, but, importantly, courage from government to facilitate and allow it to do so.
3. It is well understood that typically for every pound spent in invention, a further 10 pounds is required for innovation, and £100 in manufacture. As the greatest investment in the delivery to market of innovative products comes from industry, Matrix indicated that it was imperative that industry is allowed to lead in a market-driven approach to innovation. Northern Ireland’s business demographics would indicate that its lack of large firms is a major factor in determining the level of business investment in R&D. Yet it is recognised that SMEs can be amongst the greatest innovators, as well as providing supply chains that can attract larger firms.
4. The Industry Innovation Community approach also proposed new responsibilities on industry, in terms of its social responsibility to bring smaller businesses forward into new global markets; to develop the skills, particularly vocational skills, of the workforce; to attract the venture capital which will translate innovative ideas into new products and processes; and to capture the intellectual inspiration of academia.

## CHARACTERISTICS

5. The unifying theme from MATRIX' studies is that all sectors within N. Ireland's economy impact on each other, and have the potential to benefit significantly from commercially applied science, especially in a multidisciplinary environment involving a range of sectors. The future of N. Ireland's economy depends on the richness of innovation within these overlapping areas.
6. The key to successful market-led innovation will be to build the linkages between businesses through communities in which small business is content to be a participant by the presence of strong and clear governance rules, understood and agreed by all. Such governance would encompass: regulation around community membership; finance; the legal operating framework; Intellectual Property; and wider engagement and linkages.
7. Communities must be originated by industry, supported by third level research and/or educational establishments, with the availability of Matrix' Horizon reports to guide initial market focus. The formation of partnerships between industry and academia in addressing market opportunities is essential, as is knowledge transfer within the project.
8. IICs would contain not only high-technology firms but also the full range of supply chain organisations needed to sustain the community's ambitions. This would include, among others, legal services, financial services, specific skills providers – both FE and HE - and a range of sub-supply firms from diverse backgrounds and sectors, including many SMEs supplying basic goods and non-high tech components. IICs would also draw in third sector and voluntary organisations where they have a role to play. In short IICs present new opportunities across the whole economy.
9. The principles of the communities should be based on:
  - Engaging the collaborative industrial and intellectual talent in NI with a view to meeting growing global market needs.
  - Unifying research programmes across sectors, including the interfaces between the various disciplines within each sector;

- Partnerships which facilitate knowledge and technology transfer between industry and academia to work on challenging problems;
- Levering private sector support and investment through new funding mechanisms and venture capital.
- New relationships between key players in NI to develop R&D in NI's indigenous industry, while also attracting international industries to the region.
- Exploiting the opportunities in the multidisciplinary nature of science and technology as applied to NI sectors where the complexity of the research requires scope, scale and synergy of equipment, facilities and human resources; and
- Creating excellence in research and education as measured by international merit reviews.

## **BENEFITS**

10. Matrix identified that the benefits of Industry Innovation Communities would not be restricted to the community participants; rather they would be expected to set off ripples throughout the economy producing impacts on: the skills base - particularly vocational skills; the academic research agenda; the level of international venture capital available; the growth of new high-technology businesses; and STEM strengths across the education spectrum.
11. Critical to the development of a new Industry Innovation Community (and ultimately its success) would be the attraction and participation of international market leaders. Not only would these be a tangible demonstration of the quality, in global terms, of the Community, but they would provide links to wider markets and research expertise.
12. Further demonstrations of a Community's international quality would be expected and could be demonstrated through appropriate measures such as the number of collaborations established in programmes run across the UK by the Technology Strategy Board and by Europe such as the Framework Programme.
13. The inclusion of Venture Capitalists (VC) within a Community should be paramount, not only in ensuring its successful establishment, but also in market testing the innovation arising from the Community. To ensure the continued development of innovative ideas, IIC would be expected to establish a Proof of Concept Fund, overseen by the VC strengths within the Community.

## **ROLES AND RESPONSIBILITIES**

14. Key to the success of the Industry Innovation Communities is the overarching premise that it is industry's role to lead, particularly in identification of future market opportunities; Government's role to facilitate and support; and Academia to inspire and influence.

### **Industry**

15. The role of industry should be to deliver the market and commercial inputs and outputs. Typically, industry would identify the key challenges to be tackled, identify relevant affinity groupings within NI, and obtain international industrial collaboration for each project.
16. Industry and wider private sector players should identify the real-time market opportunities for the Community, and would also have a continued horizon scanning function. Importantly, the Community should seek private sources of funding, through venture capital, industry investment and bank loans.
17. Industry also has the responsibility of providing the social functions of developing participating SMEs, particularly new, high-technology spin-outs from universities and businesses; the development of Industry-placements through strong linkages with FE; and the development of strong vocational skills aligned with N. Ireland future key markets.

### **Government**

18. Government's primary role must be to facilitate the creation of the IICs, assisting with the definition of the "rules of engagement", and through initial facilitation of the Community. This facilitation would include the development of the Community's Leadership Structure and Operating model; and provision of Legislative and Intellectual Property advice to provide protection and comfort for all players, but in particular small business, to work in partnership.

### **Academia**

19. Without the feed of inspirational leading edge-research and high quality technical advice from the Research Base the Communities would quickly die. Therefore a strong academic strength to underpin the Communities would be an imperative. While local academic research strengths in those markets identified by the

Horizon Panels is strongly evident in the Matrix Horizon Reports, the ability to draw on international researchers should also be actively pursued by Communities.

**Further Education**

20. Whilst academia would provide inspiration and research capability for the IICs, FE would provide the skills to ensure the delivery of their work programmes. In particular, FE would provide the skills that are used by industry to realise their continuous innovation programmes, ensuring the ongoing competitiveness of all designs and services. This could be accomplished through mechanisms such as “Lean”, FDM and other toolsets that are enabled within this sector.

**THE COMMUNITY MATURITY MODEL**

21. Since the issue of Matrix’ reports, a number of nascent Industry Innovation Communities have emerged, through a range of models and at various rates of development. Early work undertaken by Matrix has identified that there are a number of steps which must be addressed in building a vibrant Community:

- Establishing **Industry Leadership** within the Community;
- Articulating the **Market Trading** requirements to make the Community a success;
- Developing a clear **IP Focus**, both in creation and exploitation;
- Understanding the current **NI Capability** and seeking to grow this;
- Establishing a stable **Community Formation**, representing a wide group of participants;
- Sourcing **Funding** using various sources and models;
- Working with government to influence **Policy Alignment** with the Community;
- Developing a **Portfolio Management** approach which will sustain the short, medium and long term opportunities; and
- Working with government to develop **Human Capital** for the Community’s future.

22. Without seeking to be prescriptive, the tables below are indicative of expected deliverables associated with maturing Industry Innovation Communities.

Maturity	Deliverables / Outputs
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Year 1	<p>Defined leadership and governance structure;</p> <p>Defined market scope including key themes;</p> <p>Agreed vision, aims and objectives;</p> <p>Identified funding and resources;</p> <p>Opportunity analysis;</p> <p>Develop Technology Advisory Group;</p> <p>IP Strategy;</p> <p>Outreach / communications strategy;</p> <p>Agreed Work Programme;</p>
Year 2	<p>Established policy workgroup to work with government to address issues and barriers to growth;</p> <p>Agreed technology transfer programme with academia;</p> <p>Community Skills strategy to address skills gap;</p> <p>Technology and Market Roadmaps developed;</p> <p>Agreed Apprenticeship model with FE;</p> <p>Venture Capital links established;</p> <p>Established work and research programme including established Proof of Concept mechanism.</p>
Year 5	<p>Established work and research portfolio over a 1, 3 and 5 year horizon;</p> <p>Published Technology Roadmaps;</p> <p>Established Community Apprenticeship</p>

	<p>and KTP schemes;</p> <p>Established Community / Government / Education Skills workgroup;</p> <p>Established UK and EU Research Programme;</p> <p>2-3 Licence and Patent agreements;</p> <p>8-10 Academic Research papers published;</p> <p>1-2 Spinout Companies;</p> <p>Strong Venture Capital investment;</p> <p>Associated Competence Centre established;</p> <p>Evidence of growing leadership in UK and EU markets;</p> <p>On-going Horizon scanning mechanism in place.</p>
Year 10	<p>Recognition of leadership at EU and Global market level;</p> <p>4-5 Licence and Patent Agreements;</p> <p>2-3 Spinout companies created;</p> <p>1-2 Spin-ins attracted;</p> <p>20-25 internationally accredited academic papers published;</p> <p>Full Community / Skills alignment;</p> <p>2-3 Associated Competence Centres</p>

### **Possible Role of the Innovation Community Facilitator**

1. The detailed modalities for establishing a facilitation function will need more detailed discussion as the concept evolves. However, it is envisaged that an *Innovation Community Facilitator* will act as a conduit for information flow, catalyst, challenger, problem solver, broker and promoter for the IIC. They will establish linkages for and on behalf of the IIC, in particular, with public bodies. They will facilitate the IIC to develop complex webs of internal and external linkages, as well as patterns of both competition and cooperation. They will understand the strategic direction of the community and act as a change agent for the IIC. They will have the skills to facilitate team decision making, but not steering or leading in a traditional sense. They will ensure balanced inclusion within the IIC. They will be the primary interface between the IIC and the proposed Government Innovation Gateway.
2. They will develop a close knowledge of the activities represented by the stakeholders within the IIC, a knowledge of the community process, and of the external resources that can be drawn on to support the IIC. The Facilitator will be comfortable in operating in an environment where there is a high degree of uncertainty, with no formal authority. The role of the Innovation Community Facilitator is to understand and exploit on behalf of the IIC, the systems and support mechanisms which are or could be made available to the IIC. This includes the ability to establish the prerequisites for the IIC, development of an effective IIC environment, defining the rules and the roles of the community. The Facilitator will have the means, recourses, skills and talent to steer the IIC toward achievement of its planned objectives.
3. The Facilitator will have a breadth of understanding and knowledge of the needs and aspirations of the IIC and enable timely information and intervention to support the IIC to grow and develop appropriate linkages and resources, which may include skills, finance , technology and/or market access. The facilitator will support the IIC to create a dynamic environment that stimulates the circulation of ideas, skills and resources and which fosters an environment where a high level of trust is developed between companies and between the private and public sector.

4. Clearly, the Facilitator's role will be to enable the industry champions within the IIC to leverage appropriate public and private sector expertise and interventions that will support the evolution of the IIC and, as such, will act as the conduit between the IIC and the Government Innovation Gateway.
5. The Facilitator will have an understanding of the characteristics, functions, enablers and barriers to formation, growth and success of the IIC. and be trustworthy<sup>18</sup> and credible within both public and private sector. The Facilitator must have an understanding of the sensitivities, commercial needs and pressures of the IIC. On behalf of the IIC, the Facilitator must acquire an in-depth understanding of the policy framework and funding support for regional business development appropriate to the community.
6. Facilitator tasks may include:
  - Develop operating procedures and Terms of Reference for the IIC according to the agreed technology road map.
  - Identify and engage with key business and support organisations.
  - Provide an effective formal and informal communications network.
  - Act as the primary conduit between the IIC and the Government Innovation Gateway.
  - Liaise with identified partners and stakeholders in government agencies, educational providers etc.
  - Facilitate the identification of market opportunities aligned to the roadmap and help the IIC respond effectively to the opportunities presented.
  - Support the development of the IIC project plan for the implementation of the roadmap.
  - Constantly work to understand the issues raised by the IIC and engage the appropriate stakeholders to develop an action agenda under the guidance of the IIC Steering Committee
  - Develop and implement an appropriate public relations image
  - Report on progress against the agreed project plan/road.

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<sup>18</sup> "Trust is a critical intangible asset for economic competitiveness through innovation" *Clusters: Balancing Evolutionary and Constructive Forces*  
This new publication on clusters was presented by its author, Örjan Sölvell at the 11th TCI Annual Global Conference in Cape Town 2008

**ANNEX 3**

**MATRIX IMPLEMENTATION**

## **CROSS-GOVERNMENT SUPPORT PROGRAMMES FOR MATRIX IMPLEMENTATION PROCESS**

### **MATRIX Recommendation 1- Industry-led Innovation Communities**

- Invest NI Competence Centre Programme
- Invest NI Collaborative Networks Programme
- Invest NI Grant for R&D,
- Invest NI Innovation Vouchers Scheme
- Invest NI - links to sector teams within Invest to bring FDI - skills/funding perspective
- Invest NI – design programme/branding new communities
- ITI – Fusion
- ITI – Acumen
- ITI – Innova
- ITI CBT Guidelines/Go-To-Tender
- Research Connections Programme
- Innovation Connections Programme
- DEL Critical Sector Initiative Funds (incl. Innovation Fund)

- Health & Social Care R&D Fund
- FE Centres of Excellence
- DARD/DETI project teams in support of the Food Industry Advisory Panel and government project team
- US/Ireland R&D Partnership
- DARD R&D Challenge Fund
- Invest NI - support for property
- NI Rural Development Programme Axis 1
- AFBI – Potential Centre of Competence
- DEL - HE/FE Connected Fund (with scope for CAFRE/AFBI participation also)

### **MATRIX Recommendation 2- Technology / Market Roadmaps**

- INI - Design as a driver for innovation

- INI - Design Thinking
- INI - Design Management – linked to business needs
- INI - Design Strategy
- EU Framework Programmes
- MATRIX – Thought Leadership
- CAFRE education & development programmes

### **MATRIX Recommendation 3 - Flexible & Responsive Skills System**

- DEL - FE Centres of Excellence
- Skills Advisor and Employment and skills advisory board
- STEM Review and Outcomes
- Workforce Development Forums
- DEL Critical Sector Initiative Funds
- Sector Skills Councils (all have 3 year sector skills agreements)
- Success through Skills 2 – skills strategy/policy, (oxford economics report evidence)
- Health & Social Care R&D Bursaries, Studentships & Fellowships
- ITI All-island innovation programme – management models/best practice

- ITI - All-island learning networks
- DEL - Connected Fund
- Women in Science & Engineering (WISE)
- Women in Technology & Science (WITS)

**MATRIX Recommendation 4 - World-Class IP Business Infrastructure**

- HE/FE sectors working together eg Connected Fund
- Invest NI IP Programmes & Technology Advisory Unit
- Invest NI Innovation Vouchers Scheme
- HSC Innovations
- MATRIX Thought Leadership

**MATRIX Recommendation 5- Regulatory Regime**

- Support for high tech business through Invest NI NISPO-NI spin out fund
- Possible “fast-tracking of existing support to IICs (DFP, DETI, Invest NI et al).

**ANNEX 4**

**POSSIBLE SUPPORT TO ASSIST SET UP OF FIRST TRANCHE OF IICs**

1. Possible approach to the interim Government Innovation Gateway:
  - (i) A named individual within each relevant agency and department should be assigned to the task of developing a sign-posting service for business and academia to relevant support offerings in a more joined up and structured way. These individuals should also combine their efforts to provide an ad hoc sign-posting service from the outset.
  - (ii) These individuals would meet on a monthly basis to discuss developments and share experience, under the auspices of the MATRIX Secretariat. Their main task over the period of the first phase IICs would be to develop a more robust and sustainable Government Innovation Gateway.
  - (iii) The MATRIX Secretariat, with Invest NI, should consider the need to establish a provisional on-line site for the Gateway, linking together existing on-line resources and providing a “shop front” to make it accessible. Participants could then work towards developing a more permanent and dedicated web presence.
  - (iv) The Cross-Departmental Government Steering Group would review progress at its quarterly meetings and recommend modifications as required.
  
2. Possible Approach to “Fast Track” Support for Preliminary Phase of IICs:
  - (i) Agree a strategic framework (with DFP) which will allow the use of a Portfolio approach to public financial interventions in the confines of the IICs (not wider) for the duration of the preliminary period (although it is clear that the deployment of a portfolio approach in the limited environment of three IICs over the relatively short period of two years will be a limited sample for analysis).
  - (ii) Establish a monitoring sub-group of the MATRIX Government Implementation Group to assess the effectiveness of the Portfolio approach over the 2 year period, and to amend and revise as appropriate (mainly comprising DFP, DETI & Invest NI).

- (iii) Engage - via DFP – with the NIAO to open dialogue on the merits and weaknesses of the proposed new kind of approach to risk management through the Portfolio approach.
  - (iv) Conduct a complete independent evaluation of the effectiveness of the Portfolio approach at the end of the preliminary period.
3. Possible Deployment of FE Support to IICs –
- (i) DEL, DARD, DETI / Invest NI (and potentially others) have an opportunity to work closely with the MATRIX Panel and secretariat to explore the most effective means to match FE support to the needs of firms participating in the IIC preliminary development programme
  - (ii) During the first two years or so of the preliminary IICs programme MATRIX and its secretariat should work with key partners to bring the FE sector right to the heart of the Industry-led Innovation Communities. To do this it should work closely with all the members of the Government Implementation Working Group, but with a specific focus on the contribution of DEL & the FE Colleges (through ANIC?) , DETI/Invest NI, DARD/CAFRE & AFBI.
  - (iii) FE colleges could develop a structured relationship with the IICs to provide the specific skills needed in a flexible and responsive way – notably the FE sector could offer a sustained supply of technicians;
  - (iv) With a clear focus from HE on research, inspiration and knowledge transfer, FE could be encouraged to move increasingly into the “Development” space, working more closely with Industry – and especially smaller companies;
  - (v) FE colleges could enhance the existing supply of technical support for rapid prototyping and product testing for firms engaged in the IICs;
  - (vi) FE might work more closely with industry to provide support for apprenticeships which engage more than one company within the IICs;

- (vii) Possible development and enhancement of an enhanced FE Centres of Excellence support programme aligned to the needs of the IICs;
- (viii) Increased focus on areas such as support for manufacturing, support for design and support for innovation (including creativity and leadership skills) for IICs could be developed through the work of the FE sector;
- (ix) It is proposed that the FE sector could specialise on the provision of support to companies with respect to advanced manufacturing, design and innovation;
- (x) FE based support should be made readily accessible to microbusinesses and SMEs participating in IICs, and FE support systems should be designed to operate in collaborative networks of companies as well as with individual enterprises.

#### 4. The Use of Pre-Commercial Procurement to Stimulate Innovative Science and Technology Solutions

- (i) One of the studies which MATRIX undertook during the past two years was an investigation of how public procurement might be used as a stimulus to foster innovation within high technology SMEs. The MATRIX Panel recommended that NI Government should explore pre-commercial procurement as a solution to this issue and recommended that one of more pilot projects should be established.
- (ii) Pre-commercial procurement is a staged competitive process where Public Authorities use the purchase of R&D to develop solutions which are not currently available in the market. The process normally comprises two or three competitive phases where the public authority may purchase development of a product or solution from proof of concept, to prototype phase. Following completion of the pre-commercial procurement it may be followed by a full scale open procurement.

- (iii) The consensus across stakeholders is that pre-commercial procurement is a valuable tool to both stimulate innovation within indigenous high technology SMEs and also to 'de-risk' potentially large public procurements in the medium term.
  
- (iv) The Government Implementation recommends that as part of the Government Response to MATRIX at least two pre-commercial procurement projects will be undertaken by NI Departments. For each pilot/demonstrator project this represents an investment of £500k over a two year timeframe.