



## PRIORITY AREA B

**DATA ANALYTICS, MANAGEMENT, SECURITY & PRIVACY ACTION PLAN  
JULY 2013**

## Data Analytics, Management, Security and Privacy (Priority Area B)

### Context

Data is growing at an exponential rate; information on the web alone was doubling every 18 months in 2009, it is estimated that it is now doubling every 11 months. Data generated by consumers through social media sites: by enterprise through eCommerce, by governments through eGovernment online services and by machines through sensor networks are all adding to the deluge of data being stored and transmitted over the Internet and cloud computing infrastructure. The “Data Analytics, Management, Security & Privacy” priority area is seeking to address the market opportunity of turning such data into information and ultimately knowledge that can be exploited for both economic and social benefit by citizens, enterprises, government and public sector organisations. McKinsey Global Institute estimates that European government administrations could save more than €250 billion in operational efficiency improvements alone by using ‘big’ data. This priority area is focusing on data analytics, data management, security (including information security, biometrics, cryptography) and privacy.

An EU high level expert group on Scientific Data sets out a vision of a scientific e-Infrastructure that supports seamless access, use, re-use and trust of data which entails the physical and technical infrastructure becoming invisible and the data themselves becoming the infrastructure. This EU infrastructure would be a valuable asset on which science, technology, the economy and society can advance. The development of an international collaborative data infrastructure as proposed by the EU group would set out how different companies, institutes, governments and individuals would interact with the system. A further example is the proposed Scientific Cloud Computing Infrastructure for Europe initiative led by CERN and the European Space Agency.

“Data Analytics, Management, Security & Privacy” can potentially create value in five application areas: i) by creating transparency, ii) by enabling experimentation to discover needs, expose variability and improve performance, iii) segmenting populations to customise actions, iv) replacing/supporting human decision making with automated algorithms and v) innovating new business models, products and services.

Ireland has a good representation of market leaders within its enterprise base for each of the sub-markets associated with Data Analytics, Management, Security & Privacy. Companies such as Oracle, SAP, IBM, SAS and Microsoft are all market leaders in the data analytics market area and are all present in Ireland. Companies such as Accenture, Aon, and PayPal are also present in Ireland and seeking skilled data analytics people. Four of the market leaders in the cyber-security market: Symantec, McAfee, Trend Micro and Computer Associations all have a presence in Ireland. Ireland is also fast becoming a leader in cloud computing with a strong multinational and indigenous base of companies engaged in the market.

There is a range of research activities underway covering topics such as semantic web, semantic sensors, capture, storage, retrieval and analysis of data, constraints programming, optimisation research, trend analysis, decision support and data visualisation tools, data security, secure systems, digital humanities, digital repositories and data preservation. Big Data also features as a *Disruptive Reform* in the Action Plan for Job 2013.

There is potential for Ireland to reinforce its strong position in the field of “Data Analytics, Management, Security & Privacy” and to establish itself as a “test bed of test beds” for trial and validation of new technologies in the area.

## Data Analytics, Management, Security and Privacy

**Vision/opportunity:** To focus on Data Analytics, Management, Security and Privacy to further develop Ireland’s global positioning in the ICT field, by building on existing research strengths and well established indigenous and FDI sectors, to enhance human capital and research capacity to address the current and future needs of this rapidly moving sector and to underpin Ireland’s global reputation through active participation in the development of technology and regulatory standards.

<p><b>Objective 1</b></p>	<p>To fund research to address the strategic needs of the core areas that comprise Data Analytics, Management, Security and Privacy; namely:</p> <ul style="list-style-type: none"> <li>▪ Data Analytics and Data Management; managing data as a resource and converting it into useful information through the three pillars of data integration, decisioning applications and analytic services.</li> <li>▪ Security and Privacy; ethics, protection of information and regulation of data and cyber security.</li> </ul>
<p><b>Objective 2</b></p>	<p>To realise value add by elaborating links with other research priority areas that will depend on the outputs from Data Analytics, Management, Security and Privacy; for example, Future Networks and Communication (priority area A), Digital Platforms, Content and Applications (priority area C), Marine Renewable Energy (priority area J) and Smart Grids &amp; Smart Cities (priority area K).</p>
<p><b>Objective 3</b></p>	<p>To create an environment to bring together the necessary disciplines from enterprise and academia and also drawing on the relevant State functions (e.g. regulators) to work collectively on opportunities in the Data Analytics, Management, Security and Privacy area at both early stage and applied research.</p>
<p><b>Objective 4</b></p>	<p>To support the development of relevant skillsets in graduates, postgraduates and researchers to achieve the critical mass to meet the strategic needs of enterprise and the research community, including the development of structured training programmes at postgraduate level, to address relevant skills gaps as identified and validated by the Expert Group on Future Skills Needs.</p>

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<b>Objective 5</b>	To establish a position of leadership and credibility for Ireland in the Data Analytics, Management, Security and Privacy area such that Ireland is able to influence and contribute to the development of international standards and regulations for the area for example in the development of an agile and adaptive governance framework to offer guidance in instances of shifting points of authority and ownership in relation to data.
<b>Objective 6</b>	To stimulate a pipeline of potential data scientists to address future global demand by developing relevant careers awareness/promotion initiatives at second level
<b>Objective 7</b>	To investigate the data management policy gap for Ireland in achieving accessible open data, of relevance to research, that exists in the public sector.

No	Action	Deliverable	Benefit	Lead	Support	Timeline
<b>Objective 1</b>	<p>To fund research to address the strategic needs of the two core areas that comprise Data Analytics, Management, Security and Privacy, namely:</p> <ul style="list-style-type: none"> <li>Data Analytics and Data Management; managing data as a resource and converting it into useful information through the three pillars of data integration, decisioning applications and analytic services.</li> <li>Security and Privacy; ethics, protection of information and regulation of data and cyber security.</li> </ul>					
<b>B1.1</b>	Building on the national research prioritisation exercise, identify and map the key enterprise and	Up-to-date picture of the enterprise and research ecosystem for the 2	Knowledge and awareness of where research strengths and enterprise	EI, IDA, SFI	HEA, IRC, MI, DJEI + any other agencies of relevance	Q4, 2013

No	Action	Deliverable	Benefit	Lead	Support	Timeline
	academic expertise for the 2 core areas of Data Analytics, Management, Security and Privacy.	core areas.	capability and capacity lie.			
<b>B 1.2</b>	Assess the current strategic research needs and gaps for each of the 2 core areas through liaison with IDA, EI and other agencies.	Mechanism for mapping enterprise needs against research activity.	Clear picture of enterprise needs.	EI, IDA, SFI	HEA, IRC, MI, DJEI + any other agencies of relevance	Q2, 2013
<b>B 1.3</b>	Continue or extend funding of current research activity to meet needs or run a new thematic call for new areas of need.	Mechanism for allocating research funds against enterprise needs.	Research activity remains fully aligned with enterprise needs.	SFI, EI,	IDA, HEA, IRC, MI, DJEI + any other agencies of relevance	Q1, 2014
<b>B 1.4</b>	Continue to fund research in underpinning platform technologies and sciences of relevance to Data Analytics, Management, Security and Privacy through bottom-up calls.	Mechanism for allocating research funds for underpinning platform technologies and sciences.	The underpinning research requirements of the Data Analytics, Management, Security and Privacy area are addressed.	SFI, EI,	IDA, HEA, IRC, MI, DJEI + any other agencies of relevance	Q1, 2013

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No	Action	Deliverable	Benefit	Lead	Support	Timeline
B 1.5	Devise appropriate mechanisms to facilitate on-going collaboration between relevant research initiatives.	Collaboration programme for researchers to share research initiatives and findings.	Synergies between research initiatives are fully explored and developed.	SFI, EI,	IDA,HEA, IRC, MI, DJEI + any other agencies of relevance	Q3, 2013
<b>Objective 2</b>	To realise value add by elaborating links with other research priority areas that will depend on the outputs from Data Analytics, Management, Security and Privacy; for example, Future Networks and Communication (priority area A), Digital Platforms, Content and Applications (priority area C), Marine Renewable Energy (priority area J) and Smart Grids & Smart Cities (priority area K).					
B 2.1	Identify the research priority areas in which Data Analytics, Management, Security and Privacy will have role to play.	Mapping of dependencies and linkages between research priority areas.	Clear picture of how Data Analytics, Management, Security and Privacy can fit with and contribute to other research priority areas.	Forfás	SFI, EI, IDA, HEA, IRC, MI, DJEI + any other agencies of relevance	Q3, 2013
B 2.2	For each relevant research priority area identified in 2.1 engage in inter-agency discussions to assess their requirements of Data Analytics, Management,	Definition of requirements of Data Analytics, Management, Security and Privacy from other research	Clear picture of expectations from Data Analytics, Management, Security and Privacy from other research	DJEI (via TI)	SFI, EI, IDA, HEA, IRC, MI + any other agencies of relevance	Q3, 2013

No	Action	Deliverable	Benefit	Lead	Support	Timeline
	Security and Privacy.	priority areas.	priority areas.			
B 2.3	Ensure appropriate funding mechanisms are in place to encourage and facilitate on-going collaboration between Data Analytics, Management, Security and Privacy and other research priority areas.	Facility for collaboration for research priority areas to share research needs and future requirements	Dependencies between research areas are fully explored and addressed.	DJEI (via TI)	SFI, EI, IDA, HEA, IRC, MI + any other agencies of relevance	Q4, 2013
<b>Objective 3</b>	To create an environment to bring together the necessary disciplines from enterprise and academia and also drawing on the relevant State functions (e.g. regulators) to work collectively on opportunities in the Data Analytics, Management, Security and Privacy area at both early stage and applied research.					
B 3.1	Engage key enterprises (both indigenous and FDI) with strengths in the Data Analytics, Management, Security and Privacy field to discuss the opportunities arising from the research gaps identified in action	Company awareness of the opportunities in Data Analytics, Management, Security and Privacy area is enhanced.	Enterprise will have the opportunity to exploit the Data Analytics, Management, Security and Privacy area.	EI, IDA, HEA	SFI, IRC, MI, RPOs, CTTO + any other agencies of relevance	Q2, 2013

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No	Action	Deliverable	Benefit	Lead	Support	Timeline
	1.2.					
B 3.2	Ensure appropriate funding mechanisms are made available to facilitate the identified enterprises collaborating with the relevant research expertise on both early stage and applied research on an on-going basis.	Focused enterprise and research collaboration.	Key capabilities are supported to work together to realise the commercial potential in the research areas.	EI, SFI, HEA, IRC	IDA, MI, RPOs, CTTO + any other agencies of relevance	Q1, 2013
<b>Objective 4</b>	To support the development of relevant skillsets in graduates, postgraduates and researchers to achieve the critical mass to meet the strategic needs of enterprise and the research community, including the development of structured training programmes at postgraduate level, to address relevant skills gaps as identified and validated by the Expert Group on Future Skills Needs.					
B 4.1	In undertaking their work the Expert Group on Future Skills Needs (EGFSN) will seek to consider the likely skills needs for the Data Analytics, Management, Security and Privacy area going forward. In particular there is an opportunity to	“Addressing the high level ICT skills across sectors of the economy of Ireland” report.	Ireland will build competitive advantage by planning for future skills needs.	EGFSN	SFI, EI, IDA, HEA, IRC, MI + any other agencies of relevance	Q4, 2013



No	Action	Deliverable	Benefit	Lead	Support	Timeline
	take advantage of the global shortage of data scientists.					
B 4.2	Linking in with the HEA foresight group map the skills needs against existing postgraduate programmes to identify where gaps exist.	Reporting on mapping of existing postgraduate programmes against skills needs	Clear picture of current postgraduate programmes of relevance	HEA	SFI, EI, IDA, IRC, MI + any other agencies of relevance	Q4, 2013
B 4.3	Work with the ICT Action Plan, the forthcoming HEA framework on doctoral education and the relevant academic institutions in collaboration with enterprise to modify existing postgraduate programmes or to scope new research and education programmes to address the gaps identified.	Specification for specific postgraduate training programmes	Clear picture of gaps to be addressed in postgraduate training programmes	HEA	SFI, EI, IDA, IRC, MI + any other agencies of relevance	Q1, 2014
<b>Objective 5</b>	To establish a position of leadership and credibility for Ireland in the Data Analytics, Management, Security and Privacy area such that Ireland is able to influence and contribute to the development of international standards and regulations for the					

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No	Action	Deliverable	Benefit	Lead	Support	Timeline
	area.					
B 5.1	Map, co-ordinate and link relevant standards and special interest groups for the Data Analytics, Management, Security and Privacy area	Map of relevant international standards and special interest groups.	Clear picture of standards of relevance to the Data Analytics, Management, Security and Privacy area	EI, IDA, NSAI	SFI, HEA, IRC, MI, NDA + any other agencies of relevance	Q3, 2013
B 5.2	Identify standards groups and special interest groups where Ireland has representation.	National register of Irish representation on standards groups and special interest groups.	Transparency as to which standards groups and special interest groups Ireland is engaged in.	EI, IDA, NSAI	SFI, HEA, IRC, MI, NDA + any other agencies of relevance	Q3, 2013
B 5.3	Identify which standards and special interest groups Ireland should get involved in	List of standards and special interest groups of interest to Ireland	Clear picture of standards and special interest groups of relevance to Ireland	EI, IDA, NSAI	SFI, HEA, IRC, MI, NDA + any other agencies of relevance	Q4, 2013
B 5.4	Build credibility and presence in relevant standards groups and special	Increased credibility and participation in identified standards	Credibility and secured seat at the	SFI, EI, HEA, IRC, NSAI	IDA, MI, NDA + any other agencies of	Q4, 2013

No	Action	Deliverable	Benefit	Lead	Support	Timeline
	interest groups by participation in standards related events and relevant research on an on-going basis.	and special interest groups.	table for Ireland.		relevance	
<b>B 5.5</b>	Facilitate sharing of information from Irish representatives on standards groups and special interest groups	Mechanism to disseminate information on relevant standards and special interest groups.	Intelligence on standards and special interest groups will be more accessible to enterprise and researchers.	EI, IDA, NSAI	SFI, HEA, IRC, MI, NDA + any other agencies of relevance	Q1, 2014
<b>Objective 6</b>	To stimulate a pipeline of potential data scientists to address future global demand by developing relevant careers awareness/promotion initiatives at second level					
<b>B 6.1</b>	In addition to actions under objective 4, to incorporate the Data Analytics, Management, Security & Privacy area into careers promotions/awareness initiatives such as <i>Smart</i>	Careers awareness initiative that includes Data Analytics, Management, Security & Privacy as part of ICT skills	Second level students more informed RE careers in Data Analytics, Management, Security & Privacy as part of general	SFI (DSE)	HEA, EI, IDA, IRC, MI + any other agencies of relevance	Q3, 2013

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No	Action	Deliverable	Benefit	Lead	Support	Timeline
	<i>Futures.</i>	awareness.	ICT awareness.			
<b>Objective 7</b>	To investigate the data management policy gap for Ireland in achieving accessible open data, of relevance to research, that exists in the public sector.					
<b>B 7.1</b>	<ol style="list-style-type: none"> <li>1. Undertake an assessment of existing and planned initiatives across Government and the private sector that can contribute to Ireland's reputation as a leader in the areas of data analytics and Big Data.</li> <li>2. Identify and commence at least 2 new pilot initiatives whereby data analytics will be employed to address specific challenges delivering economic</li> </ol>	Collated information on significant initiatives in the area of data analytics and Big Data.	Accessible open data in the public sector will be made available.	Forfás	SFI, EI, IDA, DPER, National Steering Group on Open Access Policy, Office of the Data Commissioner	<p>Q2, 2013</p> <p>Q3, 2013</p>

No	Action	Deliverable	Benefit	Lead	Support	Timeline
	<p>impact and/or improved public services.</p> <p>3. Progress the development of Ireland's National Action Plan on Open Government Partnership</p>					Q4, 2013

**Forfás**



An Roinn Post, Fiontar agus Nuálaíochta  
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