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EIRIISS

European Industry and RI Interaction and Support study

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The ERID Watch legacy

- The total for annual budgets at European Research Infrastructures reported by ERID-Watch in 2008 was stated as being in the region of €8-9bn.

- An estimate of the 2006 total annual Instrumentation procurement supported by the annual budgets at all European Research Infrastructures was said to be approximately €4.0bn.

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The Call

EC Call for proposals - INFRA-2011-3.3: Study for the development of a possible future EU action on scientific instrumentation

To study the feasibility and maturity of a possible EU action to strengthen the European industrial capacity in developing and exploiting the potential of scientific instrumentation used in research infrastructures (RIs)

- **Maximise the EU/RIs technological Innovation potential including KTT to industry**
- **Strengthen synergies between RIs and their suppliers**
- **Strengthen links between RIs and their industrial users**

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EIRIISS Objective

- To undertake a thorough analysis of the challenges for industry of engaging with the RI scientific instrumentation sector

&

- To propose actions to address this in future Framework programmes

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Advisory Group

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The EIRIISS Work

1. Review of Activities
   - Review of the ERID Watch survey
   - Survey of ESFRI member state Industrial interaction policies
   - Case studies of current RI instrumentation development
2. Industrial Engagement
   - Pan European study of instrumentation industry
3. Financial Mechanisms
   - The gaps in support for instrumentation firms
   - The support mechanisms available
4. Mid term workshop
   - Breakout groups

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Validation of the ERID-Watch survey

10% of the original organisations surveyed in the EIRD-Watch project were contacted.

5 operating RIs, 3 institutional representatives (RI funders) and 18 companies (12 large and 6 SMEs)

- **The budgets for procurement have generally remained static**
- **Industry still recognises a range of benefits from working with RIs**
- **Despite recommendations procurement practices have not altered to aid industrial engagement**
- **A number of common unmet technology needs were identified across RIs**

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Review of current EU Policies, National Strategies and Sector Networks

- 18 responses received from 35 countries surveyed
- Several countries are reforming their approach to RI policy
- Other countries have good history of publishing RI roadmaps
- Most countries cited substantial physical sciences RI engagement
- Awareness of their RI industrial supply base varied widely
- There are several overlapping sector networks and substantial gaps where no networks are active.

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Most national roadmaps are informed by the ESFRI roadmap

Social Sc. & Hum. (5)	Life Sciences (10)		Environmental Sciences (10)		Material and Analytical Facilities (6)	Physics and Astronomy (11)		Energy (4)	e-Infra-structures (1)
SHARE	BBMRI	ELIXIR	ICOS	EURO-ARGO	EUROFEL	ELI	TIARA*	ECCSEL	PRACE
European Social Survey	ECRIN	INFRA FRONTIER	LIFEWATCH	IAGOS	EMFL	PRINS	CTA	JHR	
CESSDA	INSTRUCT	EATRIS	EMSO	EPOS	European XFEL	SPIRAL2	SKA	IFMIF	
CLARIN	EU-OPENSCREEN	EMBRC	SIAEOS	EISCAT_3D	ESRF Upgrade	E-ELT	FAIR	HiPER	
DARIAH	Euro BioImaging	ERINHA BSL4 Lab	COPAL	AURORA BOREALIS	NEUTRON ESS	KM3NeT	ILC-HIGRADE*		
					ILL20/20 Upgrade	SLHC-PP*			

ESFRI Strategy Report on RIs, Roadmap 2010
DG R & I & IT

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Industrial Sectors applicable to Physics and analytical RIs

1. Cryogenics, vacuum and gas
2. Superconductivity
3. Electronics
4. Power management and distribution
5. Motion and control, autonomous systems
6. Advanced materials
7. Optics and optoelectronics
8. Detectors and analytical systems
9. Information and communications technology

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Case Studies

(Material and Analytical Facilities, Physics and Astronomy based projects)

SKA – a global project with a high requirement for innovation. Defined industry interaction process and applicable to other sectors (PP 2008 – 2012)

ELI – Novel technology, RI based in new member states (Construction started 2011)

XFEL – a range of projects some planned and some under construction innovation required. Will have technological benefits in more than one ESFRI area (Construction started 2009)

CERN – A mature RI with already proven transfer of technologies into external markets (Founded in 1954, 3 PP projects on the ESFRI roadmap)

SKA unique features

SKA – building strong links with industry

- **Design and development done globally with 'light weight' central office – historically done by academia**
- **Encourage industry – academic links as mandatory (due to large volume)**
- **Proposed self regulating external consortia**
- **Technology requirements aligned with industry needs, i.e. potentially big markets**

The value of RI Industry interaction is recognised by both parties

Connections are a route to:

- Develop solutions to showstopper technologies
- Take new technologies to market
- Develop and test advanced technology
- Credibility in the market
- Knowhow and Expertise

The barriers to Interaction

Visibility

Opportunities are not always seen by all the potential industry partners

- Established RIs have long term relationships with specific companies (other companies may not see the opportunities)
- New RIs have no industry forum
- The future RI technology requirements are not routinely mapped out

RIs are trying to address this

The barriers to Interaction

Interaction

- Culture -The instrumentation development is often kept in house
- Long term R&D partnerships are not part of the RI core mission
- High risks/liabilities imposed by RIs on long term development projects
- RIs and Industry are not always aware of their opposite's capabilities, new analytical tools and experimental procedures.
- Administrative barriers such as tenders, which are time and resource consuming are a real problem for SMEs
- Complex public procurement rules are also an issue

The barriers to Interaction

Knowledge transfer - the RIs are a valuable source of new technology

- few patents are granted

Factors affecting early stage RIs

- financial aspects of patenting/maintenance of patents
- lack of staff for technology transfer issues.

CERN

An active KTT group - six full-time staff:

Difficulties include

- In-house culture of the open sharing of knowledge
- A dislike of patents
- Matching technologies with the needs of industry

CERN has introduced a KTT fund

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Pan-European Industry Survey Profile

- 222 individual companies from 14 different European countries were included in the survey.
- 42 returned questionnaires,
- Most SMEs turnover <€10m & <50 employees.
- Most had long term relationships (over 20 years)
- Supply of technology across the industrial sectors
- Most of the supply was through major variation of existing products or bespoke products
- The majority of the business revenue from RIs was below 40%

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Pan-European Industry Survey Findings

- Visibility of opportunities could be improved
  - Upcoming tenders were often discovered through networking
  - OJEU was not fully exploited
  - Technology road mapping would enable industry to plan ahead
- Tendering could be simplified
  - Enabling industry make new links to RIs
  - A tendering best practice forum for RIs and Industry
- Procurement practices made more inviting for industry
  - Early engagement in the specification
  - Support for collaborative R&D

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Financial Mechanisms

Current mechanisms

- R&D tax credits
  - Not useful if firm not in profit (typical for high tech small firms)
- Soft loans
  - can be very useful, but many high tech firms already much in debt
- Collaborative R&D grants
  - Potentially useful if grants available in the technology area, SMEs may have concerns about collaboration with larger firms (IPR leakage)
  - There are a few schemes but these are not widespread.
    - Industry for Science scheme (CDTI) -Spain (very popular, €80m applied for €15m budget)
    - Biomedical Engineering for Improved Health – Sweden

Financial Mechanisms

- Targeted mechanisms are required for take up by RI-relevant firms
- No one mechanism will suit all industries (the majority of industries are SMEs)
- As well as supporting R&D projects support could be given for:
  - Mechanisms to promote collaborative working with RIs and also developing shared visions of future needs
  - Mechanisms which also deliver networking and business support (start up/cluster policies) may increase benefits.

Recommendations to the Commission

- **Opportunities Portal**
  - Central portal for calls, tenders, TT opportunities and future needs
  - Could also be the site to promote RI services
- **Roadmapping**
  - Technology specific
  - Medium to long term needs
- **Funds for EU level RI collaborative R&D with industry**
  - State of the art prototypes
  - From R&D to production
  - Open calls

Recommendations to the Commission

❖Procurement

Best practice forum – encourage simplification and harmonisation of RIs public procurement methods

Portal posting information about relevant procurement procedures and legal issues including European, national and regional funding opportunities

❖KTT support

An EU helpdesk or KTT advice

KTT funding as a part of any I3 network or instrumentation development project

Thank you

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