Responsible Research and Innovation in ICT

CPHC, Newcastle, 24.04.2018
Overview of the session

- Welcome and introduction to RRI (20 min)
  - What is RRI?
  - Why should you be interested in RRI?
  - Background and theory
- Case study, initial intuition (10 min)
- The AREA-4P framework (20 min)
  - The EPSRC AREA framework
  - Why RRI for ICT?
- Case study RRI Self-Assessment (30 min)
- Conclusion (10 min)
  - ORBIT services and next steps
  - Get involved
RRI is a way to do research that takes a long-term perspective on the type of world in which we want to live.
RRI will strengthen research and innovation projects, making them more open, transparent, diverse, inclusive and adaptive to changes.
UK Government and RRI

PM’s speech at The World Economic Forum 2018

[...] technological progress also raises new and profound challenges which we need to address. For example, many fear that because of technology they and their children will lose out on the jobs of the future. And they worry too about how new technologies might be exploited by those with malevolent intentions; and what that could mean for the safety and wellbeing of their families and children.

So today I am going to make the case for how we can best harness the huge potential of technology. But also how we address these profound concerns. So that technology is the force for progress that we all know it can be.

Right across the long sweep of history - from the invention of electricity to the advent of factory production - time and again initially disquieting innovations have delivered previously unthinkable advances and we have found the way to make those changes work for all our people. Now we must find the way to do so again.
We expect our research community to

- conduct their work in an **ethical and legal** manner.
- **reflect** on their own personal and collective **motivations** for conducting their research.
- [...] enter[...] into **dialogue** with the public and other stakeholders where appropriate, and respecting the views of others.
- inform **EPSRC** and their own research organisations about any concerns, dilemmas and opportunities that a Responsible Innovation process surfaces as **these become apparent** during the research and innovation process.
We expect research organisations in receipt of EPSRC funding to

- **acknowledge and respect** these Responsible Innovation principles and the **role they have in promoting them**.
- **encourage and support researchers** to develop responsible innovation approaches as a core capability, working with others across disciplines and beyond the research organisation itself.
EPSRC will

- Promote reflection, understanding and training about Responsible Innovation approaches [...] in order to **develop capacity** for responsible innovation.
- **Welcome funding requests** within EPSRC research grant proposals that seek to explore aspects of Responsible Innovation as an integral part of that research endeavour.
- **Be vigilant** to potential social, environmental, ethical and regulatory challenges [...] 
- Ensure that Responsible Innovation is prominent in our **strategic thinking and funding plans**, including proposal assessment.
- Alert policy makers in Government and regulators to emerging issues and opportunities associated with new research areas as soon as they become apparent.
RRI in EPSRC

Humans at the heart of ICT

https://www.epsrc.ac.uk/research/ourportfolio/themes/ict/introduction/crossictpriorities/people-at-the-heart-of-ict/

- [...] encourages the development of better ICT by asking researchers to acknowledge the relationship that people have with ICT
- [...] consider these relationships and impacts throughout the research process from planning to implementation.
- [...] move beyond abstract notions of 'the user' and develop a more detailed and realistic understanding of the stakeholders in their research [...]
- [...] increases the complexity of a research question leading to exciting challenges and opportunities
- [...] not about improved Human Computer Interaction
- [...] is primarily about encouraging a long term behavioural change in the community. Applicants are encouraged to consider the priority when submitting any proposal to the theme through the council's standard schemes.
- [...] expects all fellowship and programme grant applicants to the ICT Theme to align their proposals to the priority.
Case Study Part I

Initial intuition
Please have a look at the case study.

- Do you see any ethical / social issues arising from the case?
- How could or should these be addressed?

For each pair agree on and present:

- 1 key stakeholder
- 1 issue related to this stakeholder
- Suggestion on what should be done about it
RRI in ICT
Video

https://www.youtube.com/watch?v=GctwAff0lZY
The AREA Framework

**Anticipate** – describing and analysing the impacts that might arise.

**Reflect** – reflecting on the purposes of, motivations for and potential implications of the research.

**Engage** – opening up such visions, impacts and questioning to broader deliberation, dialogue, engagement.

**Act** – using these processes to influence the direction and trajectory of the research and innovation process itself.

[https://www.epsrc.ac.uk/index.cfm/research/framework/](https://www.epsrc.ac.uk/index.cfm/research/framework/)
The RRI Framework

• **Anticipate** – describing and analysing the impacts that might arise.
• Foresight, technology assessment, and scenario development
• But also informal, everyday decisions
• What if? What else …?

http://fromoverhere.net/2012/08/strategic-foresight-and-crowd-sourcing/
The RRI Framework

• Reflect – reflecting on the purposes of, motivations for and potential implications of the research.
• Make visible dominant values: “holding up a mirror” to one’s own assumptions
• Pausing for a moment

The RRI Framework

- **Engage** – opening up such visions, impacts and questioning to broader deliberation, dialogue, engagement.
- **Inclusive**
- **Participatory**
- **Workshops, focus groups**
- But also encourage users to reflect on *their own* assumptions; open up the design.

[http://www.theguardian.com/books/blog+booker-prize](http://www.theguardian.com/books/blog+booker-prize)
The RRI Framework

• **Act** – using these processes to influence the direction and trajectory of the research and innovation process itself.

• Being *responsive*

• Not once-for-all; pragmatic customisation of technologies

• Adapt to emerging knowledge
RRI - The 4 Ps

**Process**: covers all activities in preparing research, undertaking data collection and analysis, storage and presentation of data and interaction with respondents.

**Product**: can refer to products or services. It includes the consequences of use as well as misuse of research products and the impact that research has on the natural and social environment.

**Purpose**: covers the question why research is undertaken at all.

**People**: are at the heart of RRI and need to be explicitly considered.
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<th>Process (speed or innovation &amp; diffusion)</th>
<th>Product (Ubiquity &amp; Pervasiveness)</th>
<th>Purpose (Logic malleability)</th>
<th>People (Problem of many hands)</th>
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<tbody>
<tr>
<td>Anticipate (Opportunity)</td>
<td>Is the planned research methodology acceptable?</td>
<td>Will the products be socially desirable?</td>
<td>Why should this research be undertaken?</td>
<td>Have we included the right stakeholders?</td>
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<td>Reflect (Considerations)</td>
<td>Which mechanisms are used to reflect on process?</td>
<td>How do you know what the consequences might be?</td>
<td>Is the research controversial?</td>
<td>Who is affected?</td>
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<td>How could you do it differently?</td>
<td>What might be the potential use?</td>
<td>How could you do it differently?</td>
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<td>What don’t we know about?</td>
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<td>How can we ensure societal desirability?</td>
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<td>How could you do it differently?</td>
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<td>Engage (Alternatives)</td>
<td>How to engage a wide group of stakeholders?</td>
<td>What are viewpoints of a wide group of stakeholders?</td>
<td>Is the research agenda acceptable?</td>
<td>Who prioritises research?</td>
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<td>For whom is the research done?</td>
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<td>Act (Capabilities)</td>
<td>How can your research structure become flexible?</td>
<td>What needs to be done to ensure social desirability?</td>
<td>How do we ensure that the implied future is desirable?</td>
<td>Who matters?</td>
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<td>What training is required?</td>
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Why RRI for ICT?

Characteristics of ICT that pose challenges for RRI:

- Ubiquity and pervasiveness
- Speed of innovation and diffusion
- Limitations of extant governance mechanisms
- “The problem of many hands”
- Logical malleability / interpretive flexibility
- Risks and uncertainties
Pillars / policy areas of RRI in the EU

- Ethics
- Gender equality
- Governance
- Open access
- Public engagement
- Science education

And sometimes added:

- Sustainability
- Social justice
The role of RRI as a meta-responsibility is to

- shape,
- maintain,
- develop,
- coordinate and
- align

existing and novel research and innovation-related

- processes,
- actors and
- responsibilities

with a view to ensuring desirable and acceptable research outcomes.
The RRI Maturity Model

- **Level 1: Unaware**
  - Organisation is not aware of RRI or its components and does not incorporate it in its processes

- **Level 2: Exploratory / reactive**
  - Organisation reacts to external pressures concerning aspects of RRI and experiments concerning appropriate processes

- **Level 3: Defined**
  - Organisation has a definition of (components of) RRI and has integrated these into its business processes

- **Level 4: Proactive**
  - Organisation realises the benefits of RRI and seeks to proactively and increasingly integrate these into its business processes

- **Level 5: Strategic**
  - Organisation has adopted RRI as a component of its strategic framework and aims to ensure all R&D activities cover all (or most) RRI components
RRI Maturity Model - Application Example
Limits of RRI

RRI cannot

- Predict the future
- Avoid all problems arising from research, innovation and technology development
- Eliminate value conflicts
- Relieve researchers / funders / industry from responsibility
- Be a panacea

RRI can

- Stimulate an intelligent conversation about R&I
- Facilitate second order reflexivity
Case Study Part II

Observatory for Responsible Research and Innovation in ICT
Go to the ORBIT self-assessment page:

http://www.orbit-rri.org/self-assessment/

In your pairs, go through the questionnaire; answer the questions to the best of your ability (fill in the blanks from your experience)
Self-assessment feedback

Are there areas where your project seems particularly good / weak? Do you agree with this outcome?

Does the result confirm / contradict the outcomes of your first case study exercise?

If you were to submit this proposal, what should you do to ensure the integration of RRI?
ORBIT Services

Observatory for Responsible Research and Innovation in ICT
ORBIT will provide information and services to ICT research and development communities to support them in undertaking their work responsibly. It will be a community resource allowing the exchange of information, networking and reflection on ICT research. By helping research stakeholders harness their creativity and imagination, it will contribute to better research processes and outcomes, thus ensuring that ICT research and innovation are socially desirable and acceptable.
What can ORBIT do for you?

- **Thought leadership**
  - What does it mean to do R&D responsibly

- **Training and education**
  - Introductory training
  - Bespoke workshops on particular topics
  - Train the trainer
  - Continuous professional development

- **Support services**
  - RRI strategy development
  - Proposal development support

- **Specific RRI-related services**
  - Ethics advice (e.g. membership of advisory board)
  - Ethics management

- **Community development**
  - Exchange of good practice
  - Provision of tools (self-assessment)
  - Publication of experience

See: [www.orbit-rri.org/services](http://www.orbit-rri.org/services)
### ORBIT RRI Training

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<th>Course</th>
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<tr>
<td><strong>Introduction to RRI</strong></td>
<td>This free Introduction explains the basic principles of RRI and familiarises users with ORBIT’s role in providing RRI services. Completion of this initial course and the brief quiz gives access to ORBIT’s expert services.</td>
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<tr>
<td><strong>Foundations in RRI</strong></td>
<td>The Foundation course introduces the AREA 4P framework and its application to research projects. Once the Foundation course is completed, participants can undertake RRI activities in ICT research projects. The course can be tailored to the specific needs of the project or institution.</td>
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<td><strong>Registered Practitioner</strong></td>
<td>The Practitioner course enables participants to embed the RRI principles into their small and medium-sized ICT grant proposals using the AREA 4P framework. Certification lasts for three years, after which re-registration is needed. The ORBIT Foundation course is a prerequisite.</td>
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<tr>
<td><strong>Master Practitioner</strong></td>
<td>The Master Practitioner course enables participants to embed the RRI principles into their large and complex ICT grant proposals using the AREA 4P framework. Certification lasts for three years, after which re-registration is needed. The ORBIT Foundation course is a prerequisite.</td>
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<tr>
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<td><strong>ORBIT Community</strong></td>
<td>ORBIT is creating a vibrant online community around collaboration and the sharing of best practice. By registering with the ORBIT website, you will become a member of this community and gain access to ORBIT services, specifically designed to embed RRI principles in research.</td>
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<td><strong>Project Self Assessment Tool</strong></td>
<td>This tool is free to use by members of the community. It allows individuals and organisations to assess their own position in RRI for ICT and to compare themselves against their peers. It also allows users to determine which areas of RRI they need to work on which will open the opportunity for specific training and consultancy offers.</td>
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<td><strong>Case Studies</strong></td>
<td>A series of case studies is available online to discuss and reflect on how the RRI principles can be embedded in the research process. This material is available for free to users that successfully complete the Introduction to RRI course.</td>
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<td><strong>Proposal Service</strong></td>
<td>ORBIT offers a proposal review service for universities bidding for research council and EU funding. These services are aimed at ensuring RRI is applied at an appropriate level, and that they are likely to be acceptable to the funding body purely from an RRI perspective. Please, contact the ORBIT team for further information about this service.</td>
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Other ORBIT services

**The ORBIT Journal**
The ORBIT journal is an open online resource that allows scholars, practitioners and others who are interested in RRI to exchange experience, good practice and other ideas about RRI. It focuses specifically on RRI in ICT and solicit contributions that promise to give transferable insights.

**Public engagement platform**
A novel online Public Engagement Platform, which can be used by researchers wishing to undertake larger scale, lower cost and longer term engagement with the public over the potential impact of innovations.

**Industry focused services**
ORBIT delivers customised workshops for both SME and large industries. The workshops are based on RRI principles and the nature of the activity can be tailored to the needs of the clients.
Want to get involved?

- Apply RRI to your research
- Tell your colleagues about ORBIT, SAT, Introduction Course
- Join an ORBIT Practitioner course
- Involve ORBIT in the development of your proposal
- Write a paper for the ORBIT Journal
- Attend the ORBIT Conference (4th Sept, at Microsoft, Cambridge)