Examples of how to apply People at the Heart of ICT

Elsewhere we describe what we are trying to achieve with the People at the Heart of ICT priority. Below are some examples, drawn from statements made by grantholders, abiut how the concept has been applied in a number of domains in order to illustrate the different areas and ways that that the priority could be applied:

- Industrial engagement/end-user informed research
- Responsible Research Innovation
- Ultimate end user appropriateness of research
- Public engagement
- Regulation and policy

1. **Industrial engagement**

A proposal is aiming to research the fabrication and characterisation of a new device in a way that could the increase efficiency of the state of the art by ten-fold. The applicants identify potential industrial sectors which would make use of the chip and involve a number of specific companies, including SMEs, as project partners. Along with dissemination of the outputs to the partners through a workshop at the end of the project, the applicant also plans to involve them at the start of the project when specifying the requirements of the new design. This engagement with a range of partners leads to the recognition of very different end-user requirements, and hence informs the design of the device from the start of the research programme.

2. **Responsible Research Innovation**

An applicant is proposing to develop new computational algorithms as part of a larger research proposal. The applicant used the Framework for Responsible Research Innovation and engaged with the EPSRC-funded organisation to deliver Responsible Research and Innovation services, Orbit (Observatory for Responsible Research and Innovation in ICT) for advice and support. This framework allowed the researchers to consider a range of different potential applications of their proposed algorithms and the people who might be impacted by them both positively and negatively. From this reflection, the researchers, particularly noted the potential risks of unconsciously introducing bias into the algorithms at this stage and took steps to mitigate this by altering their methodology.

3. **End-user informed research**

An applicant is proposing to develop new digital technologies for a range of healthcare applications. Within the range of end users who will be directly interacting with or affected by this new technology, the applicant recognises that healthcare professionals and patients may have different requirements. The applicant identifies these in the initial proposal development stage and integrates a participatory design approach throughout the project, including a work package of the proposal aimed at user-needs assessment and user-adoption. The applicants also plan to engage with economists to initiate discussions on quantifying patient benefit in terms of reduced delays, increased productivity and savings in costs to the NHS.

4. **Public Engagement**

An applicant proposes to develop software to improve security and safety of systems, improving resilience to cyber-attacks. An important aspect of the applicability of this is the public acceptance of

such systems, and trust in the software. The applicant recognises that public engagement will be a route to improving trust, and so factors in a large component of public engagement in the Pathways to Impact. As well as disseminating the research to the public, the applicant also plans to gather information on public acceptability of software. This activity is aligned to People at the Heart of ICT, as this will be used to inform development during the project.

5. **Regulate**

An applicant is proposing to develop a new approach to delivering city-wide communication networks for providing municipal services. The applicant identifies a number of potential ways in which both national government departments, local councils and the public might be affected, both positively and negatively, by a future deployment of their technology as part of a smart city solution. The applicant proposes setting up a regulatory advisory board to provide opportunities for representatives from each set of stakeholders to provide input as the research develops. By understanding the potential implications and opportunities of the research, the proposers increase the chance of acceptance of the final research outputs.

6. Advisory

An applicant is proposing cross-ICT research combining artificial intelligence and human-computer interactions expertise to explore interaction with intelligent autonomous systems. Due to the range of application spaces, the applicants decide to set up an advisory board including industrial collaborators from several sectors, a healthcare professional, an expert in responsible innovation, and a local government representative, as well as lay members to include public user inputs. This specifically people-focused body plans to meet early in the project, at the halfway point, and in the final stages of the project.