

Responsible Innovation Prompt and Practice Cards. Written by Dr Virginia Portillo on behalf on the “TAS RRI” and “TAS RRI Impact and Legacy” projects’ teams, October 2024.

We have found that specialised decks of cards can effectively support various aspects of Responsible Research and Innovation (RRI). TAS, in collaboration with the [Horizon](#) Digital Economy Research Institute at the University of Nottingham, developed a set of "high-level" *Responsible Innovation Prompts and Practice Cards* (RI Cards) [1], designed to be lightweight and easy to use.



The RI Prompts and Practice cards can be used to:

- Explore and understand RRI.
- Reflect on a project and plan RRI-related activities.
- Facilitate discussions on RRI priorities in a specific research or application context.
- Adapt them for other innovative uses.

These cards, grounded in the AREA framework, help stimulate discussions around RRI, highlight strengths and weaknesses, and identify areas for further action. They are licensed under a CC-BY Creative Commons Attribution 4.0 International license, being openly available in both [physical](#) CC and [digital](#) formats, and versatile tools for face-to-face activities or online platforms. Each colour-coded card is aligned with the AREA-Plus Framework [2], focusing on one of the four elements—**Anticipate, Reflect, Engage, Act**—and one of the "**4 Ps**"—Purpose, Product, People, Process.

As part of the ‘TAS RRI’ (2022/23) and follow up ‘TAS RRI Impact and Legacy’ (2023/24) projects, we refined the [first](#) major release of RI Cards (version 2.1, August 2022). We engaged with different stakeholders (researchers, PhD students, academics, and industrial partners) whose valuable input contributed to the [second](#) (version 3.1, June 2023) and [third](#) (version 3.1.1, November 2023) major public releases of these cards. On version 3.1 we improved the content of some of the cards and developed additional cards: definition cards to introduce RI and the AREA framework, ‘Instructions’, two cards listing potential Stakeholders, three ‘Example Exercise’ cards with suggested activities, a blank ‘Add your own concern’ and a ‘Credits’ card with the details of the UKRI grant projects that funded the development of the RI Cards (EP/T022493/1 and EP/V00784X/1). The follow up version and latest major release, (Version 3.1.1) it is a small update in just one card: ‘Example Stakeholder 1’.

The TAS programme also funded the provision of support for RRI practice to several TAS funded research projects throughout 2022-2024. That included the members of the ‘TAS RRI’ and ‘TAS RRI Impact and Legacy’ projects facilitating other TAS projects’ RRI bespoke sessions. Also, the development of a TAS hosted [site on RRI](#), to support ICT researchers to embed RRI from the onset and throughout their projects. Ultimately that

minisite - open to all- aims to help researchers within TAS and beyond this programme, to articulate RRI into practice, providing clear and practical resources. That included how to get started on RRI and how to use the RI Cards (e.g., to help considering responsibility issues/challenges and opportunities when designing a new research project and/or as part of a current project).

At the time of writing this report we have distributed **over 300 physical decks** of RI Cards in the UK, USA, France, Australia and India. The RI Cards have been used to support and promote responsible innovation practice within different sectors: academic, public and private sector. They were used in more than 50 workshops, events and conferences (national and internationally). Examples of activities include: RRI sessions facilitated for TAS projects, a workshop on RI for the Foundation for Science and Technology Future leaders (January 2024), a RAI UK RRI workshop for the Impact Accelerator and International Partnership projects in May 2024 (see picture below), RRI training activities for postgraduate students (in UK and USA) and supervisors (in the UK), a RRI hands-on workshop at TAS Conference in September 2024, Texas and a RRI workshop at Technovation Girls, September 2024, India.



We are currently conducting an evaluation of the RI Cards by collating anonymous feedback on use. This study will provide research evidence of the strengths/barriers people from different sectors might have experienced from using the RI Cards, and would contribute to improve and/or develop similar tools in the future. Preliminary results have revealed that the RI Cards were well received by all participants that completed the survey (61 at the time of preparing this report) and positive feedback has been evidenced overall. See example below:

'They're very clear, and the questions always spark discussions - whether it's about something that's currently being done well, or something that could be done better.' (Researcher, TAS)

'Format is very easy to understand...I liked the prompt cards to categorise them into things that were high priority, already doing etc...' (Industry, UK)

'Before this exercise, I was not aware of this concept [RI]. Now I have realized this useful resource for my future projects.' (Postgraduate student, USA)

'I recommended them to previous colleagues to help them scope the RRI portion of their grant proposals.' (Academic, TAS)

RI Prompt and Practice Cards **Impact Facts:**

- Supported TAS and RAi UK researchers designing successfully awarded grant proposals (e.g., representatives of all the RAi UK Keystone projects and many RAi UK Impact Accelerator project shared to have used the RI Cards when preparing their project proposal).
- RRI sessions facilitated using the RI Cards aided insightful team discussions that changed trajectories of UKRI funded projects within Horizon, TAS and RAiUK programmes and lead to novel research publications [3].
- Influenced TAS industry partners as the BBC who used the RI Cards to develop a bespoke BBC RI toolkit.
- RI Cards online resource was included in UKRI university briefing 2024 to support RRI practice:
 1. *EPSRC is keen to collect and share community-led open-source resources to support research communities with RRI, particularly those that have emerged from EPSRC-funded activity. Some examples we are aware of include:*
 - ➔ a. [UKRI Trustworthy Autonomous Systems \(TAS\) Hub RRI Prompt Cards](#)
 - b. [Observatory for Responsible Research and Innovation in ICT \(Orbit\), RRI](#)
 - c. [Alan Turing Institute: training modules on RRI/PE](#)

[1] Virginia Portillo, Chris Greenhalgh, Peter J. Craigon, and Carolyn Ten Holter. 2023. Responsible Research and Innovation (RRI) Prompts and Practice Cards: a Tool to Support Responsible Practice. In Proceedings of the First International Symposium on Trustworthy Autonomous Systems (TAS '23). Association for Computing Machinery, New York, NY, USA, Article 57, 1–4. <https://doi.org/10.1145/3597512.3599721>

[2] Marina Jirotko, Barbara Grimpe, Bernd Stahl, Grace Eden, and Mark Hartswood. 2017. Responsible research and innovation in the digital age. Commun. ACM 60, 5 (May 2017), 62–68. <https://doi.org/10.1145/3064940>

[3] Virginia Portillo, Helena Webb, Peter Craigon, Robin Wilton, Liz Douthwaite, and Ephraim Luwemba. 2024. Responsibility Statement on research project outputs- to who and what for? In Proceedings of the Second International Symposium on Trustworthy Autonomous Systems (TAS '24). Association for Computing Machinery, New York, NY, USA, Article 30, 1–4. <https://doi.org/10.1145/3686038.3686651>.