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Responsible Research and Innovation in Construction

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Abstract

The issue of ethics and responsibility is gaining attention among the creators of scientific policy, funding agencies and society at large. Responsible research is defined as research that aligns both the process and the outcomes with the values, needs and expectations of society. In an EU funded project “Responsible Research and Innovation in Information and Communication Technology (ICT)” a four dimensional framework for defining and monitoring responsibility in that kind of research projects has been defined. The four dimensions are (1) actors who are responsible or to whom research is responsible, (2) kinds of responsibility – in what way are they responsible, (3) how much they are responsible and (4) in what area of ICT responsible research and innovation can take place. After presenting the framework we apply the concept of responsibility to research in the field of architecture, engineering and construction (AEC). We are finding that the particular feature that sets responsibility in construction apart from other research topics is the impact it has on life and safety of large number of people and on the critical infrastructures. While responsibility is important we conclude with a warning that the first responsibility of research is scientific quality and that other responsibilities cannot be a substitute for that.

Keywords: construction research, research policy, innovation, responsibility, social responsibility, scientific method

1. Introduction

With the increasing power of scientific development and impacts of the new discoveries on the planet in general and on society and humans in particular, the issue of ethics and responsibility is gaining attention among the creators of scientific policy, researchers and society at large. The topic has been particularly relevant in some fields of life sciences which are tackling the very fabric of life and the very features that make us human. But the concept is spreading to other fields as well. Among the reasons is the need of funding agencies and policymakers to present the case for societal value of research that is being publicly funded.

Responsibility is broader concept that that of ethics that has been present in life sciences for decades if not centuries. The idea of responsibility has been emerging in European and national research programs for a long time but more intensely in this century. In 2001 “Science and Society Action Plan was created”. In 2010 “Science in Society (SiS)” emerged. In 2010 the RRI concept was defined as a response to aspirations and ambitions of European Citizen as a part of the effort to better justify the public investment in research and innovation. In 2014 the idea of RRI in ICT made it into the programmatic document of Horizon 2020. The concept made big advances from the baseline idea, which would claim that the only responsibility of research and innovators is to do good quality research.

2. Responsible research and innovation

The European Commission defines responsible research as “an inclusive approach to Research and Innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society. In doing so, it fosters the creativity and innovativeness of European societies to tackle the grand societal challenges that lie before them, while at the same time pro-actively addressing potential side-effects” [1].

It goes on in saying that “In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI consists of designing and implementing R&I policy that will: engage society more broadly in its research and innovation activities, increase access to scientific results, ensure gender equality, in both the research process and research content, take into account the ethical dimension, and promote formal and informal science education”.

On the other hand, another European institution, the Economic and Social committee, stated a concern [2] that the RRI might in fact harm the freedom of the mind achieved by the Enlightenment and wrote »What is needed is a fundamental change in social attitudes, so that innovations are not seen primarily as a risk or a threat, but rather as an opportunity for further progress, more jobs and European economic strength and competitiveness, and for shaping the European social model.«

The author is involved in a project “Responsible Research and Innovation (RRI) in Information and Communication Technology (ICT)”, funded by the European Commission as a part of the Horizon 2020 program. The project has been set up under the assumption of major impact that ICT research has on society and aims at monitoring, analyzing, supporting and promoting RRI approach in ICT research in Europe [3]. The goals of the project are to (1) promote a contribution of social sciences and humanities to RRI in ICT under Horizon 2020, (2) curate the RRI domain in H2020 empowering projects and other stakeholders, (3) facilitate the interaction for the emerging RRI-ICT community and (4) create a networking platform – real and in cyberspace - where stakeholders would meet and exchange views.

3. RRI Framework

We are defining the RRI concept through mapping. We present a 4-dimensional map of RRI in ICT. The dimensions define (1) who and to whom are actors responsible, (2) what the responsibility is about, (3) how much responsibility there is and (4) to what topic of ICT the responsibility applies.

The **actors** (who) include researchers, funding agencies, policymakers, educators, students, society at large, all either as individuals or in groups or institutions.

The **kinds** (what about) include epistemic responsibility, procedural responsibility, social responsibility, ethical responsibility and finally the legal & financial responsibility [4]:

- Epistemic responsibility is to deliver good science, a responsibility that the community of scientist should take care of for their own deontology and career, by making a proper use of the scientific method and source of knowledge in the research; also includes freedom of thought and pursuit of ideas unlimited by limitations of the church or a state.
- Social responsibility is responsibility to the needs of society and their challenges and about the outside impact of research and innovation. It is that is primarily a responsibility towards citizens and society that is sometimes channeled into research program priorities, topics and research project goals.
- Ethical responsibility is towards a set of established values and norms that in principle represent an “higher being” (i.e. they are beyond the interests and stakes represented by any single actor), but in practice may be identified with the norms and values prevailing in the societal context where research and innovation is done (e.g. with fundamental rights and safety protection levels set by the EU, the UN Chart of Human rights, etc.). It is responsibility towards the planet, living beings, life etc.

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