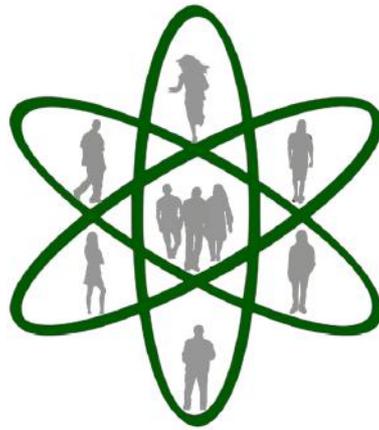


RRIL - Presentation of the Course:

Public Engagement

Yohannes Mehari (Coord.)



*RRIL - Presentation of the course:
Public engagement*

Editor: RRIL project team

Contact: Laureano Jiménez [laureano.jimenez@urv.cat]

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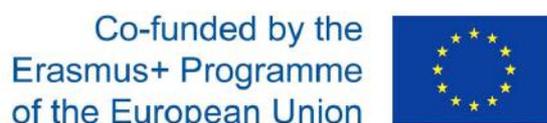
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Presentation of RRIL - Responsible Research and Innovation Learning

Responsible Research & Innovation is a genius concept developed by the European Commission for the governance of research and innovation processes with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products. It aims 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.

In the Horizon 2020 programmes, there were and are some projects focusing on related training needs. But there is no substantial attempt observable to develop continuous higher education programmes supporting the implementation of this concept and the respective reorganisation processes in universities, research centres, research and innovation oriented enterprises and public authorities like cities or regional governments. This project pretends to fulfil this gap through the co-creation of higher education modules between different research and innovation actors.

RRIL especially focus on public engagement, gender equality and ethics (in the knowledge fields Energy and Economy) testing the learning modules in innovative environments based on interactive real-problem approaches. The modules developed are offered to research and innovation actors supporting the implementation of RRI principles in the organisations capacitating the learners to develop jointly innovative solution for societal problems.

RRIL is based on co-creation and open innovation processes giving a prominent role to the learners. The co-creation is conceived as multidisciplinary and transversal among different kinds of actors as HEI, research centres, NGO's and cities paving the way for knowledge exchange between them. It consists in informed learning among practitioners considering learners as a knowledgeable and critical partners in designing and implementation of the learning means. Under this perspective, the potential learners – programme coordinators and tutors - are considered peers working collaboratively on the project outputs

RRIL - consortium

Universitat Rovira i Virgili (Coordinator).

Tampere University

Kozminski University

NOTUS applied social research.

Fundació Tarragona Smart Mediterranean City.

INGOS - Institute of Innovative Economy .

RRIL Team designing the learning programme and courses

Organisation	Team Members (by alphabetic order)
Universitat Rovira i Virgili	Laureano Jiménez Karsten Krüger Alba Molas
Tampere University	Jonna Hijelt; Yohannes Mehari (Coordinator) Mikko Mykkänen Elias Pekkola Jari Stenvall
Kozminski University	Alicja Dańkowska Agata Stasik
NOTUS	Maria Caprile
INGOS -Institute of Innovative Economy	Natalia Kobza

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Preface

Responsible research and innovation (RRI), as an integrated concept, is being promoted by the European Union since 2010 and forms part of the Horizon 2020 in the area of science with and for society. Although the issue of responsibility in research and innovation has been discussed for some time before especially in North America, Great Britain, and the Netherlands, it is a concept genuinely developed by the European Commission at the end of the 2000's for the governance of the science and technology complex from the political level. So far it forms part of the answer of the European Commission to the changes in the configuration of the democratic processes to steer societal processes, in which the private actors gained relevance. However, recently the RRI as guiding vision lost relevance in favour to other concepts as the Sustainability Goals of the UN, which, however, covers the core principles of RRI. For this reason, we decided to anchor RRI in sustainability and enrich it towards Responsible & Sustainable Innovation (ReSI).

RRI is formed by five strategic dimension: public engagement, gender equality, science education, open science and ethics, to which the transversal dimension of governance is added to develop harmonious governance models and institutional strategies. The project developed learning courses for three of these dimensions: public engagement, gender equality and ethics, to which we add an introductory course to ReSI.

The goal of the learning programme is to support the integration of these core aspects of RRI and sustainability in science-based innovation processes. The main target groups are academics involved in science-based innovation processes or students as future academics or agents of innovation e.g. in business, NGOs, local and regional authorities.

The integration of the programme in the learning offers of higher education will support the promotion of responsibility in innovation processes in universities. The participating Higher education institutes will do so in the next academic years. The use of the creative Commons licences Attribution-NonCommercial-ShareAlike allows other higher education institutions to integrate the whole programme (or parts of them) in their learning offers. Although the courses are designed as a holistic programme, they can be used separately.

In this document, we present briefly the programme and then in some more detail the course Public Engagement.

The learning program

Fiche				
Title	Responsible and Sustainable Innovation: Learning Programme			
Leading Organisations	University Rovira i Virgili, Kozminski University; Tampere University			
Target group	Master Students, PhD students, others as agents of change of municipalities, NGOs, Business etc.			
N° of students	20			
Language	English, also accessible in Spanish			
Requirements of participation	Medium Level of English/ Medium Level of Spanish			
Credits points	9 ECTS			
N° of lecturing hours	60 hours			
Mode	F2F	blended	Online	MOOC
		X	X	X
Learning Methods	Lecture, group work, workshop or others			
Evaluation	Quizzes Open questions Group discussions Case studies as group work using problem based approaches Design and realisation of interviews with experts			

Objective

The program aims at helping practitioners to understand and analyse the dynamics of science-based innovation processes and the integration of principles of responsible and sustainable innovation focusing on public engagement, gender equality and innovation ethics. The practitioner will learn the reasons of the development of Responsible Research & Innovation (RRI) and its further development to Responsible & Sustainable Innovation (ReSI). The program aims at helping the students to understand the dynamics of public engagement, the relevance of gender equality for the research processes and the tools for applying innovation ethics in science-based innovation processes. It provides the students with insight so that they can (a) reflect on their research and innovation already in early career stage; (b) anticipate intended and unintended consequences of their activities; (c) apply criteria of open science making transparent the intention of the research and innovation, the actors involved and their particular interest; and (d) involve the main stakeholders including the citizens in the deliberation processes from the beginning to the end of the science-based innovation process.

Structure

Course: Introduction to Responsible & Sustainable Innovation (ReSI)

Introduction.

Lecture1: Changes in Innovation Systems.

Lecture 2: Multi-actor configuration and open innovation.

Lecture 3: Answer to innovation dilemmas: Responsible Research & Innovation.

Lecture 4: Responsible Research and Innovation.

Lecture 5: Towards Responsible & Sustainable Innovation.

Lecture 6: ReSI in practice.

Course: *Public Engagement in Responsible Research and Innovation*

Introduction.

Lecture 7: Public Engagement in Responsible Research and Innovation.

Lecture 8: Innovation and Innovation Models.

Lecture 9: Conceptualising Dimensions of Public Engagement.

Lecture 10: Commercialisation of Research and Innovation and Public Engagement.

Group Exercise and Learning Diary: Developing sustainable public engagement strategy.

Course: *Gendered Responsible & Sustainable Innovation (ReSI)*

Introduction.

Lecture 11: Gender Bias in Economic Research.

Lecture 12: Gender Economics and Sustainability.

Lecture 13: Gendered ReSI (including gender bias in energy and technology innovation).

Lecture 14: Gender ReSi in Cities (with reference to energy use and mobility).

Lecture 15: Gender Mainstreaming and Doughnut strategy.

Group Exercise and Learning Diary: Gendered Responsible & Sustainable Innovation.

Course: *Ethics in Responsible and Sustainable Innovation*

Introduction.

Lecture 16: Tools to ensure societal relevance and ethical acceptability of RRI outcomes.

Lecture 17: Corporate Social Responsibility.

Lecture 18: Smart City & Responsible Technology.

Lecture 19: Just Energy Transition.

Group Exercise and Learning Diary: Ethics and General programme

Content

The first course introduces in Responsible & Sustainable Innovation, which anchored the concept of Responsible Research and Innovation (RRI) in Sustainability and the Sustainable Development Goals. The students will learn about

- the transformations of the innovation system towards quadruple helix configuration.
- the dilemmas, which academics must face, and how the concept of Responsible Research and Innovation have academics orientations to face these dilemmas.
- the need to anchored RRI in Sustainability and the Sustainable Development Goals. proposing the concept of Responsible & Sustainable Innovation (ReSI).

Based on this concept, the courses of public engagement, gender equality and innovation ethics has been developed. All three modules take as thematic reference points: economy, energy (including mobility) and urban development. The last topic indicates that the program insists in

the cooperation with municipal public administrations and policy makers considering cities as crucial to achieve the Sustainable Development Goals.

[<https://lor.instructure.com/resources/0c1fa583b6cb443e9b37d75403e56fbc>]

The course of **public engagement** aims at helping students to understand and analyse the dynamics of public engagement in the context of responsible research and innovation and its central elements. The students will be able to critically assess the strengths and weaknesses or advantage and disadvantages of public engagement in enhancing responsible research and innovation. The course insists in the relevance of public engagement for the implementation of the gender perspective and principles of innovation ethics already at the beginning of the innovation process. Students will work on a particular country/region innovation process case and analyse the major challenges and opportunities of public engagement of universities in transforming an innovation process to meaningfully respond to social, economic and political problems and come up with strategic and feasible solutions.

[<https://lor.instructure.com/resources/f17d06173ec14c61bccf80117e771fd8?shared>]

The course of **gender equality** aims to enable participants to integrate the dimension of gender equality and social vulnerability in science based innovation projects based on quadruple helix configuration, especially with the participation of municipal public administration and policy makers. Through the example of economy and technology (energy and artificial intelligence), it will arise the awareness of gender bias in science and innovation processes. The module insists in the interrelation with public engagement and innovation ethics to achieve the implementation of the gender perspective in science based innovation processes. It will reinforce the competences of the participants (defined in terms of knowledge, capacities, responsibility and autonomy) to integrate the gender and social vulnerability perspective in innovation projects and to evaluate and monitor their impact on gender equality and social vulnerability.

[<https://lor.instructure.com/resources/0aa23b741bac4f6a855057d12c8e17c1>]

The course of **innovation ethics** aims to enable students to introduce the ethical perspective in science based innovation processes, particularly in the fields of economy and energy with the focus on sustainability. It provides an overview of various tools, approaches, and methodologies such as the precautionary principle, International Standard ISO 26000, Value Sensitive Design, and participative technology assessment. It will arise the capability of the students to use in their projects, campaigns, or any other endeavours these and other tools reinforcing the ethic dimension of the innovation activities in close relation to public engagement and gender equality. It is based on the premise that to ensure social relevance and acceptability of any innovation, its impact should be evaluated at the early stages of the research process, including its possible unintended and unexpected consequences. Monitoring the innovation process could be enabled by sharing authorship and responsibility of the results with relevant social groups (citizens, policymakers, entrepreneurs, educators, etc.) who should be involved in all stages of the process while respecting the principles of gender balance.

[<https://lor.instructure.com/resources/eec37eb0a22d49a1bd5139b105f4194b?shared>]

The programme and its four courses used video presentation to introduce to the topic and subtopics, web texts, video with experts (generally from external sources), individual exercises (e.g., quizzes and open questions), participants' learning journals, and group works (e.g., simulation of project development, interviews with experts among others) using holistic approaches combining public engagement, gender and ethic. Each course includes group exercises for its specific topic, so that they can be used separately, but maintaining the holistic approach.

For more details of the content of the program, please consult the RRIL learning programme presentation at [RRIL project website](#) or the [project lab at research gate](#) or the [online learning programme](#).

Public engagement

Fiche				
Title	Public engagement in responsible research and innovation			
Leading Organisation	University Tampere			
Target group	Master Students, PhD students, others as agents of change of municipalities, NGOs, Business, etc.			
N° of students	20			
Language	English, also accessible in Spanish.			
Requirements of participation	Medium Level of English or Medium Level of English/Spanish			
Credits points	3 ECTS			
N° of lecturing hours	19 hours			
Mode	F2F	blended	Online	MOOC
		X	X	X
Learning Methods	Lecture, group work, workshop, Learning diary			
Evaluation	Group presentation, Videos; Case studies, Open questions			

Objective

The course aims at helping students to understand and analyse the dynamics of public engagement in the context of responsible research and innovation and its central elements. The learners will be able to critically assess the strengths and weaknesses or advantage and disadvantages of public engagement in enhancing responsible research and innovation. Besides, practitioners will work on a particular country/region innovation process case and analyse the major challenges and opportunities of public engagement of universities in transforming and innovation process to meaningfully respond to social, economic and political problems and come up with strategic and feasible solutions.

Structure

Course: Public Engagement in Responsible Research and Innovation

Introduction.

Lecture 7: Public Engagement in Responsible Research and Innovation.

Lecture 8: Innovation and Innovation Models.

Lecture 9: Conceptualising Dimensions of Public Engagement.

Lecture 10: Commercialisation of Research and Innovation and Public Engagement.

Group Exercise and Learning Diary: Developing sustainable public engagement strategy

Content

Public engagement is a key dimension of Responsible Research and Innovation (RRI), aiming at making science, technology and innovation more transparent, interactive and responsive. It mainly focuses on creating the platform for ethical value-laden issues to be explored and targets for inclusiveness, transparency, diversity, and creativity into the RRI process (EC, 2009). In other words, societal engagement is key pillar of RRI that focuses on making science, technology, and

innovation relevant, transparent, interactive, and responsive (Bauer, et al., 2021). Public engagement has five distinct dimensions under the umbrella of Responsible Research and Innovation:

1. The purpose of public engagement,
2. The actor groups that should become engaged,
3. The aspect of timing, and
4. The framing of STI in engagement processes.

Even though public engagement is the central dimension of RRI, studies show that the concept lacks clarity in terms of use, requirements, and application in the context of RRI. Therefore, this course, under the umbrella of the defining dimensions of public engagement, provides the opportunity for students to understand and assess the key challenges in fostering effective public engagement strategies in research and innovation endeavours of public and private organisations, and identify opportunities that could support the integration and participation of public in innovation and research activities and improving the institutionalisation and sustainability of public engagement strategies in organisations. To achieve the overall objective of the course, the course is divided into six main lectures:

1. Public engagement in Responsible Research and Innovation

This lecture presents the overall concepts of the key components of Responsible Research and Innovation vis-a-vis the role of public engagement. The lecture also introduces a brief introduction of the Finnish national innovation processes from the perspective of the role of major stakeholders. Creative exercises and quizzes to help students map the guiding concepts and dimensions of RRI and public engagement are also presented.

2. Innovation and innovation models

Provides the basic concepts of innovation and innovation models. The contents of the lecture focus on explaining the key concepts and models that guide our understanding of innovation and innovation processes. Historical development of innovation and its ever-changing dynamics to respond to emerging national socio-economic challenges is presented. Popular innovation models, including, but not limited to, Triple Helix, Quadruple Helix and Quintuple Helix are discussed extensively. To further concretise the models of innovation, an example of Tampere region innovation process is presented.

3. Conceptualising dimensions of public engagement

This lecture specifically focuses on explaining the key dimensions of public engagement and the challenges associated with it in institutionalising public engagement strategies in public and private organisations' research and innovation endeavours. It presents specific institutional examples of higher education institutions' role in research and innovation activities and their institutional sustainable public engagement strategies. The lecture also provides an interesting case of Finnish innovation project—Hiedaranta as urban living lab.

4. Commercialisation of research and innovation, and public engagement

This lecture explores practices, problems, and strategies of various valorization of research and innovation activities. It addresses EU valorization policies and the involvement of key stakeholders in promoting research and innovation results. It also presents the societal impact of research and innovation and the practices of knowledge transfer to a wide audience. Practical Finnish universities and companies' commercialisation of research and innovation strategies are discussed.

5. Group Exercise and Learning Diary: Developing sustainable public engagement strategy

The section provides the opportunity for the students to analyse various public engagement strategies in RRI. First, a brief presentation about sustainable public engagement strategies is presented. Second, selected cases are explored in a bid to integrate public engagement strategies. The aim is to support the comprehensive understanding of students about sustainable public engagement strategies in ReSI. The students are called to drawn out a simulation of an urban project based on public engagement procedures and having in mind the future integration of gender and ethical principles. For this reason, the students are encouraged to look for cases, which could be used also for the gender and ethic courses, so that, at the end of the programme, a holistic approach will be applied.

Finally, this section briefly summarised the contents of the previous lectures based on the learning journals of the learners.

Competencies

Knowledge

EQF – Learning outcomes linked to knowledge

Level 6 (Graduate):

advanced knowledge of the field of work or study, involving a critical understanding of theories and principles.

Level 7 (Postgraduate: Bologna Master or other higher education postgraduate programmes (Formal and informal):

highly specialised knowledge, some of which is at the forefront of knowledge in the field of work or study, as the basis for original thinking and/or research.

critical awareness of knowledge issues in a field and at the interface between different fields.

The objectives are to:

- understand the concepts and dynamics of public engagement and its relationship with responsible research and innovation.
- know the importance of public engagement in enhancing the social acceptance of research and innovation.
- understand the role that public engagement would play in bringing research and innovation closer to society.
- realise the relationship between public engagement, universities service function and commercialisation of research results and innovation.

Skills

EQF – Learning outcomes linked to skills

Level 6 (Graduates):

advanced skills, demonstrating innovation, required to solve complex and unpredictable problems in a specialised field of work or study.

Level 7 (Postgraduate: Bologna Master or other higher education postgraduate programmes (Formal and informal):

specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields.

The objectives are to acquire skills:

- critically assess the challenges and opportunities of public engagement in enhancing innovation process.
- analyse and evaluate a particular country's innovation process from the perspective public engagement.
- apply the key pillars of public engagement in bringing research and innovation closer to the society.

Responsibility & autonomy

EQF – Learning outcomes linked to Responsibility & autonomy

Level 6 (Graduates):

manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts.

take responsibility for managing professional development of individuals and groups.

Level 7 (Postgraduate: Bologna Master or other higher education postgraduate programmes (Formal and informal):

manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches.

take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.

The objective is to strengthen responsibility and autonomy to:

- adopt and develop innovative mind-set.
- commit to understand the concept and importance of public engagement in making research and innovation responsive to societal problems.
- appreciate the concept of responsible research and innovation and the role of public engagement in achieving its objectives.

Assessment and learning products

Assessment

Group work and presentations

Groups of 3–4 students will be formed before the first lecture. Group division and the two assignments will be presented to the students on the first lecture. The assignments are both a group presentation on the basic concepts and theories of public engagement in the context of Responsible Research and Innovation. This constitute 30% of the grade.

The second assignment is analysing a case study of an innovation project in their country. The groups are supposed to work with the case during the whole course and develop an strategy for a case institution. The idea is that the groups apply the concepts and theories from the lectures, course literature and apply what they have learned from the other modules to the practise of Responsible Research and Innovation.

The groups present the solutions of their group work (case study) on the workshop sessions. All students are expected to participate actively in class discussions and other course activities. It is also expected that students have critically read the assigned pre-lecture readings and they should be prepared to discuss, critique and raise questions regarding the materials when necessary. Moreover, students are expected to write a learning journal at the end of the course and submit it. In the learning journal, students will reflect on their overall experience in participating in the course.

Group paper based on the case study

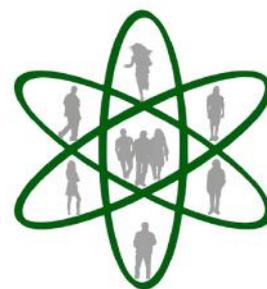
The students will write the group paper. They will further elaborate their presentations of the group work and write a 5,000–6,000-word paper (public engagement strategy in innovation process for a case institution and the implementation plan for the strategy).

Papers will be assessed by using the following criteria:

- Thoroughness of analysis.
- Clear understanding of the links between theory and practise.
- Persuasiveness of arguments.
- Innovativeness of the solution for the problem of case institution.
- Organization and clarity of writing.
- Grammar, spelling, and other indicators of accuracy.

Learning products (deliverables)

1. Presentation, which is critically analysed, and feedback provided by other groups and the teacher.
2. A group paper based on the case study: written strategy and the implementation plan for enhancing public engagement in innovation process in the case institution or country.
3. Debate on selected topics.
4. Learning journal - reflection on the overall experiences of students in participating in the course.



Responsible Research & Innovation (RRI) is a genius concept developed by the European Commission for the governance of research and innovation processes with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products. It aims 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.

RRIL – Responsible Research and Innovation Learning has developed and tested a learning programme on RRI anchoring it in Sustainability and Sustainable Development Goals. talking about Responsible & Sustainable Innovation. For the development of the learning programme, RRIL focus on three core dimension of RRI: public engagement, gender equality and ethics based on interactive real-problem approaches.

It is based on a previous analysis of the degree of the implementation of RRI in the R&I systems of Finland, Poland and Spain (Catalonia) and of the close cooperation with innovation stakeholders, especially from local authorities

This learning programme is composed by four courses: (a) Introduction to Responsible & Sustainable Innovation (ReSI); (b) Public engagement; (c) Gender equality; and (d) Ethics. We present here the second course Public engagement. It can be online consulted, download and imported to other learning platforms at:

<https://lor.instructure.com/resources/f17d06173ec14c61bccf80117e771fd8>

The whole learning programme is accessible at

<https://lor.instructure.com/resources/3d459de396ba4ad59e5f6b87a306d5e6>