Training materials protocol (WP4)

D4.1 Training materials protocol
**PROJECT DETAILS**

**Project acronym**
HEIRRI

**Project title**
Higher Education Institutions and Responsible Research and Innovation

**Funding scheme**
Horizon2020

**Thematic priority**
Responsible Research and Innovation in Higher Education Curricula

**Starting date**
01/09/2015

**Project coordinator**
Universitat Pompeu Fabra (UPF)

**Duration of project**
3 years

---

**DELIVERABLE DETAILS**

**Work package ID**
Training Materials Elaboration

**Expected date**
30/08/2016

**Work package title**
Training Materials Elaboration

**Deliverable ID and title**
D4.1 Training Materials Protocol

**Work package leader**
UPF

**Deliverable description**
This Deliverable states the specific guide of work and processes for interaction between WP leaders, Advisory Boards and Forum of WP4 and the materials created.

**Nature**

[X] R - Report

[ ] O - Other

**Responsible for deliverable**
Gema Revuelta, Núria Saladié

**Submission date**
07/09/2016

**Dissemination level**

[X] P – Public

[ ] CO – Confidential, only for members of the consortium
# TABLE OF CONTENTS

0. About HEIRRI ........................................................................................................................................... 4  
1. About the Training Program Design Guide of Work ........................................................................ 5  
2. Main objectives and tasks of HEIRRI WP4 “Training Materials Elaboration” ............................ 5  
3. Preliminary results from WP3 workshops with stakeholders .................................................................. 7  
4. ILDE: Integrated Learning Design Environment ................................................................................ 9  
5. Organisation of work ............................................................................................................................. 12  
   5.1 Relationship of WP4 and other HEIRRI work packages .............................................................. 13  
   5.2 HEIRRI consortium partners ....................................................................................................... 14  
   5.3 Advisory Boards ........................................................................................................................... 14  
6. Time schedule ........................................................................................................................................ 15
Deliverable 4.1
Training Materials Protocol
1. About HEIRRI

Responsible Research and Innovation (RRI) is a transformative emerging principle of research and innovation policy. The RRI concept emerges from scholarly research that is critical of the status quo of the science-society interface. The aim of the HEIRRI project (Higher Education Institutions and Responsible Research and Innovation) is to start the integration of RRI within the formal and informal education of future scientists, engineers, and other professionals involved in the research, development, and innovation (R&D&I) process.

HEIRRI mainly works around the six RRI “key aspects” identified by the European Commission (societal/public engagement, gender equality, open access, science education, ethics, and governance in research and innovation (R&I)), but above all those six “keys”, HEIRRI wants to stress the potential of RRI as a transformative, critical, and radical concept.

HEIRRI will create and share a stock-taking inventory constituted by a State of the Art Review and a Data Base on a open access (OA) basis. The inventory will gather results of other EU funded RRI projects, good cases, and practices of RRI and RRI learning. Also, different stakeholders involved and/or affected by R&I will participate in a debate and reflection process on RRI learning through online and offline Forum actions.

Results from the inventory will represent the basis for RRI Training programs and formative materials, offering students knowledge and skills to develop viable solutions to specific problems related to R&I, integrating theory and practice. They will be designed for different HEI educational levels (undergraduate, Master and PhD, summer courses, and Massive Open Online Courses (MOOC)), mainly based on Problem Based Learning methodology, and supported by multimedia materials (videos and microvideos, 2.0 materials, etc.). All results and products elaborated by HEIRRI will be uploaded OA at the RRI Tools platform\(^1\).

An internationalisation plan will guarantee their spreading awareness and future use by HEIs from Europe and beyond. A global scope and expertise on RRI will be provided by the HEIRRI consortium consisting of five European HEIs (Universitat Pompeu Fabra (UPF), Universitetet i Bergen (UiB), Aarhus Universitet (AU), Institut Fuer Hoehere Studien und Wissenschaftliche Forschung (IHS), Sveuciliste u Splitu University of Split (UNIST)), the European network of science centres and museums (AEESTI/Ecsite), “la Caixa” Foundation (FBLC), a network of universities (Catalan Association of Public Universities, ACUP), and a private company specialised in R&I (Innovatec).

\(^1\) https://www.rri-tools.eu
2. About the Training Program Design Guide of Work

HEIRRI Deliverable 4.1 “Training Materials Protocol” states the specific guide of work, criteria and mechanisms of decision-taking as well as the points and processes for interaction between WP leader, Advisory Boards and Forum. This protocol is scheduled according to other WPs, particularly WP3 and WP5, and also according to organizational Deliverables, like the Coordination and Management Plan (CMP, D9.1), the Forum Guide of Work (FGW, D1.1), the Communication and Dissemination Plan (CDP, D7.1), and the Internationalization Plan (IntP, D6.1).

D4.1 is produced taking into account the input received from WP2, WP3 (results from the first workshop with stakeholders) and the information planned and defined at the HEIRRI Description of Action (DoA). This document describes the main objectives and characteristics of WP4 and also explains the organization of work of the different groups involved and, finally, the time schedule for WP4 and its two tasks.

It should be kept in mind that this document is a protocol, a guide, and not a final and definite statement. These words have been written taking into account the knowledge obtained so far and estimating the future work ahead. For the proper development of the “Training Material Elaboration” (WP4), it is vital to have the “Training Programs Design” (WP3). The latter will provide with the necessary information for Materials to be successfully produced, as it will guide on issues such as audiences (BA, MA, PhD, and others), extents (e.g. one-day workshops, blocked seminars, lectures over the course of a semester, modular formats to be included in different lectures/courses), ECTS adaptations, and other issues.
3. Main objectives and tasks of HEIRRI WP4 “Training Materials Elaboration”

As stated in the DoA, WP4 “Training Materials Elaboration” has two main objectives:

- To elaborate specific training materials to be applied to the different training programmes
- To guarantee that these materials will be Open Access available through the RRI Tools platform and other relevant channels

Therefore, WP4 is focused on the elaboration of training materials and on making sure that they are accessible for everyone through the RRI Tools website: [http://www.rri-tools.eu/](http://www.rri-tools.eu/)

These training materials will be based on the outcomes from the “Stock taking/inventorying” (WP2) and the “Training Programs Design” (WP3), and will be adapted to the curricula of the different educational levels considered (undergraduate, Master’s degree, PhD level, professional workshops, summer courses and MOOC) and addressing a wide range of potential beneficiaries, such as scientists, medical doctors, engineers and other fields related to R&I.

As stated in the DoA, training materials elaborated in WP4 will be:

- Multidisciplinary and multi-stakeholder co-produced
- With a global perspective
- Available on Open Access (OA)
- Based on innovative learning methodologies, such as Problem-Based Learning (PBL)
- Primarily based on e-Learning systems and on multimedia/2.0 formats, and social media

Part of the materials will be co-produced using the Integrated Learning Design Environment (ILDE) technological platform ([http://ilde.upf.edu/about/](http://ilde.upf.edu/about/)), which is explained in the coming section 4 (“4. ILDE: Integrated Learning Design Environment”).

**Connection with WP2**

Production of materials will be done in alignment with the intended learning outcomes of each programme. Although each programme will have its own materials, it does not mean that all materials will be developed from scratch. Previous (international) initiatives have proposed materials that are efficient for teaching RRI in a way coherent with the HEIRRI approach. These cases have been identified during WP2 “Stock-taking/inventorying”, gathered and analyzed with deliverables D2.2 “State of the Art Review” and D2.3 “Database Report”. They will therefore be vital and thoroughly taken into account when elaborating the HEIRRI training materials.
**Videos for the materials elaborated**

It has been planned in the DoA to use different formats for the training materials. One of these formats is going to be audiovisual: key materials will count with a video. The elaboration of these videos will be coordinated by UPF, who will write the script and follow closely the elaboration of each video so that the teaching content resonates with the HEIRRI approach. The production of the videos will be subcontracted by UPF to an external company.

**RRI Tools platform**

As stated in the DoA, materials will be designed following the high standard technical and quality requirements of the RRI Tools platform, as they will be made accessible (in OA) through that website. The specific tab of the RRI Tools website where materials will be available has not been defined at the time of writing this document. UPF and FBLC are considering what the best option is in order to ensure the best visibility of the materials.

**Material testing during pilot experiences**

Once materials have been produced, they will be tested in several pilot experiences, and their implementation and impact will be evaluated. This assessment constitutes WP5, which is led by University of Split. It will be crucial to improve the final HEIRRI training materials, which will be the most important product of WP4, and one of the most important outcomes of the whole HEIRRI project.

Different HEIs will test the materials to ensure a proper representation of the variety of European areas and curricular profiles. Some of these activities will be tested in collaboration with science centres and museums (SC-SM). This can be beneficial because SC-SM are publically trusted sources of information, and because visiting them contributes to improve the public opinion towards science and technology and increases young people’s motivation to choose scientific careers.
4. Preliminary results from WP3 workshops with stakeholders

On June 2016, WP3 leader IHS organized the first of a series of stakeholders’ workshops to help define more accurately the characteristics of the future Training Material Design. The outcome of this first workshop, the “internal summary report”, presents interesting ideas regarding the objectives of the courses and their methodologies, but it also provides with general conclusions and reflections.

It should be borne in mind, however, that the document is preliminary and based on a Vienna-based experience. On September 2016, a second stakeholder workshop will take place in Vienna. Later on, during Autumn 2016, a series of international workshops will be conducted around Europe by other HEIRRI partners to consolidate and confirm the validity of the conclusions reached in the Austrian context.

Objectives of the courses

According to the WP3 “internal summary report”, courses elaborated should aim to achieve:

- For bachelor’s students and other actors not yet familiar with the RRI concept:
  - To acquire knowledge about the existence of RRI and related concepts, its history, relevance, characteristics, theories and practical approaches.

- For master’s or PhD students, and actors familiar with the RRI concept:
  - To promote reflection about the science-society relationship and the interconnection between different disciplines and stages of R&I.
  - To learn approaches and methods that could make R&I processes more responsible (for example, promoting different individual RRI key dimensions and combining them in a meaningful way).
  - To understand how to practically implement these different approaches and methods in R&I processes.

Course methodology

The “internal summary report” gathers some ideas arising from the discussion with stakeholders:

- RRI should be integrated as individual courses or modules into already existing courses.
- RRI should be presented as a topic of reflection and discussion throughout all different HEI levels.
- The most appropriate way of teaching RRI is using Problem- or Inquiry-based learning (PBL) methodology. When not possible (for example, with mass study programmes), lectures might be used (promoting active dialogues and discussions).
- Interdisciplinarity is key. However, existing organisational structures do not encourage students with different disciplinary backgrounds getting mixed.
RRI courses should be supported by online platforms and online teaching materials.

To sum up, the “internal summary report” concludes that Training Materials elaborated in WP4 should have the following characteristics:

- Main content based on concrete case examples, illustrating:
  - the interrelatedness of science and society and the necessity to reflect and deal with this relationship
  - what it means to conduct RRI (examples for RRI processes), what effects and impacts doing RRI has, particularly on the discussed case examples and the respective study fields (significance of RRI)
  - the possible effects of not doing RRI
- Complementary content with examples provoking a more general discussion for research and innovation processes and outputs (products)
- Introductory material to RRI and related issues that is easy to understand
- Materials should be in different formats (texts, interactive webpages, explanatory and movie-oriented videos, games, etc.) and should concern different disciplines and stages of research (basic, applied) and innovation. Multimedia formats will stir up curiosity of addressed actors.
5. ILDE: Integrated Learning Design Environment

The "Integrated Learning Design Environment" (ILDE) is an online platform that supports cooperation within a "learning design" community in which its members share and co-create learning materials in multiple formats. The ILDE platform integrates a number of open source tools that include learning design editors following different authoring and pedagogical approaches and interfaces for deployment of materials as activities and content embedded in mainstream online learning platforms, as published webpages or as file downloads. ILDE has been developed in previous learning technology projects (http://ilde.upf.edu/about).

For the HEIRRI project, and as stated in the DoA, the ILDE platform will be used for the design and elaboration of training materials.

The specific installation of ILDE for HEIRRI has the domain http://ilde.upf.edu/heirri/, which offers a devoted community space for the HEIRRI consortium members to use (Figure 1). It has been customized to support the HEIRRI project in its task to develop training materials to integrate the concept of “Responsible Research and Innovation” in the university curricula of all stages of education of scientists and engineers. Customizations have been discussed in HEIRRI PEC meetings.

Figure 1. ILDE community platform for HEIRRI, http://ilde.upf.edu/heirri

Main customizations done to the ILDE platform for HEIRRI include:

- Adaptation of ILDE look-and-feel to identify the community space with the HEIRRI project.
- Use of open licences (creative commons\(^3\)) to enable the sharing and reuse of programs and materials as Open Educational Resources, automatizing the recognition of authorship (authors and production in the context of the HEIRRI project) – also when the material has been created using a previous version shared by other authors.
- Improved management of comments. Restoration of previous versions of materials. Full-screen of editors’ interfaces to facilitate authoring.
- Integration of a taxonomy for tagging training materials co-created and shared within the community; the taxonomy is aligned with HEIRRI / RRI aspects and the classification framework used in RRITools (see Figure 2).

![Figure 2. Tagging taxonomy for HEIRRI materials, aligned with HEIRRI approach and RRITools classification framework](https://creativecommons.org/)

\(^3\) https://creativecommons.org/
HEIRRI consortium members can access the platform to co-create, modify, refine and provide comments to training materials. ILDE provides the authoring and collaboration tools and also acts as a repository of shared materials that can be explored, reused, duplicated, refined, and implemented in pilots in online formats or in combination with offline courses at the HEIs, as recommended by stakeholders according to WP3 interviews and first workshop on teaching RRI. Final versions of piloted materials will be published in RRITools.
6. Organisation of work

WP4 runs from September 2016 (M12) to June 2018 (M34). It is a long WP that is going to develop training materials based on input from WP2 and WP3 but also from the feedback of the pilot testing experiences of WP5. Therefore, WP4 will constantly be on the lookout for improvement of the designed materials.

6.1 Relationship of WP4 and other HEIRRI work packages

| WP1 | Feedback on draft and preliminary final training materials from Multi-stakeholder Forum | Draft training materials |
| WP2 | Best practices, experiences, and crucial aspects of RRI teaching and learning | - |
| WP3 | Draft training programs framing the training materials to be produced | Refined / complete training programs with materials |
| WP5 | Feedback from pilot testing experiences to improve draft training materials | Draft training materials to implement the pilot experiences in 5 European HEIs and 2 non-European ones. |
| WP6 | Feedback from strategic actions with international networks, including the two international scholarships | Draft training materials to implement the international scholarships |
| WP7 | Communication and dissemination guidelines. Feedback from Communication actions through HEIRRI blog and social media. Potential feedback from dissemination within the scientific community | Final training materials to disseminate through HEIRRI channels and RRI Tools platform |
| WP8 | - | Data and materials for the evaluation |
| WP9 | Coordination and Management guidelines. Feedback from the HEIRRI consortium and Advisory Boards | Draft training materials to be sent to the rest of the HEIRRI consortium and Advisory Boards for feedback |
6.2 HEIRRI consortium partners contributions

<table>
<thead>
<tr>
<th></th>
<th>1. UPF</th>
<th>2. UIB</th>
<th>3. AU</th>
<th>4. IHS</th>
<th>5. UNIST</th>
<th>6. FBLC</th>
<th>7. AEE STI EC Site</th>
<th>8. ACUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>D4.1</td>
<td>15 PM</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Task 4.2 Production of Materials</td>
<td>X</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
</tr>
<tr>
<td>D4.2</td>
<td>X</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
<td>Feedback</td>
</tr>
</tbody>
</table>

The partner leading WP4 is UPF, and therefore, the main effort will be done by this institution. However, the rest of consortium members are very relevant in all stages of this WP in giving their feedback on way to improve. Innovatec will not be consulted during this WP in order to keep their external vision and evaluator role.

After UPF, the partner with more implication in WP4 is University of Split, followed by University of Bergen. Then come Aarhus University, Institute for Advanced Studies, “la Caixa” Foundation and the Catalan Association of Public Universities, and finally the European network of science centres and museums Ecsite.

The whole consortium will be consulted before the submission of the two Deliverables (D4.1 and D4.2). Moreover, and most importantly, consortium members will be consulted regarding the Training Materials elaborated. Materials will be assessed by all partners before their implementation. After the Pilot experiences, institutions involved will report back to UPF with their comments and recommendations for improvement.

6.3 Advisory Boards contributions

Two of the Advisory Boards of the HEIRRI project will have a relevant role in the elaboration process of the Training Materials: the Multidisciplinary Contents Council (MCC) and the Science Communication & Internationalization Advisory Board (SCIAB). These two Boards will contribute co-producing and supervising the quality standards and understandability of materials for people from different backgrounds and cultures. They will be asked for feedback at relevant moments(specified in
the Calendar of action found in the following section of the document in hand).

Advisory Boards will be consulted for the Draft Training Materials (before their pilot testing) and also for the D4.2 Final Training Materials.

Although the DoA specifies that these two Advisory Boards will be consulted for the materials, the third Advisory Board, the Business & Entrepreneurship Advisory Board (BEAB) is not excluded. This Board can be consulted as well, as its integrants are high-profile experts whose opinion on the prepared training materials can be very valuable.
7. Time schedule

This is the HEIRRI official calendar:
Zoom in for WP4:

<table>
<thead>
<tr>
<th>Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
</tr>
<tr>
<td>TM Protocol</td>
</tr>
<tr>
<td>Prod. Materials</td>
</tr>
<tr>
<td>PEC meetings</td>
</tr>
</tbody>
</table>

As can be observed in the Table, the Training Material Protocol is due on M12 (August 2016). On that same month, Task 2 “Production of Materials” starts. During the coming 22 months, Training Materials will be produced by UPF (with the collaboration of the rest of partners and Advisory Boards), and will be tested during the subsequent WP, the Initial/Pilot Experiences (WP5).

It is important to point out that WP4 lasts two months longer than WP5: on M32, WP5 will produce the “Program and material final recommendations”, which will be then introduced into the final materials of the HEIRRI project, due on M34.

In the Table, the two Deliverables of WP4 are marked with a cross (X):
- Deliverable 4.2 “Training Materials Final Report”. Month 34 (June 2018)

During the 22 months of WP4, a total of 7 PEC meetings will take place: 5 face-to-face meetings and 2 hold online (via Skype or a similar platform). These meetings will be great opportunities to share advances with the rest of the consortium and receive insights and recommendations for the better running of WP4.

**Calendar**

Based on the analysis of the deliverables D2.2 and D2.3, which are very relevant for the whole HEIRRI project, UPF will start defining small modules of key concepts for the future materials from September to November 2016. On October 18th, UPF will organize a small session for UPF professors and students to present the HEIRRI Database and how it is going to be useful for WP3 and WP4.

In the meantime, IHS will have shared by the end of September the list of 10 training programmes, and the HEI partners of the project will have decided which of them they will be able to pilot first. Based on their selection of programmes, IHS will develop a draft syllabus for each of these 5 programmes, upon which UPF will start working from November 2016 to February 2017.
On February 28th 2017, after the international consolidation actions for WP3, IHS will submit the Deliverable 3.2 “Training Programs”. This Deliverable is going to include the final syllabi with which UPF will adapt the draft Training Materials for the first 5 programmes. UPF will present 5 materials by the end of May 2017; and the remaining 5 materials, by the end of September 2017.

Once the pilot experiences are finalized at the end of April 2018, UPF will work on refining and adapting the Materials with all the information collected during the Pilots. At the end of June 2018, the Final Training Materials (Deliverable D4.2) will be submitted.

This is the proposed calendar of action:

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 2016 - Nov 2016</td>
<td>Based on the analysis of D2.2 and D2.3, UPF starts defining modules of key concepts for the WP4 materials</td>
</tr>
<tr>
<td>30 Sep 2016</td>
<td>IHS presents draft list of 10 programmes</td>
</tr>
<tr>
<td>7 Oct 2016</td>
<td>HEI partners of the project choose first programmes to pilot</td>
</tr>
<tr>
<td>18 Oct 2016</td>
<td>UPF organizes a small seminar for students and professors to present results from D2.3 and how they will be used</td>
</tr>
<tr>
<td>31 Oct 2016</td>
<td>IHS presents the draft syllabus of first 5 programmes</td>
</tr>
<tr>
<td>Nov 2016 – Feb 2017</td>
<td>UPF works on first 5 draft materials</td>
</tr>
<tr>
<td>28th Feb 2017</td>
<td>IHS submits D3.2, with the programmes and their syllabi</td>
</tr>
<tr>
<td>Mar– May 2017</td>
<td>UPF adapts the draft materials to the final syllabi of D3.2 and presents the first 5 Training Materials by the end of May. UPF shares these materials with HEIRRI consortium members and Advisory Boards</td>
</tr>
<tr>
<td>15th Jun 2017</td>
<td>Feedback from HEIRRI consortium and Advisory Boards</td>
</tr>
<tr>
<td>30th Jun 2017</td>
<td>Final draft of first 5 Training Materials, ready to pilot</td>
</tr>
<tr>
<td>30th Sep 2017</td>
<td>UPF presents the remaining 5 Training Materials and shares them with HEIRRI consortium members and Advisory Boards</td>
</tr>
<tr>
<td>15th Oct 2017</td>
<td>Feedback from HEIRRI consortium and Advisory Boards</td>
</tr>
<tr>
<td>30th Oct 2017</td>
<td>Final draft of remaining 5 Training Materials, ready to pilot</td>
</tr>
<tr>
<td>Feb 2017 – Apr 2018</td>
<td>Pilot experiences</td>
</tr>
<tr>
<td>Apr 2018</td>
<td>Second HEIRRI conference. Workshop on how to adapt the materials to different educational contexts and its practical use</td>
</tr>
<tr>
<td>Apr 2018 – Jun 2018</td>
<td>Refining and adapting the Materials with Pilot information</td>
</tr>
<tr>
<td>Jun 2018</td>
<td>UPF submits D4.2: Final Training Materials</td>
</tr>
</tbody>
</table>