Premise

Responsible Research and Innovation is
◊ an approach that anticipates and assesses **potential implications, impact and societal expectations** with the aim to foster the **design of inclusive and sustainable research and innovation,**
◊ and implies that all the **societal actors** (researchers, citizens, policy makers, business, third sector organisations, etc.) **work together during the whole research and innovation process** to better align both the process and its outcomes with the values, needs and expectations of society.

Social justice & Inclusion
Avoid unfair exclusion of particular groups from either participation in research and/or access to benefits arising from research

Sustainability
Enable research programmes and RRI initiatives to contribute to sustainable growth according to EU 2020 strategy

tackling huge challenges such as the "Seven Grand Challenges" identified by the EC

Health, demographic change, and wellbeing

Food, agriculture and forestry, and water

Secure, clean and efficient energy

Smart, green and integrated transport

Climate action, environment, and resources

Europe in a changing world: inclusive, innovative and reflective societies

Secure societies: freedom and security of Europe and its citizens

It is crucial to frame and tailor the RRI approach according to the different research stages of
- ideation and development,

- implementation and management,
- finalization, impact assessment and sharing of results,

aiming at integrating it to the whole scientific process.

The Proposal

Consistently, our proposal is to provide one day per year of "Hands on RRI" to accompany and support doctoral students from the first to the third year, during all phases of their research, including the final stages of impact assessment and sharing results.

For first-year doctoral students, the "Hands on RRI" interactive course on "(CO) DESIGNING RESPONSIBLE RESEARCH. INTEGRITY, ETHICS & REPRODUCIBILITY will

- have the same format for all Ph.D. students, although brought back to the specifics of disciplinary fields, and research project;
- engage **100 participants** for each edition;
- foresee 3 editions involving doctoral students from macro-multidisciplinary areas.

For the second-year doctoral students, the "Hands on RRI" interactive course on "**DEVELOPING RESPONSIBLE RESEARCH**" will have 2 formats:

a. a common half a day format on "MONITORING RRI ACTIVITIES AND THEIR IMPACTS WITH INDICATORS FOR PROCESSES, INTERMEDIATE OUTCOMES AND PERCEPTIONS"
b. a half-day seminar on **Open challenges for responsible research** that each doctoral student can choose from the following 3 options:
   a. **Participatory research, citizen science in practice**
   b. **Artificial Intelligence in research (for a good practice)**
   c. **Next-generation (integrated-digitalized data-omics based) research**
-

1°PhD Year
(CO) DESIGNING RESPONSIBLE RESEARCH. INTEGRITY, ETHICS & REPRODUCIBILITY

The program
1st one-day cross-workshop

HUMAN & LIFE SCIENCES

1° YEAR – 1°CROSS WORKSHOP (Life sciences domain) – (CO) DESIGNING RESPONSIBLE RESEARCH. INTEGRITY, ETHICS & REPRODUCIBILITY			
Time	**Main Session** *(RRI dimensions & concepts)*	**Contents**	**Trainers per edition**
9:00 – 10:15 **Interactive plenary (& POST-IT session)**	**The RRI shift.**	*RRI concepts, dimensions & implications in Life Sciences domain*	**S. Casati (CNR-BBMRI)**
10:15– 11:30 **Interactive plenary (& POST-IT session)**	**Research Integrity** *(RRI - Anticipation & reflection - Ethics)*	*Sharing good practices & experiences* *- In research design and planning* *- In the interactions with all the actors at stake*	**R. Dameno (UNIMIB)**
11:30 – 11.45 Break			

11:45– 13:15
 	
Interactive plenary
& practical session –
working groups
 	
13:15 – 13:30
 	
Output sharing
	Ethics Self-assessment &
	third part reviewing
	
	(RRI – Dimension:
	Anticipation & reflection –
	RRI – Pillars: Ethics, Public
	Engagement, Social
	Inclusion)
		Ethical-Legal-Social – ELSI p*ractical session on*
		- *Research ethics evaluation (risk/impact assessment,*
		  mitigation, oversight governance)
		- *Submitting the study to a University/Institutional*
		  Ethics Committee – and/or to an Access Committee
		  (Why, When, Who, What and How)
		- *Ethics check within Horizon Europe*
		
		Considering the different scientific domains, the participants
		will self-assess their research within an ELSI horizon and/or
		hands on the Unimib Ethics committee matrix to submit a
		request of ethics reviewing and/or on a Biobank/Registry
		access procedure to submit an access request
			S. Casati (CNR-BBMRI)

13:30 – 14:30 Lunch Break		

14:30 – 16:30
 	
Interactive plenary
 	
16:30 – 17:40
 	
Practical session –working
groups on study
preregistration
 	
17:40 -18:00
 	
Outputs sharing and take-
home message
	Reproducibility &
	FAIRfication
	
	(RRI Dimension- Openness &
	transparency – RRI Pillars:
	Open Access, Governance,
	Sustainability)
		(Co) design, pre-register, and track your study and your
		scientific tools
		- *Research preregistration and Registered Reports, and*
		  workflow infrastructure in an Open Science
		  Environment
		- *Abc for a Data Management Plan, Metadata and*
		  FAIRification
		
		Practical Hands-on session on Preregistration and Research
		Data Management Plan. This module will be a practical
		training on drafting a Preregistration and a Research Data
		Management Plan, building on what has been learned in the
		previous modules.
			C. Zogmaister, & D. Scisci
			
			(UNIMIB)

2nd one-day cross-workshop,

ECONOMIC, LEGAL, SOCIAL SCIENCES

1° YEAR – 2° CROSS WORKSHOP (Human Sciences Domain) – (CO) DESIGNING RESPONSIBLE RESEARCH. INTEGRITY, ETHICS & REPRODUCIBILITY			
Time	**Main Session** *(RRI dimensions & concepts)*	**Contents**	**Trainers per edition**
9:00 – 10:15 **Interactive plenary** **(& POST-IT session)**	**The RRI shift.**	*RRI concepts, dimensions & implications in Human Sciences domain*	**S. Casati (CNR-BBMRI)**
10:15 – 11:00 **Interactive plenary** **(& POST-IT session)**	**Research Integrity** *(RRI - Anticipation & reflection - Ethics)*	*The Status of Researcher*	**V. Colcelli (CNR)**
11:30 – 11.45 Break			
11:45– 13:15 **Interactive plenary** **& practical session –** **working groups** **13:15 – 13:30** **Output sharing**	**Ethics Self-assessment & third part reviewing** *(RRI – Dimension: Anticipation & reflection – RRI – Pillars: Ethics, Public Engagement, Social Inclusion)*	**Ethical-Legal-Social - ELSI p***ractical session on* - *Ethics check within Horizon Europe* - *Research ethics evaluation (risk/impact assessment, mitigation, oversight governance)* - *Submitting the study to a University/Institutional Ethics Committee – and/or to an Access Committee (Why, When, Who, What and How)* *Considering the different scientific domains, the participants will self-assess their research within an ELSI horizon or hands on the Ethics committee matrix to submit a request of ethics reviewing.*	**S. Casati (CNR-BBMRI)**
13:30 – 14:30 Lunch Break			

14:30 – 16:30 **Interactive plenary** **16:30 – 17:40** **Practical session – working groups on study preregistration and Data Management Plan** **17:40 -18:00** **Outputs sharing and take-home message**	**Reproducibility & FAIRfication** *(RRI Dimension- Openness & transparency – RRI Pillars: Open Access, Governance, Sustainability)*	***(Co) design, pre-register, and track your study and your scientific tools*** - *Research preregistration and Registered Reports, and workflow infrastructure in an Open Science Environment* - *Abc for a Data Management Plan, Metadata and FAIRification* *Practical Hands-on session on Preregistration and Research Data Management Plan. This module will be a practical training on drafting a Preregistration and a Research Data Management Plan, building on what has been learned in the previous modules.*	**C. Zogmaister & D. Scisci, (UNIMIB)**

3rd one-day cross-workshop

STEM – Earth sciences

1° YEAR – 3° CROSS WORKSHOP (STEM & Earth sciences domain) – (CO) DESIGNING RESPONSIBLE RESEARCH. INTEGRITY, ETHICS & REPRODUCIBILITY			
Time	**Main Session** *(RRI dimensions & concepts)*	**Contents**	**Trainers per edition**
9:00 – 10:00 Interactive plenary (& POST-IT session)	**The RRI shift.**	***RRI concepts, dimensions & implications in STEM, Earth sciences domain***	**S. Casati (CNR-BBMRI)**
10:00 – 11:30 Interactive plenary (& POST-IT session)	**Research Integrity** *(RRI - Anticipation & reflection - Ethics)*	***Good practices and experiences*** - *In research design and planning* - *In the interactions with all the actors at stake*	**E. Lazzeri (GARR)**
11:30 – 11.45 Break			
11:45– 13:30 Interactive plenary (& POST-IT session)	**Ethics Self-assessment & third part reviewing** *(RRI – Dimension: Anticipation & reflection – RRI – Pillars: Ethics, Public Engagement, Social Inclusion)*	**Ethical-Legal-Social - ELSI** *practical session on* - *Project based on Citizen science* - *Ethics check within Horizon Europe* - *Research ethics evaluation (risk/impact assessment, mitigation, oversight governance)* *Considering the different scientific domains, the participants will self-assess their research within an ELSI horizon or draft citizen science rationale*	**S. Casati (BBMRI-ERIC)**
13:30 – 14:30 Lunch Break			

14:30 – 16:30 **Interactive plenary**	**Reproducibility & FAIRfication** *(RRI Dimension- Openness & transparency – RRI Pillars: Open Access, Governance, Sustainability)*	***(Co) design, pre-register, and track your study and your scientific tools*** - *Research preregistration and Registered Reports, and workflow infrastructure in an Open Science Environment* - *Abc for a Data Management Plan, Metadata and FAIRification*	**E.Lazzeri (GARR)**
16:30 – 17:40 **Practical session – working groups on study preregistration and Data Management Plan**		*Practical Hands-on session on Preregistration and Research Data Management Plan. This module will be a practical training on drafting a Preregistration and a Research Data Management Plan, building on what has been learned in the previous modules.*	
17:40 -18:00 **Outputs sharing and take-home message**			

2°PhD Year
DEVELOPING A RESPONSIBLE RESEARCH.
The Program

1st half-a-day cross-workshop

ECONOMIC, LEGAL, SOCIAL SCIENCES

2° YEAR – 1° half-a-day CROSS WORKSHOP (Economic, Legal, Social Sciences Domain) MONITORING RRI ACTIVITIES AND THEIR IMPACTS WITH INDICATORS FOR PROCESSES, INTERMEDIATE OUTCOMES AND PERCEPTIONS		
Time	**Main Session**	**Trainers per edition**
14:00 – 15:15 Interactive plenary (& POST-IT session)	**The RRI indicators** *Process and perception indicators for the 8 RRI dimensions (from governance to open access)*	**S. Casati (CNR-BBMRI)**
15:15– 16:30 Interactive plenary (& POST-IT session)	**FAIRfication: How to assess the process.**	**D. Scisci (UNIMIB)**
16:30 – 16.45 Break		
16:45– 17:45 Practical session –working groups 17:45 – 18:00 Output sharing	**Hands on on-going PhD projects to assess and (eventually) revise the research process within a RRI indicators framework.**	**S. Casati, D. Scisci**

2nd half-a-day cross-workshop

STEM – Earth Sciences

2° YEAR – 2° YEAR – 1° half-a-day CROSS WORKSHOP (STEM & Earth sciences) **MONITORING RRI ACTIVITIES AND THEIR IMPACTS WITH INDICATORS FOR PROCESSES, INTERMEDIATE OUTCOMES AND PERCEPTIONS**		
Time	**Main Session**	**Trainers per edition**
14:00 – 15:15 **Interactive plenary** **(& POST-IT session)**	**The RRI indicators** *Process and perception indicators for the 8 RRI dimensions (from governance to open access)*	**S. Casati (CNR-BBMRI)**
15:15– 16:30 **Interactive plenary** **(& POST-IT session)**	*FAIR play in research: application of best-practices toward FAIRness*	**F. Frexia (CRS4)**
16:30 – 16.45 Break		
16:45– 17:45 **Practical session –working groups** **17:45 – 18:00** **Output sharing**	**Hands on on-going PhD projects to assess and (eventually) revise the research process within a RRI indicators framework.**	**S. Casati & F. Frexia**

3rd half-a-day cross-workshop

HUMAN & LIFE SCIENCES

<table>
<tr><td colspan="4">2° YEAR – 1° half-a-day CROSS WORKSHOP (Human & Life Sciences Domain)
MONITORING RRI ACTIVITIES AND THEIR IMPACTS WITH INDICATORS FOR PROCESSES, INTERMEDIATE OUTCOMES AND PERCEPTIONS</td></tr>
<tr><td>Time</td><td>Main Session
(RRI dimensions & concepts)</td><td>Contents</td><td>Trainers per edition</td></tr>
<tr><td>14:00 – 15:15
Interactive plenary
(& POST-IT session)</td><td>**The RRI indicators**
Process and perception indicators for the 8 RRI dimensions (from multi-actor engagement to open access)</td><td></td><td>S. Casati (CNR-BBMRI)</td></tr>
<tr><td>15:15– 16:30
Interactive plenary
(& POST-IT session)</td><td>*FAIRfication and sample-data characterization and digitalization*</td><td></td><td>M. Pallocca (IRCCS INT Regina Elena)</td></tr>
<tr><td colspan="4">16:30 – 16.45 Break</td></tr>
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Practical session –working groups

17:45 – 18:00
Output sharing</td><td>Hands on on-going PhD projects to assess and (eventually) revise the research process within a RRI indicators framework.</td><td></td><td>S. Casati & M. Pallocca</td></tr>
</table>

Open challenges for responsible research
a half-day **(4 hours)** seminar that each doctoral student can choose from the following 3 options:

1st half day seminar
Artificial Intelligence in research (for a good & responsible practice)

Barucci A (CNR - IFAC) From Radiomics and Biophotonics and Egyptology and beyond… to boldly go where no algorithm has gone before.

Colcelli V (CNR -IFAC) The legal and ethical requirements for AI application in medical research activities

Mellone S (UNIBO) AI for predictive, personalized, preventive, and participatory medicine

2nd half day seminar
Participatory research, citizen science in practice

Casati S (CNR - BBMRI) The citizen as a partner in scientific processes: good practices from advanced biomedical field (just in case Gui does not confirm)

Criscuolo Laura (CNR). Addressing soil fertility with a transdisciplinary and participatory approach: the BRIDGES experiment in Milan

Frattini P (UNIMIB) Citizen science & hydrogeological risk management: a living laboratory with young generation

Vito D (San Diego City University) Marine debris glow estimation through citizen sciences approaches: case studies from Mediterranean coastal tourist sites

Gui M (UNIMIB) Digital well-being at school and in family. A participatory path with the city of Milan (to be confirmed)

3rd half day seminar
Next-generation (integrated-digitalized data-omics based) research

Tomasi M (UniBZ) General Data Protection Regulation, data governance and renewed accountability

Casati S (CNR-BBMRI) Real-word data and biobanking. A shift for ethical reviewing, informed consenting and oversight governance processes within a Responsible research and Innovation framework

Viceconti Marco (UniBO) Next generation Sequencing, digitalization and citizen's rights

Ambrosini A (Telethon Foundation) Registry of patients with neuromuscular diseases: a participatory practice

Scientific Responsible: Dr. S. Casati, sara.casati@unimib.it