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Introduction

The ETHNA Lab process is developed to accompany the implementation of the draft concept of the ETHNA System, a flexible system supporting research and innovation (R&I) organisations and research funding organisations in developing their own ethical governance structure. The ETHNA System takes a point of departure in the four dimensions of Responsible Research and Innovation (RRI): anticipation, inclusion, reflexivity, and responsiveness, and applies four of six RRI keys: research integrity, gender perspective, public engagement, and open access. The aim of the ETHNA System is to provide a tool for practically implementing RRI by developing ethical R&I procedures that are socially responsible and desirable (González-Esteban et al. 2021).

The draft concept of the ETHNA System has been developed with a point of departure in a review of the state of the art within ethical governance, a needs assessment as well as a multistakeholder consultation. The next step in developing and improving the system is to test it through an implementation in six organisations in five different countries, from the four different R&I contexts: University, Higher Education Agency¹, Innovation Ecosystems, and Research Centres. The ETHNA Lab is supporting this implementation of the ETHNA System by providing a process developed with a point of departure in the Living Lab approach, ensuring an inclusive, iterative, and reflective process of co-designing the ETHNA System which will provide insightful input for how to further improve the ETHNA System itself.

A Living Lab is a social, physical and/or mental space for social innovation and experimentation. The core of the Living Lab is to have stakeholders come together, deal with a complex problem, and come up with new and better solutions through dialogue, testing and reflecting. This is exactly the purpose of the implementation of the ETHNA System through the ETHNA Lab process – to bring stakeholders together, co-create, experiment with, and evaluate the elements of the ETHNA System.

The ETHNA Lab is a process of six lab steps that takes the implementing organisations through a process of developing their own ETHNA System, which is compliant with, supports, and improves existing ethical governance procedures within the organisation, while engaging internal and external stakeholders in the process. Each of the six ETHNA Lab steps consists of working phases, expert meetings, and/or workshops with a minimum of three mandatory workshops throughout the process. The ETHNA Lab involves different participants throughout the process – the Lab Manager, who is the overall responsible for the process, the RRI Office(r), who if responsible for the ETHNA System and the development hereof, and external resources. The external resources are internal and external stakeholders as well as expert groups who are engaged throughout the process to ensure the relevance and usefulness of the ETHNA System developed.

The ETHNA Lab Training Material has guided the six implementing organisations through the ETHNA Lab process. Here, the implementors are offered an overview of the purpose of the process, a guide on the six steps of the process, and roles and responsibilities throughout the process. Implementors have moreover been supported through training workshops and a helpdesk to support them in preparing and carrying out their implementation.

¹ This context falls under a broader context of R&I funding organisations.

The desired outcome of the process is to create an institutional change within the implementing organisations, developing and improving their ethical governance procedures with a point of departure in the ETHNA System. The desired outcome is moreover to have lessons learned based on practical experiences feed back into the further development of the ETHNA System itself.

This report includes a guide on the ETHNA Lab, followed by the methodological reflections made during the development of the ETHNA Lab, a short introduction to the implementation process, including the support structure offered to the implementing organisations, and finally some concluding reflections on the desired outcome of the ETHNA Lab process.

1 The ETHNA Lab

The ETHNA System project makes use of a structured, yet open process to develop, refine and improve the draft concept of the ethical governance system The ETHNA System developed within the project. The ETHNA System is tested in empirical, real-life encounters through an implementation in six organisations, in five different countries, from four different research and innovation contexts. The derived knowledge and insights from this implementation process are afterwards applied to improve and finalise the system itself.

The method adapted for this purpose is called Living Lab. The Living Lab approach is a very apt approach for this particular implementation of the ETHNA System, as it provides a framework and a procedure to organise the process. At the same time it leaves ample space for local adaptation and calibration, so that each implementor may adjust the various steps to fit their organisational reality in the best possible way. The Living Lab approach is intuitive, experimental, and cocreative – it allows relevant voices to be heard, diverse stakeholders to meet and work together and heterogenous materials to contribute (Hassan et al. 2015; Popa et al. 2018). The ETHNA Lab takes a point of departure in this Living Lab approach with its six consecutive lab steps: Planning, Construction, Consultation, Refinement, Testing, and Review. Each lab step includes one or more activities: Working phases, expert meetings, and/or workshops.

The following pages provide a guide to the ETHNA Lab, including information on the concept of Living Labs and its adaptation to the ETHNA System and its implementation; an overview of the overall method and process in terms of roles and responsibilities; a step-by-step description of the various tasks, workshops, and sub-processes; and practical information on how to approach the tasks.



1.1 What is a Living Lab?

A Living Lab is an arena of social experiments for addressing complex problems or challenges on a systemic level. The concept 'Living Lab' designates a set of activities by which stakeholders together take on a complex problem, by way of cooperation work out a solution and, in the process, keep tabs on how others have struggled with similar problems (Hassan et al. 2015; Popa et al. 2018).

Living Labs consist of a team, a process, and meeting space(s) supporting social innovation and experimentation. In this case, the team consists of the implementing organisations as well as participating stakeholders from different sectors who are invited into the lab to work together in the lab process. The process consists of three interdependent, iterative activities:

Diagnosis of the current situation and practices. This results in an understanding of barriers and enablers of the issue under scrutiny. Here, stakeholders with different worldviews collaborate in order to understand and solve the problem by gathering different perspectives, exchanging experiences raising awareness for potential problems and thinking of what possible solutions could look like (Evans et al. 2017; Popa et al. 2018). 1

- Experimentation with designing and implementing social experiments. The aim is to test initiatives and overcome barriers faced in the process. The resulting course of action is first tested in a small environment before scaling up the idea and applying it in the real world. This is sometimes referred to as 'prototyping' (Evans et al. 2017; Popa et al. 2018).
- > Reflection on the outcomes of the experiments and lessons learned for further experimentation, innovation, and development (Evans et al. 2017; Popa et al. 2018).

Living Labs offer spaces (physical, mental, topical) that facilitates this process. They enable diagnosis, experimentation, and reflection to take place at the same time and as part of the same intertwined process (Hassan et al. 2015; Popa et al. 2018).

With a point of departure in these iterative activities, the ETHNA Lab is a process for the implementing organisations to systematically co-create, experiment with, and evaluate each of the elements of the ETHNA System, namely the RRI Office(r) and its tools (Codes of Ethics and Good Practice in R&I, Ethics Committee on R&I, Ethics Line, and Monitoring Indicators).

1.1.1 Quadruple Helix

The ETHNA Lab moreover builds on the quadruple helix (QH) framework, describing the interactions of four stakeholder groups within a knowledge economy: Academia (research/innovation/funder community), business/industry, policymakers, and civil society. Collaborations between these four types of stakeholders are represented by a circle (helix), with overlapping interactions (Figure 1) (Evans et al. 2017; Häberlein et al. 2021a; Popa et al. 2018).

The inclusion of the 'other' helixes in a given problem constellation represents a principled inclusion of all relevant stakeholders with the purpose of reflecting organisational and societal needs. They are expected to participate in the development and serve as a reflection group where mutual learning and interaction takes place (Evans et al. 2017; Häberlein et al. 2021a).

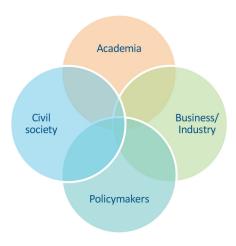


Figure 1: Quadruple Helix model

1.2 ETHNA Lab: Method, Process, and Overview

The ETHNA Lab is a process for implementing the ETHNA System. Each of the six implementing organisations carries out their own ETHNA Lab as a process of developing, testing, and refining the ETHNA System in their own organisation and in the long run the ETHNA System itself.

It is a co-creative process of bringing QH stakeholders together, ensuring that the ETHNA System developed in the implementing organisation is relevant and compliant with the needs and values of the surrounding society who will benefit from the R&I monitored through this system. The aim is hereby to democratise R&I by engaging stakeholders from different spheres of society – through the QH framework.

Mutual learning is moreover one of the main objectives of the process for everyone involved, internally and externally. It is not just a process of having the QH stakeholders approve the ETHNA

System. It is a process of coming together, understanding different perspectives, inspire each other, as well as experiment and hereby learn from each other.

This process is of a reiterative nature. In practice, this means that the implementing organisations will repeat either the entire lab process or specific steps suitable to their individual organisational situation in terms of size, needs, obstacles faced, and existing ethical governance procedures. For each repetitive cycle, the implementation and thus the contribution to the final ETHNA System will be improved.

The ETHNA Lab is a structured yet open process. This means that the ETHNA Lab has a set composition of lab steps with particular content (Figure 2). However, the activities (working phases, workshops, and expert meetings) in each lab step can be structured to fit the implementing organisation's needs and level of commitment to the ETHNA System.

The ETHNA Lab, with its workshops, working phases, and expert meetings, is moreover meant to be an open space with room for constructive criticism, new ideas, and different perspectives. This includes being willing to experiment with the way the ETHNA System is implemented as well as being willing to go down unexpected paths.

1.2.1 ETHNA Lab Process Infographic

Tasks: Initiate step 1-3 of the ETHNA System, conduct external QH stakeholder mapping.

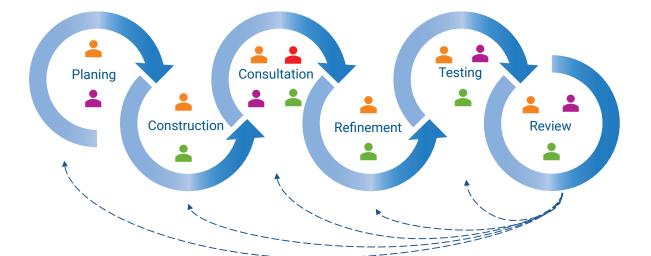
Steps of the ETHNA System: 1) Mapping Priorities, 2) Setting the level of commitment, 3) Implementing the RRI Office(r).

Tasks: Engage different perspectives from each of the QH sectors for a 'mini-testing', mutual learning, and improvement of the ETHNA System.

Tasks: Test the ETHNA System in a selected environment within the implementing organisation.







Tasks: Initiate step 4-7 of the ETHNA System, conduct external QH stakeholder recruitment. Steps of the ETHNA System: 4) Implementing the Code of Ethics and Good Practices in R&I, 5) Implementing the Ethics Committee on R&I, 6) Implementing the Ethics Line, 7) Monitoring Indicators of the ETHNA

Tasks: Refine the ETHNA System based on lessons learned from the Consultation step.

Tasks: Review and discuss lessons learned on the ETHNA System and decide upon continuation of the ETHNA Lab process.







RRI Office(r)



Internal Stakeholders



External Stakeholders

System.



•• Mandatory Workshop



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1.2.2 Roles and Responsibilities

Different groups of participants are involved in the different activities of the ETHNA Lab process (Figure 2) to ensure the inclusion of diverse perspectives and input from different stakeholders. The Lab Manager has the overall responsibility for the process as well as for supporting the other actors in their roles and responsibilities. The RRI Office(r) collaborates with the Lab Manager during the ETHNA Lab process and is responsible for the development and implementation of the ETHNA System within the organisation. Internal stakeholders, external QH stakeholders, and expert groups are engaged in different steps of the ETHNA Lab to provide input for the development of the ETHNA System, discuss obstacles, and find new and better solutions through experimentation. In the following, each actor involved in the ETHNA Lab process is introduced with an overview of who they are, their responsibility as well as how they are supported during the process:



Lab Manager(s)

Who: Staff member(s) from the implementing organisation. When appointing the Lab Manager(s) it is a good idea to consider interests, experiences as well as time and efforts, as Living Lab processes are quite extensive and requires patience and engagement throughout the entire process.

Responsibility: The Lab Manager is in charge of planning, coordinating, and facilitating the ETH-NA Lab, hereby planning the working phases and workshops of each of the lab steps. The Lab Manger is responsible for inviting and communicating with internal and external stakeholders. The Lab Manager moreover follows up on the outcome of each of the lab steps and collects relevant data for the following evaluation of the lab. This is done in collaboration with the RRI Office(r).



RRI Office(r)

Who: Staff member(s) from the implementing organisation selected as part of the Planning step activities.

Responsibility: The RRI Office(r) is in charge of the development and operation of the ETHNA System within the implementing organisation. The RRI Office(r) will participate in all the lab activities of the ETHNA Lab process and participates in the planning hereof in collaboration with the Lab Manager. They are moreover responsible for:

- "disseminating the ETHNA System concepts,
- promoting awareness of principles and values,
- establishing activities and performance indicators for the three-year Action Plan for continuous improvement, and
- monitoring the progress of the ETHNA System in the organisation through progress indicators." (González-Esteban et al. 2021).

Support: The RRI Office(r) is supported by and works closely together with the Lab Manager in planning, conducting, and recapitulating on each of the lab steps. The RRI Office(r) can also arrange shorter meetings with the internal stakeholders for support throughout the lab steps, if necessary. Finally, the RRI Office(r) is encouraged to set up expert groups to guide the development of the different ETHNA System columns and building blocks.



Internal Stakeholders

Who: Colleagues from the implementing organisation who are involved in or experienced with existing RRI management procedures. They should be committed to create a change and optimise procedures within their organisation. The internal stakeholders should include staff members from all levels of the organisation. They are expected to participate actively throughout the entire ETHNA Lab.

Responsibility: Support the development and implementation of the ETHNA System within the organisation.



External OH Stakeholders

Who: Actors from academia, business/industry, policymaking, and civil society. External QH stakeholders will be mapped in the Planning step and recruited during the Construction step. They are expected to participate in the workshop(s) during the Consultation step.

Responsibility: The external QH stakeholders are expected to take part in experimenting with and conducting a mini-testing of the ETHNA System. Hereby they should provide their perspectives, raise awareness for potential problems, and find possible solutions together.



Expert Group(s) (Optional)

Who: Internal or external experts in areas such as research integrity, gender perspective, public engagement, open access, RRI, and/or ethics.

Responsibility: To guide and support the development of the different ETHNA System columns and building blocks. They are engaged as the RRI Office(r) finds necessary throughout the ETHNA Lab process.

1.2.3 ETHNA Lab Steps

The ETHNA Lab is made of six consecutive lab steps, each of them including at least one of the three types of lab activities – workshops, working phases, and expert meetings (Figure 3).

Workshops are events that run over one or more days where (internal and external QH) stakehold-

ers come together to brainstorm, discuss, and make decisions about the path of the implementation of the ETHNA System. The workshop is meant to bring together different perspective and input in order to create new ideas and solutions for improving the ETHNA System.

Working phases are longer periods of time where the ideas, decisions, and paths brought forward at the workshops are put into action. The workshops can be considered the brain behind the ETHNA Lab, whereas the working phases are the legwork.



Figure 3: Layers of the ETHNA Lab

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Expert meetings are optional but can serve as a support in developing the columns and building blocks of the ETHNA System.

On the next pages, each of the ETHNA Lab steps are introduced, including an overview of participants, steps of the ETHNA System to be covered as well as a list of materials helpful for carrying out the lab step.

Planning Step



The aim of the Planning activities is to initiate the implementation of the ETHNA System. This is done by going through stage 1-3 of the ETHNA System:



- > Stage 1: Mapping priorities,
- Stage 2: Set the level of commitment to the ETHNA System,
- Stage 3: Implement the RRI Office(r).

This lab step includes a mandatory workshop which means that the implementing institutions are expected to conduct a minimum of one workshop with internal stakeholders. In this workshop, the Lab Manager(s) and internal stakeholders will come together to begin the creation of an implementation plan on how to implement the ETHNA System in the organisation through step 1-3 of the ETHNA System. This includes appointing the RRI Office(r).

A mapping of external QH stakeholders is also initiated in this workshop to prepare for the Consultation step as well as to make use of the network and knowledge of the internal stakeholders.

It is recommended that this workshop is followed by a working phase where the Lab Manager(s) and RRI Office(r) continue the work on step 1-3 and the external QH stakeholder mapping initiated at the workshop. If necessary, the outcome of the working phase can be shared and discussed with internal stakeholders in a second workshop.

Participants:

Lab Manager(s), internal stakeholders, and RRI-Office(r) (to be decided in the workshop).

ETHNA System Stages:

- Stage 1. Mapping priorities
- > Stage 2. Set the level of commitment with the ETHNA System
- Stage 3. Implement the RRI Office(r)

Other Tasks:

> External QH stakeholder mapping

Useful Material:

 Slides for presenting the ETHNA System and The ETHNA Lab (see Appendix 5.1-5.2, pp. 27-30)

- Guidance to create The ETHNA System Action Plan (González-Esteban et al. 2021: Annex 1-7).
- D3.1 Mapping stakeholders and scoping the involvement a guide for HEFRCs (Häberlein et al. 2021a).
- D3.2 Gauging the potential societal contributions of research and innovation (Häberlein et al. 2021b).
- D3.3 Stakeholder involvement in ethical governance of R&I a guide for HEFRCs (Häberlein et al. 2021c).

Construction Step



This lab step mainly consists of a working phase where the Office(r) and Lab Manager(s) will, depending on the level of commitment, go through stage 4-7 of the ETHNA System:

- > Stage 4. Implement the Code of Ethics and Good Practices in R&I
- > Stage 5. Implement the Ethics Committee on R&I
- > Stage 6. Implement the Ethics Line
- > Stage 7. Monitoring Indicators of the ETHNA System

If necessary, this working phase can be supplemented with workshops with internal stakeholders and/or meetings with expert groups. This is however optional.

The RRI Office(r) will develop the ETHNA System for the implementing organisation based on the decisions made throughout the Planning step. The aim of this working phase is hereby to put the implementation plan into action by developing the elements of the ETHNA System to be tested and improved in the further lab process.

The Lab Manager and RRI Office(r) will moreover begin to recruit external QH stakeholders for the Consultation step workshop(s).

The length of the working phase depends on the level of commitment to the ETHNA System. If the organisation chooses commitment level 3, they will need a longer working phase than the organisations choosing level 2 or level 1.

Participants:

RRI Office(r) with support from the Lab Manager(s), expert groups (optional), and internal stake-holders (if necessary).

ETHNA System stages and tasks:

- > Stage 4. Implement the Code of Ethics and Good Practices in R&I
- > Stage 5. Implement the Ethics Committee on R&I
- > Stage 6. Implement the Ethics Line
- > Stage 7. Monitoring Indicators of the ETHNA System

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Other Tasks:

Recruitment of external QH stakeholders

Helpful material:

- Guidance to create the code of ethics and good practices in R&I (González-Esteban et al. 2021: Annex 3, pp. 24-53).
- Guidance to create the ethics committee on R&I (González-Esteban et al. 2021: ANNEX 4, pp. 54-67).
- > Guidance to create the ethics line (González-Esteban et al. 2021: Annex 5, pp. 68-74).
- Guidance to use and to create the monitoring indicators: progress and performance (González-Esteban et al. 2021: Annex 2, pp. 12-23).
- D3.1 Mapping stakeholders and scoping the involvement a guide for HEFRCs (Häberlein et al. 2021a).
- D3.2 Gauging the potential societal contributions of research and innovation (Häberlein et al. 2021b).
- D3.3 Stakeholder involvement in ethical governance of R&I a guide for HEFRCs (Häberlein et al. 2021c).

Consultation Step



The Consultation step consists of at least one mandatory workshop with internal and external QH stakeholders.



The aim of the Consultation step workshop(s) is to do a mini-testing of the ETHNA System by bringing different perspectives together and learning from each other. The purpose of bringing in the different perspectives of industry, civil society, policy, and academia is to ensure an ethical governance system that is aligned it with the needs and values of the surrounding society. It is also an opportunity to bring great minds together, network, create connections and collaborations across sectors.

It is furthermore encouraged that the workshop takes a point of departure in and tests the ETHNA System on real-life examples. This can be done by testing and discussing the ETHNA System with a point of departure in current research and innovation projects that the participants of the workshop are involved in. In this way, mutual learning will provide input and feedback for improvement of the ETHNA System. This should make sure that the system is useful and relevant, while providing participants an option to reflect upon ethical governance and RRI in their own work.

Participants:

Lab Manager(s), RRI Office(r), internal stakeholders, and external stakeholders.

Other Tasks:

Test and discuss the ETHNA System developed.

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Helpful Material:

- > D3.2 Gauging the potential societal contributions of research and innovation (Häberlein et al. 2021b).
- > D3.3 Stakeholder involvement in ethical governance of R&I a guide for HEFRCs (Häberlein et al. 2021c).

Refinement Step





The activities of the Refinement step consist of a working phase as well as meetings with expert groups, if necessary.

During the working phase, the RRI Office(r) will refine the components of the ETHNA System (columns and building blocks) based on the discussions at the Consultation workshops. If necessary, the RRI Office(r) can revisit stage 4-6 of the ETHNA System as well as meet with the expert group(s). The Lab Manager and RRI Office(r) will moreover prepare for the testing of the ETHNA System within the organisation, which will take place in the following lab step.

Participants:

RRI Office(r) with support from the Lab Manager(s) and expert group(s) (optional).

ETHNA System Stages and Tasks:

If helpful, revisit:

- Stage 4. Implement the code of Ethics and Good Practices in R&I
- > Stage 5. Implement the Ethics Committee on R&I
- Stage 6. Implement the Ethics Line
- Stage 7. Monitoring Indicators of the ETHNA System

Other Tasks:

Revise the ETHNA System components based on input from previous lab activities.

Helpful Material:

- Guidance to create the code of ethics and good practices in R&I (González-Esteban et al. 2021: Annex 3, pp. 24-53).
- > Guidance to create the ethics committee on R&I (González-Esteban et al. 2021: ANNEX 4, pp. 54-67).
- > Guidance to create the ethics line (González-Esteban et al. 2021: Annex 5, pp. 68-74).
- > Guidance to use and to create the monitoring indicators: progress and performance (González-Esteban et al. 2021: Annex 2, pp. 12-23).

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Testing Step



The Testing step activities consist of a working phase where the ETHNA System is put to life. An environment for testing the ETHNA System will be set up before scaling the system up and applying it to the entire organisation/department. The scale of the testing environment and the degree to which the organisation is included depends on the size of the organisation as well as the level of commitment. The size of the testing environment can moreover be scaled up or down for each repetition of the lab process.

The aim in this step is to apply the ETHNA System to R&I projects within the organisation by having (a smaller group of) staff members use the system in their work. Hereby to test and experiment with ways in which the system can be used as part of staff members working progress. This working phase should run over a period of several weeks or preferably months.

Participants:

Lab Manager(s), RRI Office(r), internal stakeholders, and other relevant staff members at the implementing organisation.

Other tasks:

> To test the ETHNA System at the organisations

Review Step



The Review step activities consist of a working phase and one mandatory workshop with internal stakeholders.



At the workshop, participants will discuss lessons learned throughout the ETHNA Lab, review the decisions made throughout the process, and decide on the further process (repetition of lab steps).

This discussion should include reflections on:

- How the ETHNA Lab is continued how much of the process should be repeated?
- What are the main lessons learned to be considered in the second/third/fourth... round of the ETHNA Lab; any particular issues, topics or challenges that needs special attention?

Participants:

Lab Manager(s), RRI Office(r), and internal stakeholders.

Other Tasks:

Review and discuss lessons learned on the ETHNA System, and decide upon continuation of the ETHNA Lab process. ● ● ● ● 1 The ETHNA Lab 16

Helpful Material:

 D3.3 Stakeholder involvement in ethical governance of R&I – a guide for HEFRCs (Häberlein et al. 2021c).

Repeat Process



When the first round of the ETHNA Lab is finalised, it is important to repeat the process or parts of it at least one time. This should be done to continue the co-creation loop and the learning process as well as to continue the improvement of the ETHNA System. The purpose of repeating the process is to be able to put lessons learned into action as well as to develop new perspectives further and to reach a new level of evolvement and collaboration.

When repeating the ETHNA Lab process or parts of it, it is important to build on the lessons learned and adapt the process to the knowledge and experiences gathered in previous round(s).

2 Methodological Development of the ETHNA Lab

The ETHNA Lab was developed to assist the implementation and testing of the ETHNA System in six organisations from four different R&I contexts as well as five different countries. The ETHNA Lab has been developed with a point of departure in the co-creative concepts of the Living Lab approach. The ETHNA Lab builds on The Danish Board of Technology's expertise and decades of experience with design and use of engagement methods. Training of partners, development of methods as well as designing and implementing stakeholder engagement being one of the core competences of The Danish Board of Technology. The ETHNA Lab method further builds on experiences and inspiration from other H2020 projects that are researching and implementing quadruple helix-based Living Labs, such as RiConfigure, where also quadruple helix Social Labs were set up. The Living Lab approach as described by the European Network of Living Labs (ENoLL) has moreover inspired the ETHNA Lab. Particularly their focus on testing societal challenges in real-life settings with a point of departure in co-creation with QH stakeholders to come up with sustainable and socially desirable solutions (Evans et al. 2017: 72; ENoLL).

The purpose of using the Living Lab approach is to ensure an inclusive process of testing and refining the ETHNA System in a real-life context with different users and QH stakeholders. Hereby setting out to create the best input for further improvement of the final ETHNA System. With experimentation, evaluation, and engagement at the core, this iterative process suits the purpose of the implementation of the ETHNA System well, as it fosters a space for innovation within ethical governance of R&I – a space not only for troubleshooting, but also for acting on the challenges faced and coming up with new and better solutions for the ETHNA System. It moreover encourages an inclusive bottom-up approach as it strives to engage people from different sectors and all levels within the implementing organisation. The aim of this inclusive approach is to ensure the societal relevance and usefulness of the ETHNA System, as it has been thoroughly tested in multiple real-life settings from different R&I contexts and improved based on these experiences. The ETHNA Lab approach hereby takes a point of departure in the very same principles which the ETHNA System itself sets out the improve – responsible research and innovation with and for society.

2.1 Context Based Methodological Adaptation

The ETHNA Lab was built around the ETHNA System as an iterative process of developing the ETHNA System within the organisation (Planning and Construction steps), testing the system (Consultation and Testing steps), refining the system (Refine and Review steps). The ETHNA Lab process is thus iterative itself through these multiple steps of developing, testing and refining. The overall process is however also iterative as it encourages repetition of all or multiple steps. Each of the ETHNA Lab steps consists of working phase(s), expert meetings, and/or workshop(s). The aim of this construction was to create an easily accessible and practical process that combines the ETHNA System stages with the co-creative aspects of the Living Lab approach. This also meant creating a process that is scalable and flexible. Partly because the ETHNA System itself is a flexible system with different levels of commitment as well as different columns and building blocks to pick from. Partly because of the difference in the implementing organisations - in terms of context, size, and existing level of ethical governance. The ETHNA Lab is thus meant to be a rather open process, accommodating all these different needs. Particularly the lab activities (working phases, expert meetings, and workshops) were meant to enable the flexibility of the process, as organisations can plan their working phases and workshops as it suits them as well as scale up or down different steps of the process through these. It is moreover up to the individual organisation to decide how many of the steps they will repeat. Although it is recommended to repeat the entire process, preferably a couple of times, it is up to the implementing organisation how many steps they will repeat and how many times they will repeat them, depending on their needs, obstacles met, and wish for further improvement of the ETHNA System.

Three mandatory workshops were however included throughout the process. This meant that all implanting organisations had to include at least one workshop in the Planning step, in the Consultation step, and in the Review step. It was decided to include these mandatory workshops, because these workshops constitute the core of a co-creation process and are therefore central to the ETHNA Lab. Thus, they are vital for the implementation process and the purpose of the process. Based on concerns expressed by the implementors, it was first of all decided to make the three workshops mandatory in order to ensure a proper engagement of both internal and external QH stakeholders. The engagement of stakeholders occurs rather late in the development process of the ETHNA System - as the complete ETHNA system has been developed when the co-creative ETHNA Lab is initiated. Engaging stakeholder this late in the process raises concerns that stakeholders are only superficially engaged in the process - a tendency that one can easily fall into in such co-creative processes, where stakeholders are "involved as factors rather than actors" (Evans et al. 2017: 11). The goal however is to engage them as "equal contributors" as Evans et al. puts it (ibid). This was particularly a concern for the Consultation step where external QH stakeholders are engaged. Another reason behind making the workshops mandatory was a concern that the workshops would be seen by implementing partners as trickier, more demanding, and quite time consuming - and thus a tempting part to compromise. This included a worry that an obvious approach to implementing the ETHNA System would be to appoint a working group who would develop their own ETHNA System without the engagement of relevant internal and external QH stakeholders. Making the workshops mandatory does of course not make it easier or guarantee that stakeholders are engaged properly, but it highlights and emphasises the importance of engagement in the process as well as ensures that the inclusive aspects of the process and the need for iterative reflections herein are not lost in the flexibility of the process.

2.2 Working Definitions of Stakeholders

Two of the mandatory workshops (in Planning step and Review step) engages what have been categorised as internal stakeholders, and one of the mandatory workshops (In Consultation step) engages what have been categorised as external QH stakeholders. The Living Lab approach typically deals with involving stakeholders from the four quadruple helix sectors (academia, industry/ business, policymakers, civil society) in dealing with a complex problem. In the ETHNA Lab, these helixes are also involved, but it has moreover been decided to divide the stakeholder group into internal and external stakeholders. Internal stakeholders are staff members within the implementing organisation. It concerns those staff members who will be directly influence by the implementation of the ETHNA System within the organisation; those who will have to work with and use the ETHNA System. The external QH stakeholders do not work within the organisation, but are from external businesses/institutions/organisations and other sectors (industry/business, policy, civil society). They may be collaborators already familiar with the work of the implementing organisation or others who are more indirectly influenced by the implementation of the ETHNA System. The external stakeholders may also be familiar with similar ethical governance processes and someone who can provide input for the implementation and development of the ETHNA System within the organisation, without being biased by institutional cultures and existing internal procedures. External QH stakeholders are thus important to engage in the development of the ETHNA System to ensure its relevance beyond the walls of the implementing organisation as well as to

bring in new ideas and perspectives. However, it was decided to limit the engagement of external QH stakeholders to the Consultation step to find a balance between giving stakeholders the opportunity to have influence on the development of the system, while not setting up too many demands and stealing too much time from the assumably busy stakeholders, and hereby hopefully avoid stakeholder fatigue (Häberlein et al. 2021a). Whereas internal stakeholders are engaged in several steps of the process to ensure a bottom-up approach that may help staff members to take ownership of the system. Also, engagement of internal stakeholders should provide insightful input based on their work and experiences with existing ethical governance procedures as to what can be improved and what is completely missing.

Several accommodations have hereby been made to make the Living Lab approach useful for the implementation, testing and improvement of the ETHNA System in order to provide feedback on the system – ensuring a system that is relevant, useful and applicable in different R&I contexts, creating R&I with and for society.

3 Putting the ETHNA Lab into Practice

3.1.1 Implementation Contexts

The ETHNA System is implemented in six organisations in the period from December 2021 to October 2022. In this period, the implementing organisations goes through the six steps of the ETHNA Lab in order to develop, refine, and improve the ETNA System with a point of departure in their organisational reality. The six implementing organisations are:

Implementation context	Implementing organisations	
University	The University of Jaume I (Spain), Norwegian University of Science and Technology (Norway)	
Higher Education Agency ²	The Education and Youth Board (Harno) (Estonia)	
Innovation Ecosystem	Instituto Desenvolvimento de Novas Tecnologias (UNINOVA) (Portugal), Parc Científic Tecnològic i Empresarial ESPAITEC (Spain)	
Research centres	Applied Research and Communications Fund (Bulgaria)	

The lab process is initiated with an internal diagnoses of current ethical governance procedures and mapping of internal needs. Based on this, the implementing organisation will decide on their level of commitment to the ETHNA Lab, the RRI office(r) as well as the further process of their ETHNA lab and development of the ETHNA System. Throughout this initial planning, four of the implementing organisations have decided to commit to level 2 of the ETHNA System, whereas one organisation has decided to commit to level 3, and one is still undecided. The Planning step has been approached quite differently in all six implementing organisations, adapting and applying the lab process and ETHNA System to their reality (Holstener et al. 2022a). More information on the outcome of the Planning step in the six implementing organisations is available in D5.1 Report of the Selected Aspects that Can Be Tested and Accompany the Implementation Process (Holstener et al. 2022a) and D5.2 Extended Stakeholder Mapping of the Implementing Institutions (Holstener et al. 2022b).

The lab process is followed by a participatory evaluation of the ETHNA System implementation, which will feed into an in-depth evaluation of the ETHNA System itself as well as into a further improvement of the ETHNA System, ensuring that the system is practically applicable, relevant, and useful in different R&I contexts.

² This context falls under a broader context of R&I funding organisations.

3.2 The ETHNA Lab Support Structure

The implementing organisations were supported in their implementation of the ETHNA System through a training material providing a guide on the purpose of the process, the participants, and an elaboration of the six steps. A support structure of training workshops and a helpdesk has moreover been set up to help the implementors to prepare for the process. The purpose of this support structure was to set up a system that would ensure that the implementors were well equipped for their implementation through training, sparring, and a place where they could turn with their questions regarding the ETHNA Lab process or the ETHNA System.

3.2.1 Training Workshops

Four training workshops have been conducted to prepare the Lab Managers from each implementing organisation for their ETHNA Lab and the development of the ETHNA System within their organisation. In these workshops, the focus has been on introducing the ETHNA Lab steps, exploring how to approach the ETHNA System from a practical perspective as well as to have implementing organisations learn from and inspire each other. Please see the appendix 6.3, pp. 31-34 for elaborated agendas.

The first training workshop introduced the ETHNA Lab, the training material, an initial timeline, and the ETHNA Lab terminology. A discussion on how implementing organisations can support each other was initiated and practical information for an internal stakeholder mapping was provided.

The second training workshop provided a recap of the ETHNA System and the ETHNA Lab. Afterwards, the focus was on the Planning step of the ETHNA Lab, including discussions on possible methodologies to implement the activities within this step. The methodologies ranged from how to design the agenda of the first institutional workshop to possible tools useful during the workshop, including how to map initiatives and resources or how to plan the work of the RRI officer (see Figure 4-5).

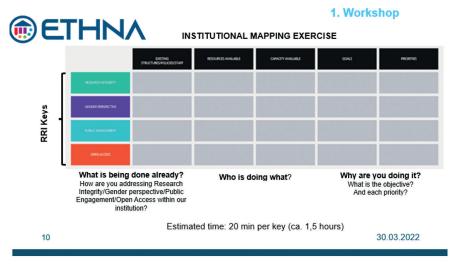


Figure 4: Institutional Mapping Exercise

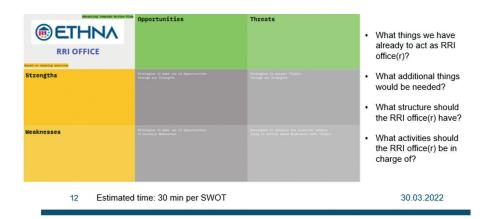


Figure 5: Possible methodologies to apply by ETHNA System implementers during the Planning Step

Finally, practical input on stakeholder engagement was provided. Advice for stakeholder mapping, stakeholder engagement, and for planning deliberative workshops was offered through the presentation of three reports: D3.1 Mapping stakeholders and scoping the involvement - a guide for HEFRCs, D3.2 Gauging the potential societal contributions of research and innovation, and D3.3 Stakeholder involvement in ethical governance of R&I – a guide for HEFRCs (Häberlein et al. 2021a; Häberlein et al. 2021b; Häberlein et al. 2021c).

The third training workshop was kicked off with a sparring session moderated by the helpdesk assistant (see section 3.2). Here, the Lab Managers were given the opportunity to learn from and inspire each other. The sparring session was divided into two parts. In the first part, the help-desk assistant commented on the common problems or difficulties identified after the weekly online meetings with some of the Lab Managers during the ETHNA lab process implementation. In the second part, each Lab Manager had approximately 5 minutes to tell where they were in the ETHNA lab process, what their main difficulties had been, and which steps they had planned to continue. The sparing session concluded with discussions and questions among the implementers. The sparring session was followed by a session on the ETHNA Lab Construction stage. The focus was on the columns of the ETHNA System and to facilitate a reflection between implementors on how the implementation of the ETHNA System could be addressed in the different institutional contexts (Figure 6-7).



Figure 6: Content of the 3rd workshop for implementers to discuss the establishment of the ETHNA System model columns A



Figure 7: Content of the 3rd workshop for implementers to discuss the establishment of the ETHNA System model columns B

Results from the concurrent multi-stakeholder consultation on the ETHNA System draft concept were moreover presented, sharing reflections on how the ETHNA System can be improved in its flexibility and how it can be used in the implementation of the ETHNA System. Finally, a walk-through of the ETHNA Lab Consultation step was provided and discussed.

The fourth and final training workshop was also initiated with a sparring session among implementors who gave a short presentation of their progress followed by questions and discussions on obstacles, solutions, and next steps. The final steps of the ETHNA Lab – Consultation, Refinement, Testing, Review, were afterwards presented and discussed.

This approach has turned out to be an excellent mechanism to support the ETHNA implementers and more specifically to foster the exchange of experiences and good practices among the different partners.

3.2.2 Helpdesk

The helpdesk functioned as a space for meeting, tracking, and solving problems regarding the implementation of the ETHNA Lab process. Once a week, the desk assistant was online to help Lab Managers, if necessary. Also, the desk assistant sent out weekly emails to the Lab Managers who did not usually contact her to find out how the implementation process was going and to support their process. When the assistant received a question, be it online or by email, it was either solved instantly or in a couple of days, if the desk assistant needed to consult the University of Jaume I or the Danish Board of Technology. Each Lab Manager had different needs due to the application level, as well as the size and resources allocated by their organisation.

The ETHNA Lab introduced on the previous pages is an inclusive, co-creative, experimental process for developing the ethical governance system, the ETHNA System, within different R&I performing and funding organisations. The process is designed with a point of departure in the Living Lab approach as well as in the ETHNA System itself, its structure, and steps. The focus was on creating an implementation process that is adjustable and accommodates the flexibility of the ETHNA System itself, the needs of the implementing organisations as well as the co-creative approach of the Living Lab method, while being practically applicable and easily accessible. It is an iterative process of six lab steps (Planning, Construction, Consultation, Refinement, Testing, Review) that takes the implementors through developing, experimenting with, and refining the ETHNA System, fitting it to their specific organisational needs and ensuring the quality of the developed procedures. Internal and external QH stakeholders are engaged throughout the process to ensure the inclusion of different perspectives that can bring forward new ideas and solutions as well as to ensure the relevance and usefulness of the ETHNA System developed within the organisation. The desired outcome of the ETHNA Lab is hereby to create an institutional change in the six implementing organisation, helping them create internal ethical governance procedures that are socially responsible and desirable.

The desired outcome of the ETHNA Lab is moreover to create feedback for the development and finalisation of the ETHNA System itself. The experimentation in real-life situations, particularly through the Consultation and Testing step, in different R&I performing and funding organisations provides valuable lessons learned, through practical experiences. These lessons learned will feedback into the further development and improvement of the ETHNA System. The aim of the process is to have the different implementing organisations experiment with and test the ETHNA System. Thus, finding out what works well and what does not in the specific organisational R&I context by engaging different internal and external QH stakeholders. The ETHNA Lab process is followed by an extensive evaluation process. Firstly, an evaluation of the ETHNA System implementation and secondly, an evaluation of the ETHNA System itself. Both evaluation processes will then feed into the finalisation of the ETHNA System.

The desired outcome of the ETHNA Lab, through the following evaluation processes, is hereby to feed back into the development and finalisation of the ETHNA System and to ensure that it becomes a tool that is practically applicable. This in order to support the development and improvement of ethical governance procedures in different R&I contexts.

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6.1 Slides for presenting the ETHNA System





Overall Objective

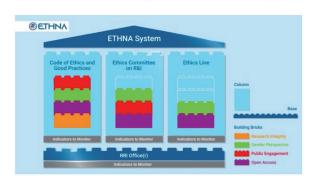
The Overall Objective isto develop and implement a system of ethical governance and compliance with the RRI in the High Education, Funding and Research Centers (HEFRCs) through the design of an organizational structure—RRI Office (r)—and a set of tools and work methodologies—Code of Ethics and Good Practices, Ethics Committee on R&I, Ethics Line and compliance indicators to report on the progress and performance—that will serve to define and subsequently implement a new formal organizational structure within the management structure of the HEFRC.

ETHNA System can help your organization to **consider the consequences the research and innovations activities carried ou** t by your organization have and **incorporate society's expectations into your work** so you can develop in a sustainable and effective way.

28.09.21

ETHNA

A flexible ethical governance system





3 28.09.21

● ● ● ● ● 6 Appendix 28



We are at the begining of the implementation of ETHNA System

From THEORY

Concept:

- The ETHNA System. A Guide to the Ethical Governance of RRI in Innovation and Research in RPO and RFPs.

- Toolbox to implement the ETHNA System

THE PROPERTY OF THE PROPERTY O

To PRACTICE (6 implementations)

28.09.21

System



4

ETHNA System in practice

IMPLEMENTATIONS					
Implementation context	I. Higher Education context	II. Research Funding context	III. Innovation Ecosystems context	IV. Research Centre context	
Organizations	UJI – Spain – University NTNU – Norway -	HARNO – Estonia – Higher Education Funding Agency	UNINOVA – Portugal – Applied Research Institute	ARC Fund – Bulgaria – Private Research centre	
	University		Espaitec – Spain – Technological Park		

5 28.09.21

● ● ● ● 6 Appendix 29 |

6.2 Slides for presenting the ETHNA Lab



The ETHNA Lab – why?

The aim is to:

- · Democratize R&I by engaging stakeholders from different spheres of society
 - · Ensure relevance and compliance with the needs and values of society
 - Understand different perspectives, inspire each other, and experiment bringing R&I closer to society
- Improve the ETHNA System and inspire stakeholders to reflect upon RRI
- · Network and create collaborations across sectors

4 25.02.2022



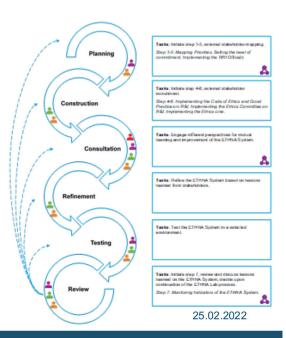
ETHNA Lab Process





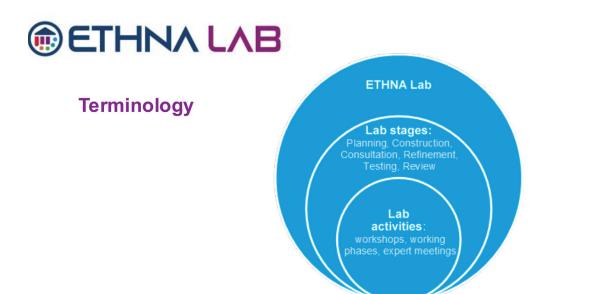


- 6 lab stages
- · 3 mandatory workshops
- 4 groups of participants
- Expert Groups A can be established, if necessary



5

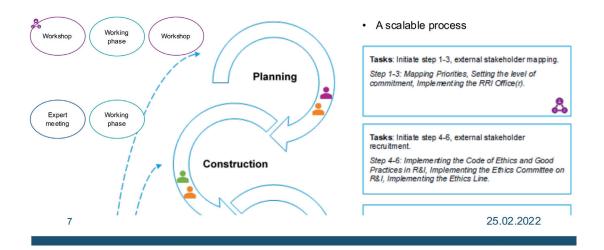
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25.02.2022

ETHNA LAB

6



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6.3 Training workshop agendas

6.3.1 First training workshop – March 2021

First ETHNA Lab training workshop		
Time	Content	
10:05	Presentation of the ETHNA Lab	
10:45	HEFRC break out session	
11.10	Break (10 min)	
11:20	Individual timelines	
12:00	Break (10 min)	
12:10	Internal stakeholder mapping	

6.3.2 Second training workshop - September 2021

Second ETHNA Lab training workshop		
Time	Content	
9:30	 Welcome (The Danish Board of Technology, University of Jaume I) Quick overview and purpose of the ETHNA System The ETHNA Lab – why and how are we doing this Questions 	
10:05	 Comprehensive reading (The Spanish Foundation for Science and Technology) Comprehensive reading of The ETHNA System stage 1-3 – how to put these steps into practice Support process Discussion 	
11:35	Break (10 min)	
11:45	Extended Stakeholder Mapping (European Network of Research Ethics Committees) • Stakeholder Mapping • Deliberative Methods • Discussion	
12:25	Wrap up	

• • • • 6 Appendix 32 |

6.3.3 Third training workshop – November 2021

Third ETHNA Lab training workshop		
Time	Content	
9:30	Welcome (The Danish Board of Technology)	
9:35	Sparring session with the helpdesk (Fundación para la Ética de los Negocios y de las Organizaciones ETNOR)	
	Presentation of shared issues	
	Round – status from the implementing partners (max. 5 min. each)	
	Discussion – input and sparring between implementing partners	
10:15	Introduction to the ETHNA Lab Construction step (The Danish Board of Technology, The Spanish Foundation for Science and Technology) • Presentation of the Lab step • Comprehensive reading of The ETHNA System stage 4-6 – how will we put these steps into practice and why it is important	
	• Discussion	
11:35	Break (10 min)	
11:45	Input from T4.2 (The Centre for Social Innovation (ZSI)) • Presentation and questions/discussion	
12:05	Introduction to the ETHNA Lab Consultation step (The Danish Board of Technology) • Presentation and questions	
12:25	Wrap up	

6.3.4 Fourth training workshop – January 2022

Fourth ETHNA Lab training workshop		
Time	Content	
9:30	Welcome (The Danish Board of Technology)	
9:35	Sparring session with the helpdesk (Fundación para la Ética de los Negocios y de las Organizaciones ETNOR) Round – status from the implementing partners (max. 5 min. each) Discussion – input and sparring between implementing partners	
10:35	Break (15 min)	
10:50	 Introduction to the final ETHNA lab steps (The Danish Board of Technology) Presentation of the lab steps – Consultation, Refinement, Testing and Review Discussion and further sparring between implementing partners 	
11:50	Wrap up (The Danish Board Technology)	