STRATEGIES TO DEVELOP INDICATORS OF PUBLIC ENGAGEMENT FOR RESPONSIBLE RESEARCH AND INNOVATION STRATEGIES IN SPAIN: OPENING-UP THE DISCUSSION AMONG RELEVANT STAKEHOLDERS.

ABSTRACT

This study proposes a decision model based on Analytic Hierarchy Process to weight context-based indicators in the field of Public Engagement in science and technology in Spain. This study is framed in a series of analysis of the indicators proposed at European level to monitor Responsible Research and Innovation (RRI) policies and initiatives. Those sets proposed so far are considered too large to be used at a cross-cutting level in certain R&D schemes due to the lack of analysis of the national context and bottom-up approaches. Therefore, in this paper we propose a methodology based on AHP and a group of stakeholders to select those more relevant in the national R&D context by assuring an appropriate coverage of the issue.

Keywords: Analytic Hierarchy Process, Policy Evaluation, Responsible Research and Innovation indicators.

1. Introduction

This research seeks to contribute to the proposal of a framework for the development of indicators of public engagement through involving in the decision-making processes discussions among the different agents of the scientific and innovation systems in Spain. The research is frame-worked in the current promotion of the term Responsible Research and Innovation in Europe and its impact on national scientific and innovation policies. The increasing interest on promoting RRI by the European Commission (EC) has implied the appointment of an expert group to set indicators to monitor the impact of such initiatives and the financing of a project to further develop indicators for RRI. As a result, two European-based sets of indicators for the six areas related with RRI (governance, public engagement, gender equality, science education, open science/access, ethics) have been proposed. To facilitate the monitoring of these areas, the selection of smaller set of indicators adapted to the reality of each R&D context has been suggested (Expert Group on Policy Indicators for Responsible Innovation, 2015). This study aims to propose and test a decision model to weight the most relevant indicators for public engagement to monitor national R&D initiatives using the case of Spain as an example.

2. Literature Review

Responsible Research and Innovation (RRI) has attracted notable interest of the scientific community since the inclusion of this concept in the European scientific policies in the last decade. The European Commission structures RRI around thematic elements or areas of key importance in the articulation of RRI (European Commission, 2012, 2014): public engagement, gender equality, science education, open science, ethics and governance. The use of the term RRI and the conceptualization of it around these six key areas by the EC has been an indisputable driving force both at European and national level. Projects and tenders funded by this supra-national administration are using this categorization in projects around this area. Additionally, it has also impacted national scientific policies. In the case of Spain, the recent published national Plan for Scientific and Technical Research and Innovation (2017-2020) includes in its fifth objective "Promotion of an open and responsible model of R&D+I supported by the participation of the Society" references to open access and open science, ethics, gender and public engagement.

Public engagement as one of the key areas proposed by the EC refers to the "engagement of all the societal actors—researches, industry, policy-makers, and civil society and their joint participation in the research and innovation process" (European Commission, 2014). Under this term, a broad spectrum of mechanisms and initiatives that have been clustered around five categories: public communication, public activism, public consultation, public deliberation and public participation (Ravn, Mejlgaard, & Rask, 2014).

The EC has also reinforced the commitment to the monitoring of the RRI approach by promoting definitions of indicators to measure initiatives and policies on RRI. Two studies were funded with the objective of providing potential indicators to evaluating and monitoring the performance of the different scientific actors in each of the six key dimensions previously mentioned. The first initiative took place in 2015 with the appointment of a group of experts with the objective of establishing indicators for monitoring the impact of RRI. The result of this first action was a report published in June 2015 that provided a list of 82 indicators for the six areas proposed by the European Commission (Expert Group on Policy Indicators for Responsible Research and Innovation, 2015). In parallel, a tender was launched with a double objective: "select a set of quantitative and qualitative indicators and metrics and develop a methodology and the related tools to collect and analyse data in order to monitor evolution of RRI dimensions and benefits over time" (European Commission, 2013). The results of this tender (MoRRI project) will be presented in March 2018 in an event in Brussels.

The potential of applying standards, initiatives, and principles already existing for the monitoring of other disciplines as Corporate Social Responsibility has also

been explored (Iatridis & Schroeder, 2016). In a similar way, other researchers (Wickson & Carew, 2014) explored the development of indicators and quality criteria through the integration of knowledge of other disciplines such as Corporate Social Responsibility, Public Value Failure Mapping, and Multi-Criteria Decision Analysis.

3. Hypotheses/Objectives

This work is based on the three hypotheses:
1. Indicators to monitor and evaluate public engagement initiatives and policies might not have the same relevance in different contexts.
2. Indicators to monitor and evaluate engagement initiatives and policies can be prioritized.
3. The AHP methodology might be a useful tool to propose a strategy to adapt and select the more relevant context-based sets of indicators to specific contexts that allow stakeholders to propose new indicators.

4. Research Design/Methodology

This research foresee a forthcoming interest to define the areas which compose the RRI approach and the respective indicators of monitoring and reporting, this study aims to apply a methodology that will facilitate the adaptation of lists of indicators to the reality and requirements of specific contexts.

In this work, the application of the AHP method was applied to assess the importance of the indicators for public engagement based on the list of indicators proposed by the two mentioned EU funded studies. It relies on the opinion of experts and stakeholders in the area of public engagement in Spain who provide different weights for a list of agreed indicators. The experts were provided with the indicators proposed and analysed in the two European studies and were encouraged to propose new ones if they considered it was relevant for the Spanish context.

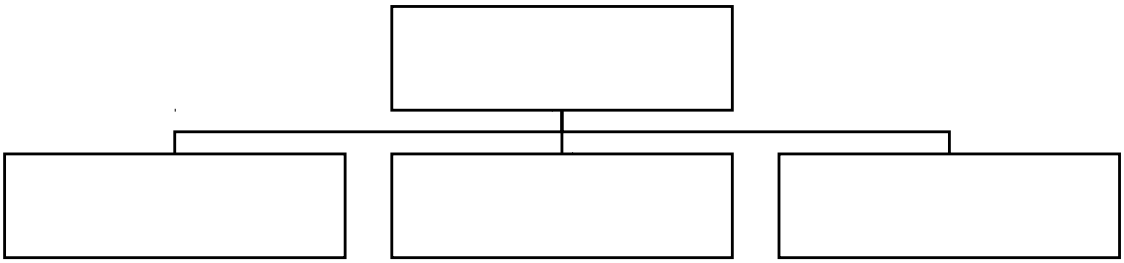
The panel of experts included representatives with competences in science and innovation policies from the local, regional and national governments, academics with background in research on public engagement and with practical experience in its implementation, representatives from the management and public engagement departments of excellent research centers in Spain and representatives of organizations whose missions are focused on the promotion of public engagement activities.

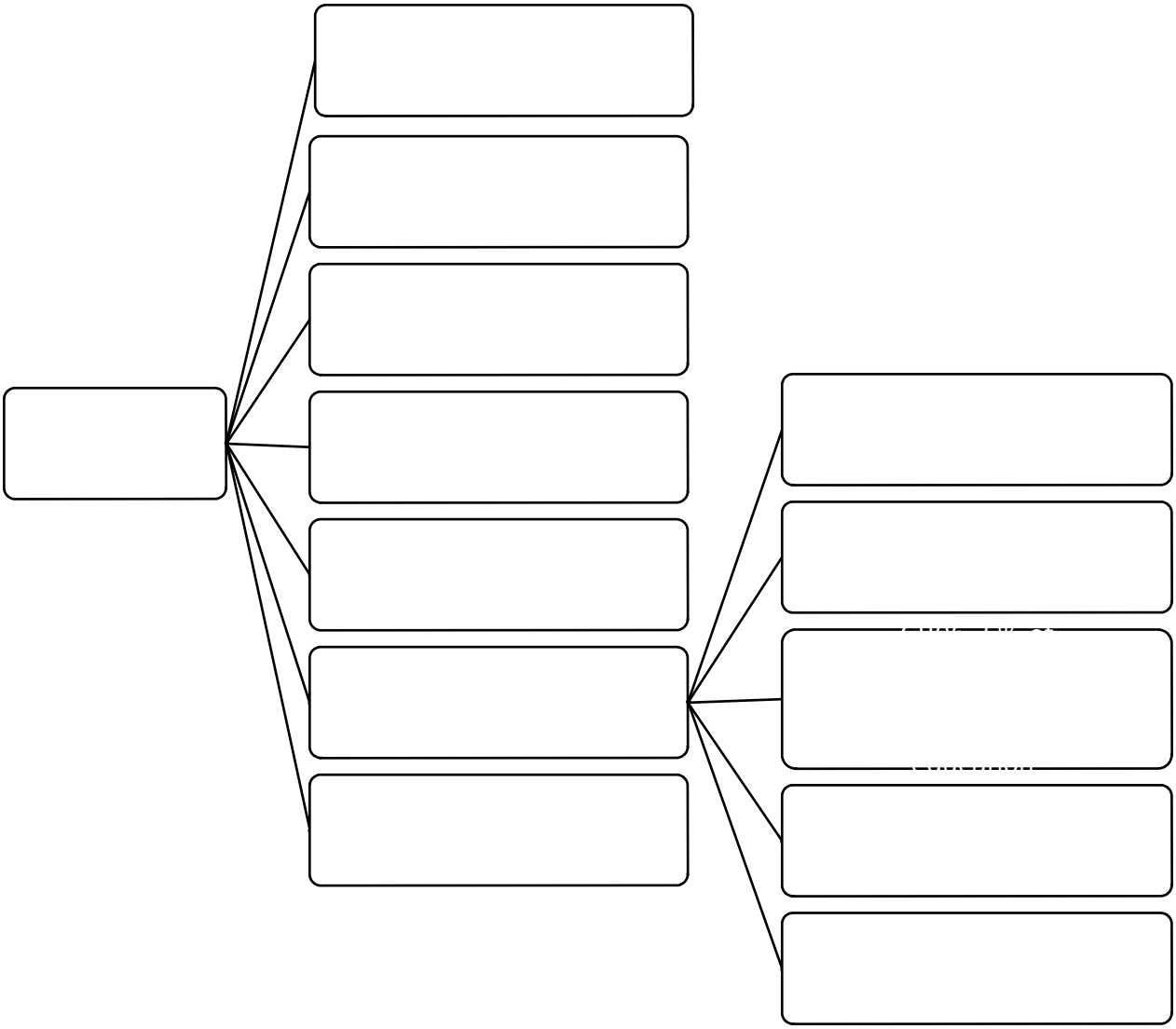
Once the experts agreed a set of relevant indicators for the Spanish R&D+i systems, AHP questionnaires to pairwise compare the relevance of such indicators were sent back to them. With the information obtained from this questionnaires, the more relevant indicators for this specific group of stakeholders will be

identified. The application of such a technique, will allow policy-makers and decision-makers to identify the more relevant indicators for a specific context and select reduced sets of indicators to gather information on public engagement performance.

5. Data/Model Analysis

The AHP model is composed by three models for indicators of public engagement. The following pictures shows the three models agreed by the stakeholders and the sub-model "Competence building" as an example.





6. Limitations

For this present work we have created an expert panel composed by twelve people. The proposed set of indicators will represent their views and the results obtained from working with different people might vary.

7. Conclusions

The results of this research are currently being gathered and analysed. It is expected to have initial findings for the conference that allow to present a hierarchic model of indicators for public engagement agreed by a group of experts and relevant stakeholders and its prioritization. The results will allow to identify the levels of aggregation and the elements of the logical model that the group of experts considered more relevant. Also, the analysis will allow to propose further

strategies to build a framework for the selection of indicators within the relevant stakeholders in a specific context.

8. Key References

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