Public Engagement: Organisational Repertoires and Researchers' Practices

SUPER MORRI Case Study Narrative

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Background

The notion of responsible research and innovation (RRI) has, over the last decade, had a prominent place in the research policy discourse. A concept driven and pushed forward largely by the European Commission through their main funding mechanisms and through European research policy in general. In particular, a large number of projects have attempted to examine, develop, and integrate the concept of RRI into the European research community with funding through Horizon 2020 (H2020). Within H2020 many studies focused on fielding and testing how RRI policies and support structures could be integrated into European research organizations. These projects, though different in scope and methods, rely to some extent on the assumption that changes in the organization can lead to changes in the practices of the researchers they host. The logic of organizational change as a key driver of responsible research and innovation is captured well in the European Commission's performance indicators, which among others measure how many actions that promote RRI are implemented in research performing organisations (RPOs) (Delaney and Iagher 2020).

Gerber (2020) argues that "remarkable change processes have been initiated, signalling a potential deeper institutionalization of RRI principles and practices into organizations and national level policies". However, there is a risk of interpreting the uptake of RRI ideas in organizations as synonymous with institutionalization of RRI in scientific fields and research practice. In fact, researchers are highly influenced by the rules and norms of the field they belong (Becher, T., & Trowler, P. (2001).). And, many studies have shown that researchers tend to identify more with their discipline than the organization that hosts them (Henkel, M. 2000). Moreover, research organizations are often characterized as loosely coupled organisations, in which top-down policies have little influence in the bottom due to decoupling in the organization (Weick, K.E. (1976), Meyer, J. W., and Rowan, B. (1977). The question of how efficient organisational efforts to promote RRI among scientific practitioners is therefore an important one to shed light on.

While organizational policies are not the only vehicle of change, it is here this study takes its departure. The assumption behind policy intervention is that the appropriate organizational policies can affect research behaviour. Excluding the large number of single case studies that follow one or multiple organizational changes, no studies within the field of RRI have attempted to quantitatively assess whether and to what degree organizational policies in fact can influence the practices of researchers.

In this study, we examine public engagement in particular. Public engagement is one of the five RRI keys emphasized and pushed forward by the European Commission. Inclusion of the public in research is seen as an important part of making research more responsible. As it can contribute to research becoming more responsive to the needs of the public and considerate of the diverse needs of different groups the population. Public engagement covers "… the diversified set of situations and activities, more or less spontaneous, organized and structured, whereby non-experts become involved, and provide their own input to agenda setting, decision-making, policy-forming, and knowledge production processes" (Bucchi and Neresini 2007: 449). In the context of this study, Public

Engagement is concerned with the inclusion of citizens, consumers, and patient groups in these research processes.

We assess whether researchers are more likely to engage in public engagement practices when employed in organizations that emphasize, incentivize and/or support public engagement in their organizational policies, strategies, and support structures. In this study we focus on public engagement repertoires which in short entails the set of policy instruments an organisation employs to promote, support, and incentivize public engagement in their organisation. We analyse whether the variety of policy instruments employed in the RPO is related to the average public engagement activity among the RPO's employees.

We rely on two coordinated data collection vehicles 1) a document study of 120 European RPOs and 2) a researcher survey with 4,108 respondents administered to researchers employed in the same 120 RPOs. The first data collection vehicle and coding hereof produce measures of the public engagement repertoire of the RPO, while the second data collection vehicle provides a self-reported measure of the researchers' public engagement behaviour in their most recent research projects. We report basic findings from the two data vehicles. The empirical analysis that combines the two vehicles relies on a subset of the 120 RPOs. We examine 42 RPOs for which there are at least 28 responses in the researcher survey.

The combination of the two datasets provides a great possibility to assess the degree to which policy emphasis on Public Engagement in research organizations relates to researchers' own practices. While there are some potential biases due to self-reporting in the survey and data availability in the document study, we believe that this study provides an important empirical foundation for discussing the central question: *how and to what extent institutional repertoires for public engagement make a difference in individual researchers' public engagement practices?*

The remainder of this study is structured as follows. First, we briefly describe the methods and introduce the two datasets. Second, we present the results of the analysis and discuss how it can illuminate the research question. We conclude the study with a discussion of the following two questions 1) *Where we see the opportunities and shortcomings for institutional public engagement repertoires and the goal of enhancing support for PE?* And 2) *What does the study teach us about responsibility in research and innovation as it relates to the institutional role of supporting PE?*

Measuring public engagement in European RPOs and among researchers

The SUPER MoRRI project performed two coordinated data collection exercises in 2021 and 2022. The Country Correspondent Network Study of Research Performing Organisations (CCN RPO) collected documents and website entries related to university strategies from 120 European RPO websites, focusing on strategies, support structures and actions related to responsible research and innovation. The SUPER MoRRI researcher survey (RESU) was sent to employees of the same 120 RPOs asking about the researchers' practices and perceptions of RRI. In both studies, a core section collected data on Public Engagement. This section briefly describes the two data-collection exercises and the Public Engagement activities of European RPOs and Researchers.

Public engagement policy in European RPOs

The aim of the CCN-RPO study was to examine a limited range of mechanisms through which research performing organizations (RPOs) enhance responsibility in research. Mechanisms in central focus in the study included 1) the overall strategic priorities of the RPO; and 2) concrete organisational policies,

supporting structures and actions related to RRI, Open Science, Research Ethics and Integrity, Gender Equality, Public Engagement and the Third Mission.

For each of the countries included in the CCN-RPO study, a selection of RPOs were selected for inclusion. Depending on the size of the country, either 2, 4 or 6 RPOs were picked. In each country, the local country correspondent (CC) carried out desk research on each of the assigned RPOs. The CC performed three major tasks: 1) Study publicly available documents and websites relating to the strategic priorities, policies, and supporting documents and actions of the organization (See Table 1 for questions); 2) Perform a limited number of e-mail inquiries to validate and complement the information collected through publicly available documents and websites; and 3) Produce a written case report for each RPO in a template provided to the CC[1]. The core questions they were asked to answer are shown in Table 1 below.

Table 1 - Core questions in CCN report on PE

Please note if this area is addressed in the overall strategy: Yes_____ or No_____   **If yes, please describe in a few sentences, what the RPO aspires to achieve in this area:**
please describe in bullet points any concrete goals, targets, or performance indicators outlined in relation to this area (if any):
please describe in bullet points any practical / operational implementation elements outlined to meet the goals (if any):
Please note, if the RPO has specific policies about Public Engagement: **Yes_____ or No_____**   **If yes,**   **please describe in a few sentences, what the RPO aspires to achieve in this area:**
please describe in bullet points any concrete goals, targets, or performance indicators outlined in relation to this area (if any):
please describe in bullet points supporting structures outlined in relation to policies about Public Engagement (if any):   **please describe in bullet points supporting actions outlined in relation to policies about Public Engagement (if any):**

(OSF: RPO study protocol)

A total of 120 case reports were coded by members of the SUPER MoRRI team. Four team members were continually part of the coding process. The coding process was conducted in three rounds. All case reports were coded inductively by one of the team members. Hereafter the coding was reviewed by the team and divided along RRI topics between the team members. Each team member then did a small literature review and used this and the inductive coding to develop a closed coding scheme. This coding scheme was test-coded using eight case reports, and cross-coded by two team members. Based on this coding, a third and final coding scheme was developed (as presented below). One team member coded the reports based on the closed coding scheme. To ensure coding reliability, team members swapped coded material and an ex-ante coding check was conducted.

Codes were developed by SUPER MoRRI team members in an iterative process including an inductive pre-coding and were informed by the studies and reports within the field including Ravn, Mejlgaard and Rask (2014), Arnstein, S. R. (1969), Glass, J. J. (1979) and Rowe, G., & Frewer, L. J. (2005). The coding scheme reflects the concept of the public engagement ladder.

The coding scheme for Public Engagement is presented below. Figure 1 illustrates the logic for how content was coded. There are four sub-categories in which policies, support structures and various

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[1] The methodology of the CCN RPO study is described in more detail in Deliverable D2.4 Annotated Methodological procedures report available on the SUPER MoRRI Website.

policy statements where coded. First, all content related to Public Engagement was coded as such. Text is then coded in terms of the subject matter. *General engagement* represents text that describes the organisations aims and activities with regard to public engagement at a low level of resolution and detail. Content focused on the communication of research to the public is coded as *public communication.* Content focused on including the public in two-way communication is coded as public consultation and advice while content aimed at *public participation in science* is coded as public participation.

Figure 1 - Strategic focus codes
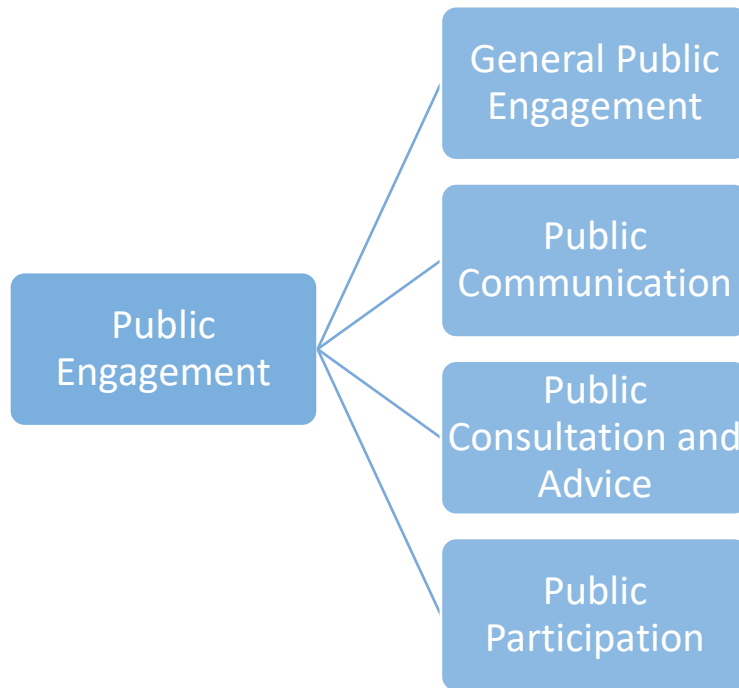
A second layer of coding describes the type of policy mechanisms or practical implementation of policy. Practical Implementation Codes (PICs) (Table 2) were developed jointly and utilised for all four strategic focus sub-codes. Thus, a coded piece of text has both a strategic focus code (Figure 1) and a practical implementation code (Table 2). By discussing these extensively beforehand, coding reliability proved to be high in the ex-ante coding check. Each code reflects a different type of support structure, action or communication of intent related to public engagement.

Table 2 - Practical implementation codes

Practical Implementation Codes (PICs)
Awareness campaigns
Dedicated unit
Events
Expressed aims (eg. Mission statement or broad declaration of intent)
Funds/funding
Infrastructure
Networks
Policy targets
Recommendations and suggestions
Reference to networks, alliances, etc.
Reporting of progress
Rewards and recognition

Rules and requirements
Training

Measuring of public engagement repertoires

Table 3 provides an overview of the public engagement repertoires of the 120 European RPOs. PICs are divided into aims, policy instruments for supporting public engagement, and policy instruments for supporting and incentivizing Public Engagement. The first category reflects expressions of intent without any specific or tangible goals and policies. The second includes "soft" policies such as providing recommendations and guidelines for Public Engagement, setting policy targets, arranging events and similar. The third includes rewarding and recognizing Public Engagement activities through promotion, prizes etc. as well as providing training, and targeted funding for Public Engagement projects.

Table 3 - Public engagement répertoires in RPOs

Category	Policy Mechanisms	PE general	PE communication	PE consultation	PE participation	No PE
No policy	-	48	38	90	94	26
Aims	Expressed aims Awareness campaigns References to (international) networks, alliances, etc.	23	21	24	12	-
Support	Networks Policy targets Events Recommendations and suggestions Reporting of progress	18	26	3	7	-
Support & incentives	Rewards and recognition Rules and requirements Training Infrastructure Dedicated unit Funds/funding	31	35	3	7	-
Total		120	120	120	120	-

The data shows that the majority of RPOs refer to Public Engagement in their publicly available strategic material. Only 26 of the 120 RPOs did not mention Public Engagement or the concepts related to Public Engagement on their institution website and available strategic documents. While many RPOs mention Public Engagement as an aim of their organisation, a much smaller fraction go beyond promoting the communication of science to the general public. Similarly, policy that provides tangible support and incentives to the researchers are also rare. In particular when it comes to Public Engagement on the top of the ladder (participation and consultation.

It is difficult to provide a measure that captures the scope and variability of Public Engagement policy. The repertoires of RPOs are not easily translated into a single number or group. Yet, in order to investigate the Public Engagement repertoires further, we create a simple variable that counts the number of different types of practical implementations within each of the four sub-areas of public engagement (variety in Figure 2). This reflects the variety and scope of the public engagement repertoire of the RPO. Figure 2 shows the distribution of the measure of number of distinct policy instruments used in the RPO.

Figure 2 - Distribution of PE policy instruments in 120 European RPOs
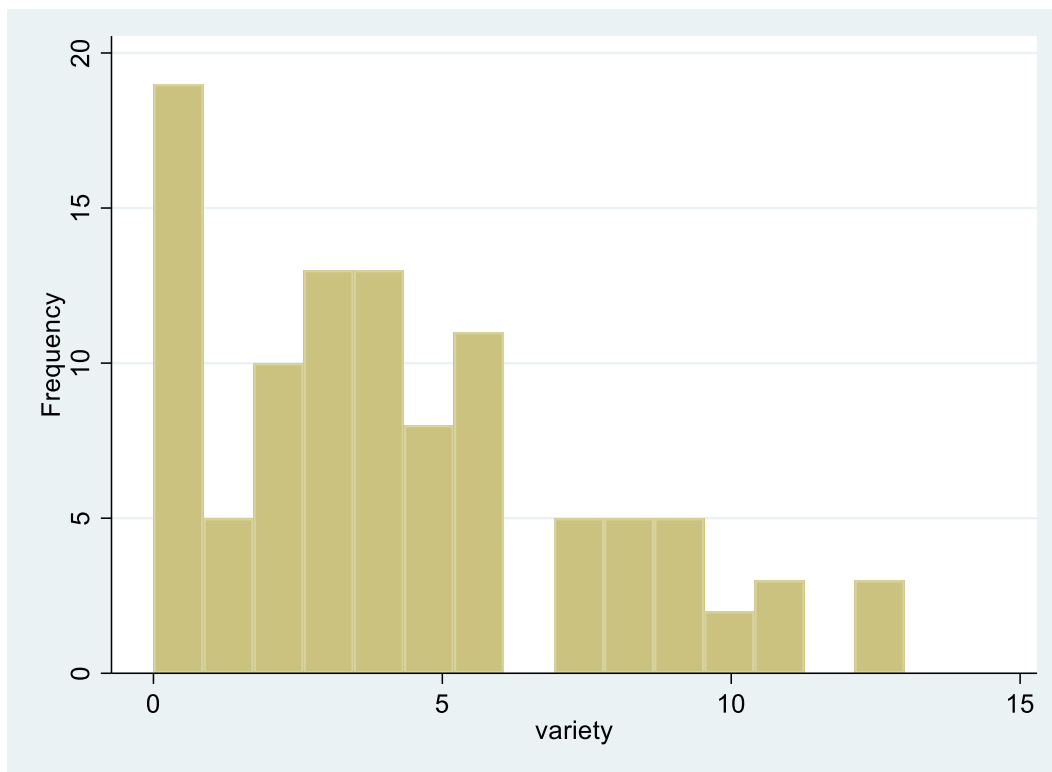
The distribution illustrates the story above, a handful of RPOs do not have any policy mechanism to support Public Engagement, the majority have between 1-6 different policy mechanisms and a small group have a diverse set of policy mechanism to support and promote Public Engagement. This diversity is interesting as it could relate to the action space researchers have for engaging with the public when doing research. Both, in terms of sense of pressure, but certainly also how supportive they experience their organisation to be. Of course, the simple indicator does not take into account that the quantity or variety of policy instruments necessarily equates to the quality of organisational support for Public Engagement. Such questions are better suited for an in-depth qualitative study.

Public engagement among European Researchers

To shed light on European researcher's public engagement behaviour we draw on the SUPER MoRRI researcher survey (RESU). The overall aim of this empirical study was to examine European researchers' responsible research practices and their perceptions of, and attitudes towards, responsibility in research and innovation. The data collection from the survey was linked to the CCN-RPO Study in the SUPER MoRRI monitoring framework design. The sample of survey participants was based on the identification of (active) researchers from the RPOs included in the CCN study. On

Monday, November 7th, 2022, an initial e-mail invitation was sent out to the 127.395 researchers (gross sample). A total of 4.107 researchers completed the section related to public engagement.[2]

The survey asked researchers how often they have included non-researchers in their research (e.g., citizens, consumers, and patients). Those that report to doing so are also asked in which parts of their research they involved these actors (e.g., problem identification, data collection, deliberation of results and communication of research). Finally, they were asked how often they engaged with non-researchers in their past and current research projects.

Three variables measure Public Engagement among researchers. 1) Public Engagement (Do researchers engage with the public?), 2) Public Engagement Frequency (How frequently do they engage with the public?) and 3) Public Engagement Ladder (At which step of the Public Engagement ladder do they engage?).

Table 4 illustrates the number of researchers in the sample that report to engage with the public and at what level they do so. A categorical variable with four categories is defined by responses to a series of survey questions. If respondents answer that they have engaged with citizens, CSOs, consumer or patient groups in the last three years, they are categorized as either "Public Communication", "Public Consultation" or "Public Participation". If they have not engaged, they are categorized as "No Public Engagement". The distinction between communication, consultation and participation depends on the type of interaction they report to have had with one or more of the groups. Respondents are coded as "Participation" if they answer that they have *involved citizens in the development of research agenda*; as "Consultation" if they have *discussed the consequences of research / its application (incl. technology assessment) with citizens*, and as "Public Communication" if they have engaged in *dissemination and presentation of research results to citizens).*

Table 4 - Public engagement ladder for sample of European researchers

Public engagement category	Number of researchers	Percentage of researchers
No Public engagement	1,108	26,5
Public Communication	1,596	38,2
Public Consultation	684	16,4
Public Participation	792	19,0
Total	4,180	100,1

*Does not add up to exactly 100 because of rounding.

The categorization attempts to follow the logic of the Public Engagement ladder where one-way communication to the public is on the lowest level and involving the public in decision making is on the highest level. Thus, the more intensive and collaborative the interaction, the higher on the ladder. The majority engage in public communication, while only a minority engage with the public on "higher steps of the ladder".

In terms of frequency of public engagement there is a skewed distribution (Table 5). 11 % of respondents have engaged in some form of public engagement in all their recent projects, 30 % in

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some, 40 % in a few and 27 % in none. In total, 74 % of the sample report to engaging in some form of public engagement.

Table 5 - Public engagement frequency among sample of European researchers

Public engagement frequency	Number of researchers	Percentage of researchers
No public engagement	1,108	26,5
In few projects	1,654	39,6
In most projects	960	23,0
In all projects	458	11,0
Total	4,180	100,1*

*Does not add up to exactly 100 because of rounding.

Table 6 illustrates that there are some clear divides between the fields of science: Social scientists and medical and health scientists are the most prolific in terms of Public Engagement. They are both more likely to engage with the public and to engage beyond communication of research. That likely relates to the epistemological and historical properties of the fields and sub-fields.

Table 6 - Public engagement by field of research

Field of science	No Public engagement	Public Engagement
Structural Sciences (Mathematics, Informatics, Logic)	0,56	0,44
Natural Sciences (Physics, Chemistry, Geosciences, Astronomy, Biology)	0,38	0,62
Engineering and Technology	0,28	0,72
Agricultural and Veterinary Science	0,23	0,77
Arts and Humanities	0,23	0,77
Others	0,21	0,79
Social Sciences and Economics	0,18	0,82
Medical and Health Sciences	0,14	0,86

The empirical relationship between Public Engagement repertoires and public engagement practices

In this section, we provide a cursory analysis of the empirical relationship between organisational repertoires and researchers' Public Engagement practices. Assessing the relationship between the two can help us get closer to answering the question: *How and to what extent institutional repertoires for public engagement make a difference in individual researchers' public engagement practices?*

For practical purposes, we examine a subset of RPOs. The subset is selected based on a sufficient number of responses to the researcher survey from staff of the RPO. The cutline was set at 25, which resulted in 42 RPOs which had between 28 and 205 responding staff representing 3,371 researchers in total. The reason for having a cutline is to avoid averages to reflect outliers to a too high degree. The higher the number of researchers the more likely, that there will be regression to the mean. While

an even higher cut number would be preferred vis-à-vis the law of large numbers, this was found to provide an acceptable sample of RPOs and at the same time eliminate a high degree of uncertainty of public engagement estimates among staff.

The average percentage of researchers engaged with the public in each RPO is illustrated in the figure below (Figure 3). It shows that there is a large variation from the RPO with fewest engaged researchers to the highest.

Figure 3 - Proportion of staff engaged with public in 42 European RPOs
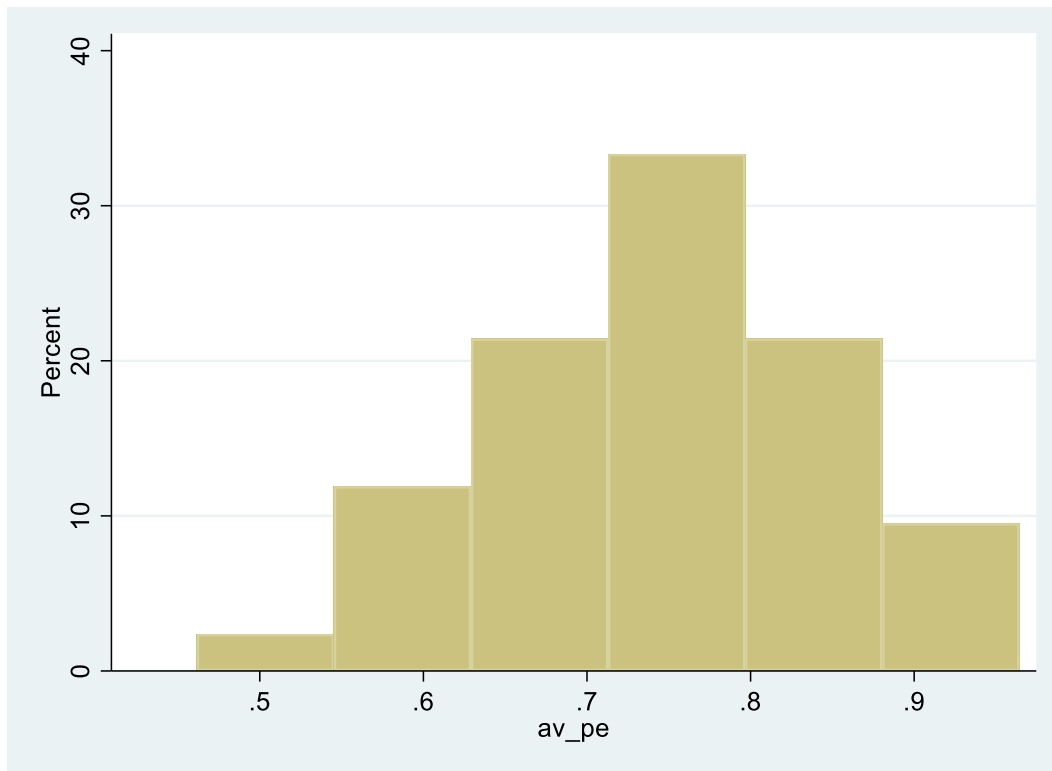
The three plots (Figure 4-6) below show the relationship between variety of RPO Public Engagement repertoires and three measures of public engagement. The figures are only calculated for the RPOs where at least 28 faculty responded to the super MoRRI survey. This accounts for 42 European RPOs. In Figure 4 average public engagement is plotted with the variety variable capturing the number of policy mechanisms employed in the RPO. The plot indicates a positive (though marginal) correlation between the variety of policy mechanisms employed in the RPOs repertoire and the proportion of its staff who engage with the public. However, it is also obvious from the plot, that Public Engagement can be high in RPOs with a less varied Public Engagement repertoire. Figure 5 plots variety with average public engagement frequency. A similar picture emerges of a positive relationship between how often researchers in a RPO engage with the public and how varied the Public Engagement repertoire is. The third and final figure (Figure 6) plots the average step on the public engagement ladder for its researchers [where no PE=0, public communication=1, Public consultation=2 and public participation==3). Again, a similar picture shows that RPOs with a varied repertoire have a higher number of researchers engaged at the higher steps on the public engagement ladder.

The three figures together thus provide an indication that there is a slight positive relationship between the variety of Public Engagement repertoires and researchers' Public Engagement practices. The directionality and causality of the relationship however is not covered in this analysis.

Figure 4 - Average public engagement among staff by variety of public engagement policy mechanisms in 42 European RPOs
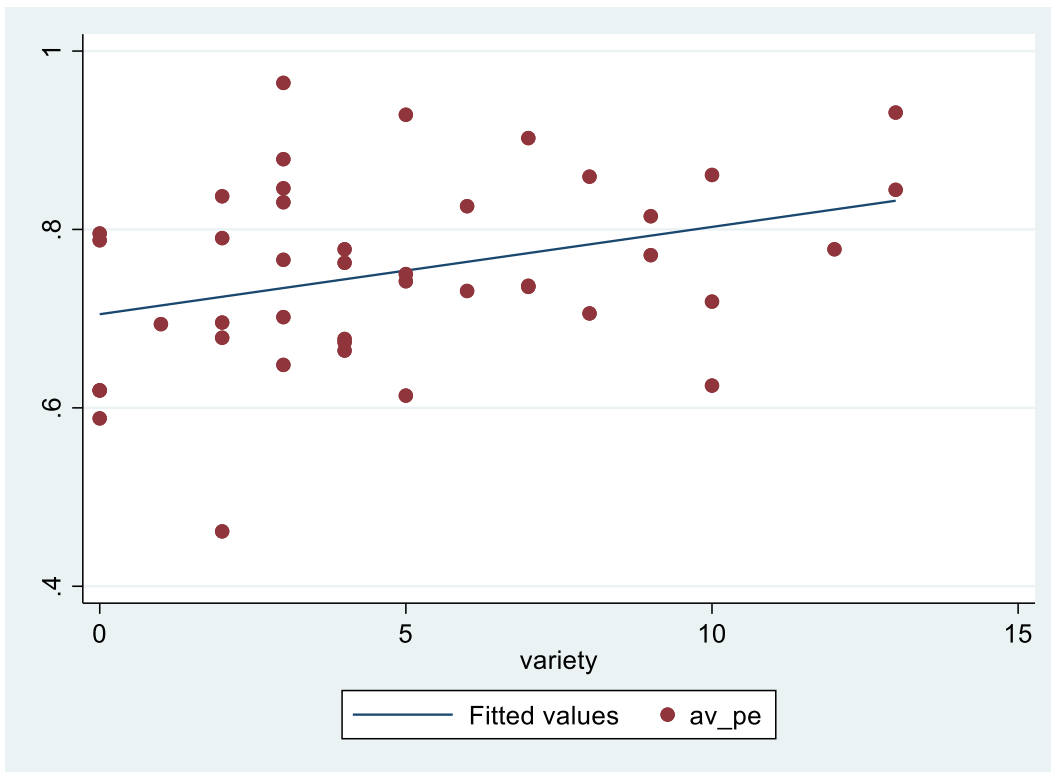

Figure 5- Average public engagement frequency among staff by variety of public engagement policy mechanisms in 42 European RPOs
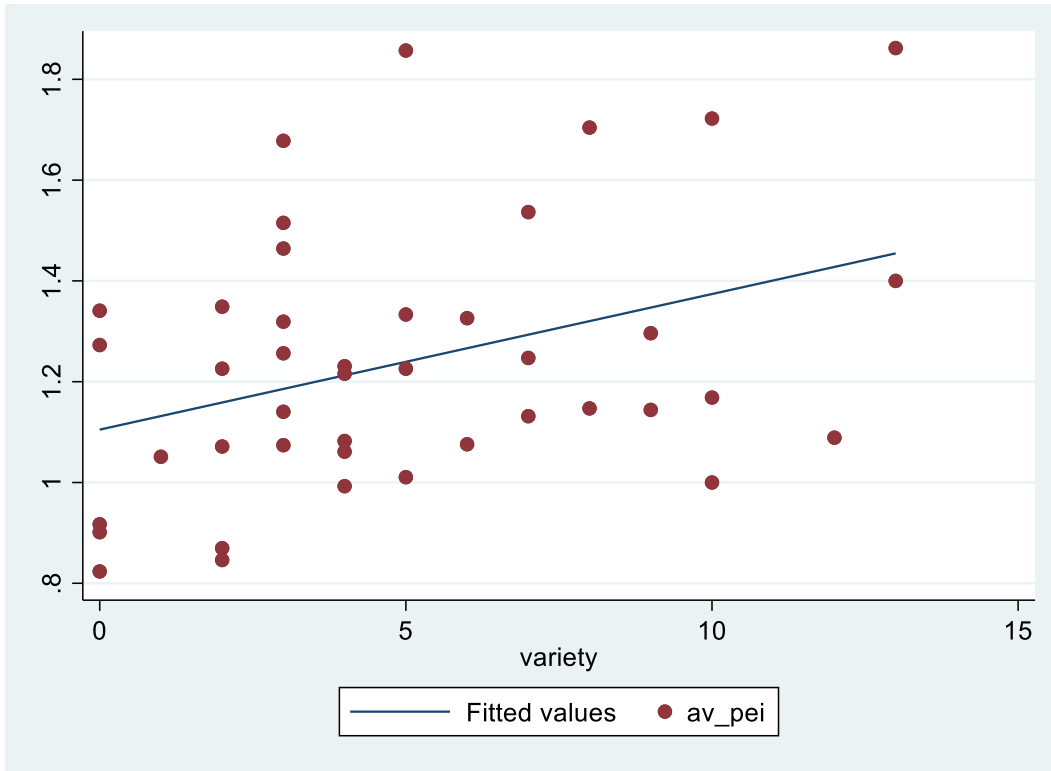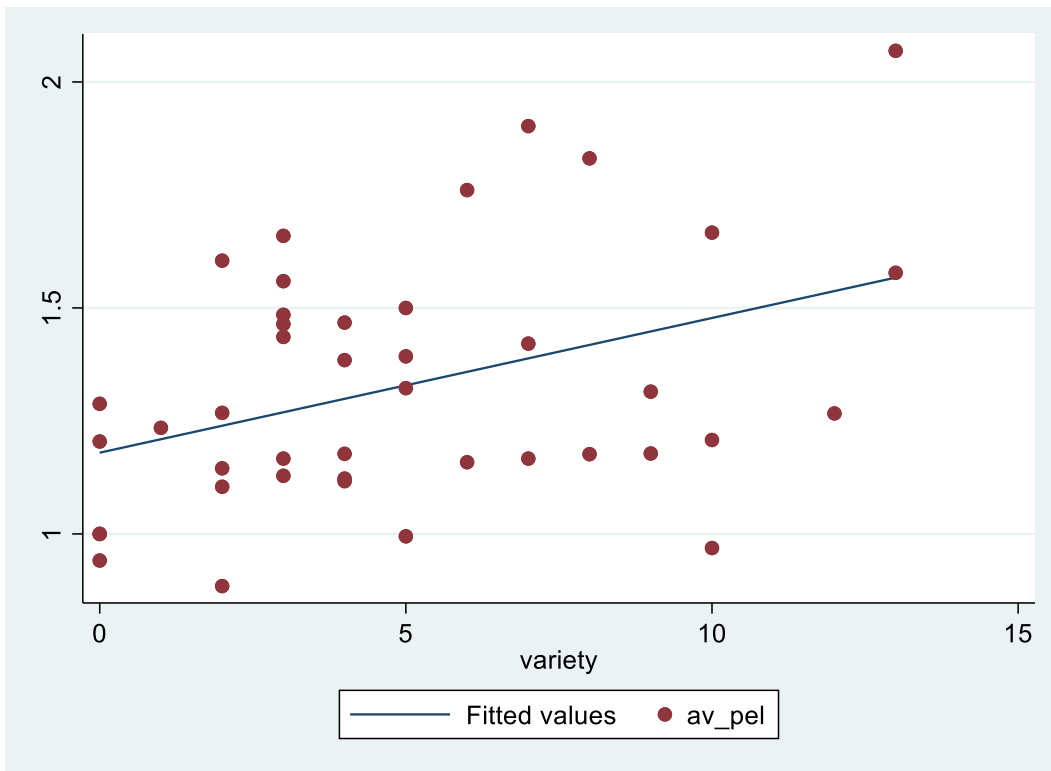
Figure 6- Average public engagement ladder among research staff by variety of public engagement policy mechanisms in 42 European RPOs

Discussion

This study provides an initial empirical foundation for discussing the central research question of the study: *How and to what extent institutional repertoires for public engagement make a difference in individual researchers' public engagement practices?*

This section concludes the study with a discussion of the following two questions 1) *Where do we see the opportunities and shortcomings for institutional public engagement repertoires and the goal of enhancing support for PE?* And 2) *What does the study teach us about responsibility in research and innovation as it relates to the institutional role of supporting PE?*

We find that researchers in Europe generally report to engage with the public. However, the majority engage in Public Communication, while only a minority engage with the public on "higher steps of the ladder". Moreover, there are some clear divides between the fields of science that likely relates to the epistemological and historical properties of the fields and sub-fields. Social scientists and medical and health scientists are the most prolific in terms of Public Engagement. They are both more likely to engage with the public and to engage beyond communication of research.

The present study indicates that Public Engagement repertoires of RPOs have a positive relationship with their employees' propensity to practice Public Engagement and the type of Public Engagement they practice. The nature of the data of course makes it difficult to assess the directionality or assignment of causation. It is likely however, that a varied Public Engagement repertoire can provide assistance to many different types of researchers in different steps of their research. It is also likely that researchers who prefer public engagement seek towards environments that support and reward public engagement. Moreover, researchers who prefer involving the public in research may find less barriers and more support in RPOs with a varied repertoire, which could increase their Public Engagement activity relative to other like-minded researchers in less supportive environments.

While the relationship between Public Engagement repertoires and Public Engagement practices is clearly limited in strength, there may be the case for arguing that while organisational policies and support structures may not change preferences for how to engage in research, they may create an environment that can better support Public Engagement for researchers that already have a preference for engagement. Thus, researchers with a preference for Public Engagement may be more likely to seek out support structures such as guidelines, funding, etc., than their non-engaging colleagues. The most likely way in which RPOs can make a difference is by creating an environment that removes barriers and can make Public Engagement more effective for those that have a preference for it.

Additionally, translating organisational changes into institutional changes that can be observed in research practices may take a long time, and therefore, it is likely that while no large differences are visible in this cross-sectional study, there may be delayed effects that come from institutionalising Public Engagement. Finally, other major actors and institutions play a role in how research is done. Therefore, if organisational changes are not met with similar changes in funding organisations and in the scientific fields themselves it is unlikely that we would observe a large difference in Public Engagement practices. The clear differences in Public Engagement among field of science points to epistemological characteristics as a driving force for whether or not researchers engage with the public.

The question of organizational approach to Public Engagement in this brief study has been measured by a broad coding of the type of public engagement promoted and emphasized by the organization. The study simplifies Public Engagement repertoires to the variety of mechanisms employed by the

RPOs. This means that some interesting details and variation are not included in this analysis and therefore a more granular study should follow. We argue that we should be careful to interpret the results as more policy is equal to more and better public engagement. In future analyses, a more fine-grained approach that differentiates between not only what the RPO focuses on but also *how* they do so, may help to find some strategies or repertoires that are good at aligning the preferences for public engagement among research staff and the support and resources devoted to PE in RPOs.

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