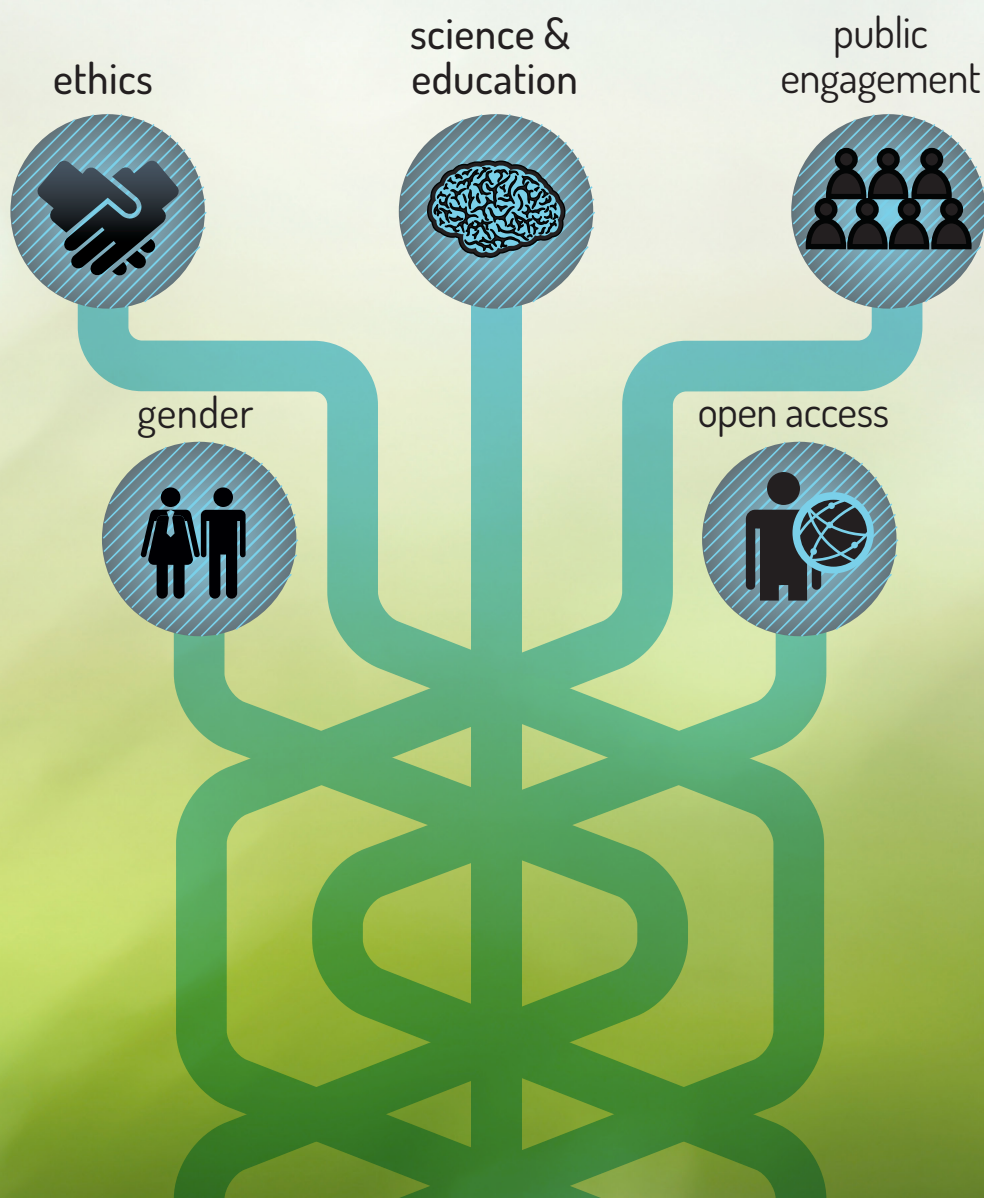


Discussion paper on the analysis of organizational barriers (Fraunhofer Part)

Deliverable D4.1





JERRI – Joining Efforts for Responsible Research and Innovation

Deliverable D4.1

Discussion paper on the analysis of organizational barriers (Fraunhofer Part)

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TABLE OF CONTENTS

PURPOSE.....	4
1 Introduction	5
2 Enablers and barriers emerging from the conceptual framework and international case study.....	5
3 Deep Institutionalisation of RRI at Fraunhofer - starting point.....	8
4 Identifying enablers and barriers for reaching the RRI transformation goals at Fraunhofer	10
4.1 Methodology.....	10
4.2 Ethics	12
4.2.1. Recap of vision and pilots	12
4.2.2. Barriers	12
4.2.3. Enablers.....	13
4.2.4. Conclusions.....	14
4.3 Gender in research content.....	15
4.3.1. Recap of vision and pilots	15
4.3.2. Barriers	17
4.3.3. Enablers.....	18
4.3.4. Conclusions.....	21
4.4 Societal Engagement	22
4.4.1. Recap of vision and pilots	22
4.4.2. Barriers	22
4.4.3. Enablers.....	23
4.4.4. Conclusions.....	25

4.5	Open Access.....	25
4.5.1.	Recap of vision and goals	25
4.5.2.	Barriers	26
4.5.3.	Enablers.....	28
4.5.4.	Conclusions.....	29
5	Conclusion: Enablers and barriers of deeply institutionalizing RRI at Fraunhofer.....	30
	REFERENCES.....	32
	ABBREVIATIONS.....	34
	ANNEX I: INTERVIEW GUIDELINE	35

PURPOSE

The EU project 'Joining Efforts for Responsible Research and Innovation' (JERRI) is orchestrating a deep RRI transition process within the two largest European Research and Technology Organizations (RTOs), the German Fraunhofer-Gesellschaft and the Netherlands Organization for Applied Scientific Research (TNO). The process features an intense mutual learning between the two organizations, a wider circle of RTOs and stakeholders.

Both organisations have developed ambitious long-term goals and launched a number of concrete pilot activities to initiate change towards these goals. These activities address the five core RRI dimensions as defined by the European Commission: Ethics, Open Access, Societal Engagement and Gender. They are documented in Deliverable 2.2 (Fraunhofer) and 3.2 (TNO). Further information can be found as follows:

- the theoretical framework used to conceptualise the organisational change process is available (Deliverable 1.2)¹
- the situation in both organisations as analysed at the beginning of the project is presented (Deliverable 1.1)
- the process of reaching the goals (Deliverable 2.1/3.1)
- the shared lessons learned from this process (Deliverable 10.2).

While work package 2 was about defining long-term visions and long-term goals of Fraunhofer regarding RRI, the focus of work package 4 is about the transformation process required to reach these goals. As a first step this deliverable D4.1 presents possible barriers and enablers, we might encounter during this transformation journey.

¹ For better readability we are referring to the JERRI deliverables by their abbreviation only (DX.X) throughout the report. All deliverables are available for download at <http://www.jerri-project.eu/jerri/results/deliverables/>. The full references are provided at the end of the report.

1 Introduction

In a previous report (D2.2) we have documented a set of RRI goals adopted by Fraunhofer within a series of goal setting workshops. This report points out possible barriers for the 'Deep Institutionalization' of these RRI-goals and also enablers and solutions to overcome these barriers. The findings of this deliverable will later be used for developing a transformative action plan for each of the four activity dimensions - Ethics, Societal Engagement, Open Access and Gender in Research Content. The deliverable is the counterpart of D5.1 in which TNO present its findings of organizational barriers and enablers of institutionalising their RRI-goals. The report is structured as follows:

As a starting point, section 2 summarises the main insights on barriers and enablers of RRI emerging from the theoretical framework (D1.2) and the international case study (D9.1). Chapter 3 gives a short introduction into the concept of 'Deep Institutionalization' of RRI (see D1.2) and the localisation of Fraunhofer within this framework. Section 4 starts with an outline of the interview methodology adopted to identify barriers and enablers and then describes in detail the interview results along the four RRI-dimensions (Ethics, Societal Engagement, Open Access, Gender in Research Content). Section 5 provides a discussion of common patterns of barriers and enablers across all RRI-dimensions with a view to the assumptions provided by the theoretical framework.

2 Enablers and barriers emerging from the conceptual framework and international case study

This section presents some theoretical insights derived from Deliverable 1.2 regarding barriers and enablers of RRI and complementary empirical findings from the international case studies of D9.1. These findings will serve as a guiding framework for investigating and interpreting the situation at Fraunhofer.

Following the theoretical framework we can differentiate between three analytical levels, which have to be considered for understanding organizational change in general and in particular also for the deep institutionalisation of RRI.

- I. Interorganisational & environment level: The level of institutional logics within the organisation's environment and interorganisational relations, for example nation state policies and its effect on organisations
- II. Intraorganisational level: concerning the way and the ability of the organisation to cope with different institutional logics, organisational cultures, missions and goals. (D1.2, p. 29)
- III. Actor level: institutional entrepreneurs and their performance as change agents.

On all three levels, the theoretical framework (D1.2) and the international case studies (D9.1) highlight issues research organisations may encounter when aiming to deeply institutionalise RRI practices. Depending on the situation, each issue may turn out as a barrier or as an enabler. We now give an overview of these issues for each level. It should be noted however that many aspects can be linked to several levels.

I Interorganisational & environment level

- encountering **legitimacy instability or crisis** as a challenge to the status quo within the organizational field (D1.2, p. 14). Such a crisis in the environment (e.g. a natural disaster which changes the public opinion) can be an enabler e.g. by providing windows of opportunity for institutional entrepreneurs to launch new practices. At the same time, it may prove a barrier if the crisis uproots established responsibility patterns.
- finding **appropriate forms and language to get in contact/communicate** with the public.
- **dealing with simultaneously incentives and expectations** from the environment, which have to be coordinated to avoid pressure
- working with the **profession's moral code and normative standards** underlying the training of young scientists

II Intraorganisational level

- The need to **deal with multiple institutional logics** and to balance between the value of responsibility and other organizational goals. Examples are a strong market logic within the organization and the demand for responsibility and sustainability on the other side (D1.2, p. 26; D9.1, p. 41ff.). The ways organizations deal with these multiple or even conflicting goals can either leading to the phenomenon of "de-coupling" or "shallow-institutionalisation" or to integrating of responsible practices.
- the **commitment of the leadership** (D1.2 p. 31), their strategic focus regarding the organization and to which degree they are passionate about certain values and the mission of RRI (D9.1, p. 33f.)
- to raise **awareness and acceptance for RRI** within the organization, e. g. by the presentation of best-practices and benefits which arise from organisational change towards RRI, developing incentives which promote RRI-practices in research etc. (D1.2, p. 32; D9.1, p. 65)
- dealing with **power struggles** between succeeding activities of challengers/institutional entrepreneurs/change agents vs. "the ability of incumbents to buttress their position" (D1.2, p. 14)

- steering for a **mutual understanding** within the organisation in order to gain an overflowing effect that reaches all institutes and organisational units (D1.2, p. 32)
- developing the right **organisational structure and culture** with **sufficient capabilities and capacities**. Regarding the structure of the organisation the crucial challenge is to find the right balance between the principle of labour division (building professional units for RRI tasks, e.g. for science popularisation) and integrating it into all units. A failed balance between these two principles can either lead to de-coupling between RRI units and the rest of the organisation or to a failed or incomplete transformation in the form of unclear or misleading/different understanding of RRI within the organisation (D9.1, p. 71)
- finding **proper financing and business models**

III Actor level

- the **performance of institutional entrepreneurs/change agents**, especially in successfully overpowering incumbents and challenging the status quo of the organisation (D1.2 p. 14; D9.1)
- the alignment between **the profession's moral code** and attitude towards RRI. This has a great effect on everyday research practices and the normative standards used by the scientists.
- the **commitment of high leadership**, which is passionate about certain (rri) values and promote/initiate the reorientation of the organizational strategy. A good example would be the present president of the Arizona State University (cf. D9.1)
- A **different type of leadership** - also at the **middle levels** - which engages and motivates by a constant communication and celebration of good practice and which abandons barriers for new types of collaboration (institutional entrepreneurship). (D9.1, p. 33f.)
- **raising acceptance and willingness of researchers** towards RRI, e.g. to share their scientific results and to get in touch of with the public, using "everyday" language and gaining a general cultural change within the institutes (D9.1, p. 65)

Finally, we would like to emphasise that the theoretical framework of Deep Institutionalization states that institutional change "will always comprise simultaneous institutionalisation and de-institutionalisation processes, such that the process we actually witness is always a combination of both" (D1.2, p.15). Accordingly, we should describe our change process as a process of assimilation rather than one of erasure.

3 Deep Institutionalisation of RRI at Fraunhofer - starting point

The deep institutionalisation framework (D1.2) allows organisations to analyse the degree of deep institutionalization of rare practices along the following four axes.

- i) The dominant narrative(s) of responsibility within the organization within a spectrum of six ideal type narratives
- ii) The degree of maturation of responsible practices within the organization
- iii) The extent of systemic inter-dependence, 'reach' and 'influence' of shared responsibility norms.
- iv) The vertical alignment i.e. the relationship of an organization to its external institutional context.

Within our analysis of the status quo of RRI institutionalisation at Fraunhofer which is documented in Deliverables 1.1 and 2.1 we have used the insights from interviews, workshops and document analysis to tentatively position Fraunhofer within this “four way matrix” for each of the RRI aspects (Ethics, Societal Engagement, Open Access, Gender in Research). This should be seen as a starting point for an organisation-wide conversation supporting a deeper reflection on the ongoing dynamics of change. We now briefly recapitulate the positioning of Fraunhofer along these four aspects as it emerged in this analysis.

i) As organisational change processes like the one targeted within JERRI involve changes in dominant responsibility discourses within the organisation, it is important to understand the **pattern of responsibility narratives** in the organisation. As a guiding framework for this analysis, the deep institutionalisation concept provides a set of six ideal types of responsibility narratives. Figure 1 gives an overview on the presence of these “six grand narratives” of responsibility within Fraunhofer based on the insights of the JERRI analysis of existing practices, processes and discourses. In line with the thesis of institutional pluralism, which points towards a "coexistence of multiple logics of responsibility within large and complex organisations such as RTOs" (D1.2, p. 18) it becomes clear that different narratives are coexisting in the organisation. As shown in figure 1 especially the narratives of Technological Progress and Citizen Firm are dominant at Fraunhofer (cf. D2.1, p. 8ff.). The analysis also revealed the dynamics of change at play. Narratives “Participatory Society”, “Moral Globalisation” and “Research with and for Society” seem to be slightly on the rise while the narrative “Technological Progress” is facing some challenges and a sediment of narrative “Science Republic” seems to be a robust element of the organisational culture. As highlighted by the authors

(ibid.), this means that actors within Fraunhofer may well face situations with conflicting values, dilemmas and tensions emerging from the different rationales.

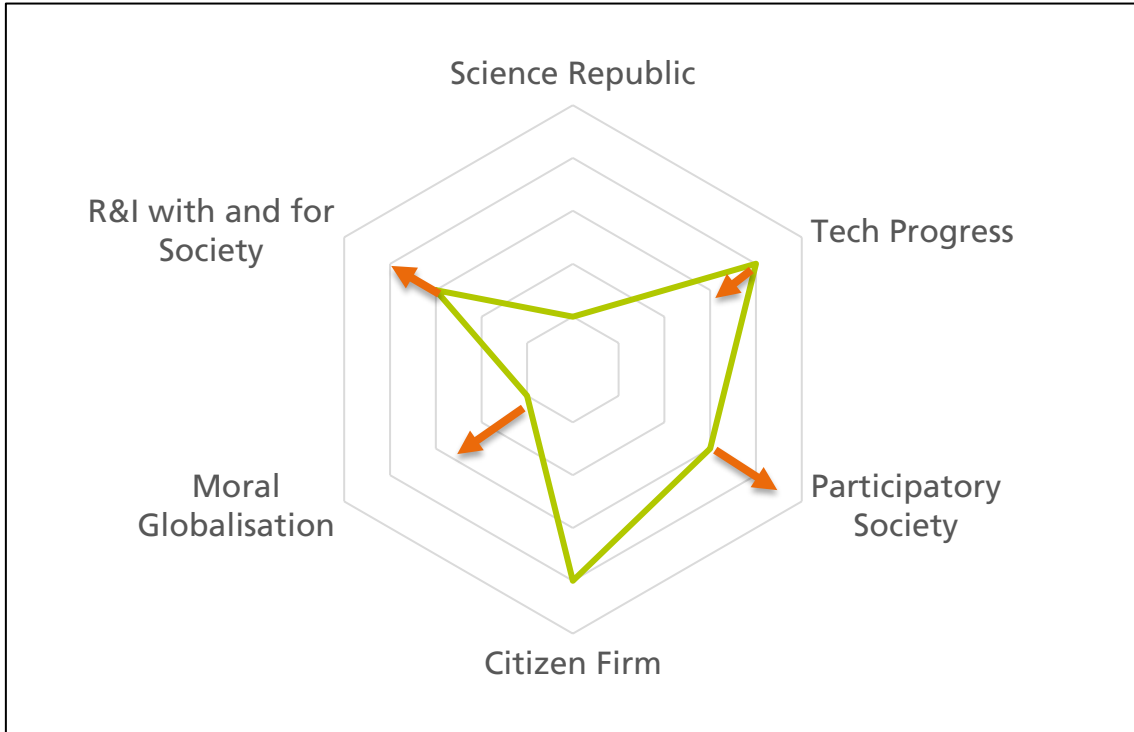


Figure 1: Establishment of the Six Grand RRI Narratives in Fraunhofer

Table 1 gives an overview on the **deep institutionalisation of rri-practices²** within Fraunhofer along the other three key aspects of the deep institutionalisation framework. The findings suggest that the five key dimensions of RRI (Ethics, Gender, Open Access, Societal Engagement, Science Education) vary in their degree of deep institutionalization. So e.g. “Societal Engagement” is at a rather low level of institutionalization (emergent, ad-hoc experiments and low pressure and interaction) while the dimension of Gender Equality is deeply institutionalised at Fraunhofer but is struggling to realise its ambitious goals (for example regarding female leadership). Because of these different situations of the five RRI dimensions it is important for to look at each dimension separately but also to keep in mind the different starting points when identifying barriers and enabler.

² In D1.2 Randles contrasts the official EC-concept of RRI (RRI, in capitals) and de-facto responsible research and innovation (rri, in lower case) as it can be observed at RTOs.

Table 1: Locating Deep institutionalisation of the five RRI aspects at Fraunhofer

	Open Access	Gender Equality	Ethics	Societal Engagement	Science Education
State of the maturation process	mature	Resilient	Between emergence and maturity	Emergent	not assessable
Systemic Consolidation	Pervasive interdepend system with overflowing	Taken-for-granted unreflexive institutional logic	Niche integrated normative networks	Ad-hoc experiments	not assessable
Vertical Alignment	High resonance and active influence on the context	High pressure from the context but difficulties in realization	Medium pressure from context, resonance depends on specific research area	Low pressure and little interaction with the context	Resonance

4 Identifying enablers and barriers for reaching the RRI transformation goals at Fraunhofer

4.1 Methodology

Based on the previous work package 2 of JERRI, in which we developed long-term goals and various pilot activities in five stakeholder-based workshops, it is the task of work package 4 to develop transformative action plans for reaching the previously defined goals at Fraunhofer. As an entry point into this change process, we carried out a number of interviews with actors in the organisation to find out more about the specific barriers and enablers, which we may encounter on our transformation journey. In contrary to the previous work where we analysed the status quo in general we now focused the analysis on barriers and enablers towards the visions, goals and pilots developed in the JERRI goal setting phase. In sum, 18 persons were interviewed by phone or face-to-face. All interviewed persons were Fraunhofer staff, working in different units, functions and

organisational levels. We selected interviewees on together with the leaders of each RRI dimension with a view of getting a balanced perspective including actors with relatively central positions and pioneering attitudes (“change agents”) but also people representing the “ordinary researcher” with no special function. Fraunhofer ISI carried out the interviews which lasted between 30 and 60 minutes. The underlying guideline for each interview, which was developed together with TNO, can be found in Annex I. The table below gives an overview on the characteristics of the interviewees.

Table 2: Characteristics of interview partners for identification of barriers and enablers

	Open Access	Ethics	Gender in Research content	Societal Engagement
Number of interviews	5	3	5	5
Interviewees characteristics	<ul style="list-style-type: none"> • Key actors responsible for OA implementation at Fraunhofer • Library managers one with extensive and another with less active involvement into OA promotion at institute level • OA pioneering researcher 	<ul style="list-style-type: none"> • central level actors involved in strategic development and in internal research funding programmes • research group leader with ethically sensitive research topics • senior staff member of human resources at central level 	<ul style="list-style-type: none"> • Fraunhofer equal opportunity officers with an interest in gender in content • Fraunhofer Project Leader Discover Gender • Evaluator of Austrian FemTech Program 	<ul style="list-style-type: none"> • Institute level actors pioneering citizen involvement approaches or encountering first experiences with SE

In the following sections, we present the findings for each RRI dimension. We first briefly recap the goals set in this dimension, then relate the interview findings on both barriers and enablers and end with a set of conclusions summarising the findings.

4.2 Ethics

4.2.1. Recap of vision and pilots

The JERRI Ethics long-term vision for Fraunhofer highlights that FhG has the opportunity and the responsibility to take a leading role in the ethical discourse of applied science especially for the fields where it is a dominant research actor. It further specifies that ethics should substantially contribute to the creation of identity at Fraunhofer. To initiate the transformation process towards this vision, three pilot activities were specified and launched.³ This overall vision formed the starting point for reflecting on barriers and enablers in our interviews. Although we focused on ethical aspects in research, interviewees also addressed a broader notion of ethics at the workplace.

Interviewees pointed to the following enablers and barriers for realising this vision:

4.2.2. Barriers

- **Silo thinking**
 - Silo thinking is a barrier for a more interdisciplinary approach, that is needed to integrate ethical perspective into research
 - Reservations between different professions, especially between natural science/engineering on the one side and social science/humanities on the other.
- **Lack of expertise**
 - Different opinions about the definition and purpose of ethics
 - Difficulties to integrate/operationalize ethics within an project
 - Researchers often lack an idea about the societal implications of technical research and engineering, e.g. the impact of new medical technologies on the health system.
- **Nature of value deliberation**
 - Difficulty to change attitudes of employees, because they are deeply internalized
 - Diversity of values which leads to different/conflicting assessments of a situation
- **Overall goal conflicts within the organization**
 - market orientation and financial pressure at FhG vs. ethical deliberation
 - missing or limited resources (time and financing) within the research projects and the organisation for tackling ethical aspects

³ cf. Deliverable 2.2

- **Lack of recognition** of ethics as integral aspect of the research
 - so far researchers often consider the integration of ethics as something useless without benefits
 - especially the so called 'ethical box ticking exercises' are regarded as an additional burden without any further sense/benefits nor real effects on the research and its societal impact
- **Organisational culture**
 - too much competitive thinking between the researchers hampers interdisciplinary collaboration
- **Organisational structure**
 - The decentralised structure of Fraunhofer makes it very difficult to achieve change. Only substantial weighing in from high level leadership will move something.

4.2.3. Enablers

- **creating a larger acceptance and awareness** of ethical and societal implications by **supporting interdisciplinary research approaches** both within the organisation but also in general science policy
- **emphasizing the following beneficial aspect** of the integration of ethics into research:
 - higher quality of research and a higher societal acceptance of innovations
 - elimination of risk of image loss through ethically questionable research
 - widely shared normative values like sustainability are a great driver for innovation, taken into account the various emerging sustainable technologies
 - better working atmosphere (higher confidence) & better working relationship of the staff
 - ethic as sense making element with motivating effects
- a **strong engagement from the executive board** for ethical issues
 - leadership that lives up to its responsibilities and actively pushes for activities in line with the official values of Fraunhofer
- use **upcoming research areas** and the associated uncertainties and risks as a window of opportunity to bring a stronger ethical consideration into research work
 - research with/about new technologies could be combined with ongoing public debates (for example the topic 'Digitalization and the Future of the work')

- **providing sufficient financial & time resources** both within the organisation and also for research projects by the clients
 - establishing some kind of compensation payment (from politics or organisation) if ethical reasons lead to the rejection or cancellation of research projects
 - Acceptance and appreciation from politics & wider society for abandoning certain research projects or themes. This implies also the acceptance of the long-term consequences, e.g. that other countries such as China go ahead in certain research areas.
- **competence building within the organisation**
 - supporting the individual scientist in cases of ethical concerns
 - systematizing Fraunhofer's ethical approaches for research projects, e. g. through guides for different research topics
 - promote the staff's capability for cooperation & interdisciplinary approaches
- **Organisational culture**
 - supporting horizontal thinking in order to overcome departmentalized/silo thinking
 - supporting the value and attitude of cooperation between employees rather than competition and status thinking
 - support diversity to have a wider variety of values and ethical perspectives
 - promoting a higher level of transparent communication and thereby gaining a higher degree of confidence within the organisation
 - Build up the capability to deal with the higher conflict potential through introduction of ethics, raise acceptance of criticism of the organisation and among the staff
- **Organisational structure**
 - establishing a unit dedicated to ethics issues within the organisation
 - systematize the approach towards ethics for all Fraunhofer institutes, not just individual institutes
- use **the general trend** and rising demand of employees to express their personal value disposition and their demand to combine their value set with their research work / working life
- **no tick-box exercises**
- **discuss values already in staff recruitment**

4.2.4. Conclusions

From the set of barriers and enablers listed above, we can draw the following conclusions for deep institutionalisation of ethics at Fraunhofer:

- **emphasize the beneficial aspect of ethics also for other organisational goals.** This will reduce goal conflicts and allow for the creation of spaces with sufficient time and other resources.
- **purely formal ethics requirements (tick box exercises)** hinder the recognition of ethics as a valuable integrated element of research and should therefore be used with utmost caution
- in order to create a larger acceptance and awareness of 'ethics in research' support **interdisciplinary research approaches** with actions regarding both the organisational structure (e.g. reduce silo thinking) and organisational culture (emphasizing the value of cooperation rather than competition)
- enabling and competence building within the organisation should take the organisational structure into account, e. g. at Fraunhofer **the degree of decentralisation**

Compared to the aspects stated by the theory and international case study the results of our interviews for 'Ethics in Research' are mostly from level II and III. It is not surprising that most of the mentioned barriers and enablers from the interviews can be linked to level two (intraorganisational) and three (actor level), because these levels are the one an organisation can influence itself.

4.3 Gender in research content

4.3.1. Recap of vision and pilots

In the gender dimension, the JERRI long-term vision formulated a strong and broad ambition: "At Fraunhofer equal opportunities of all individuals independently from their sex are realised and self-evident. Everyone has equal opportunities. The gender bias is removed." Building on this vision a number of pilot activities were launched (c.f. Deliverable 2.2). For the long-term action-planning phase, the JERRI team decided to focus on one important aspect of this vision, which is the competence to integrate gender aspects into the research content. The main reasoning behind this focus was that the fostering of female participation in research and especially in leadership already receives high attention within Fraunhofer with a long-term roadmap and several measures well in place. Accordingly, even though there is still a long way to go in terms of realising the ambitious vision and embedding it into the organisational culture, the institutionalisation trajectory is under way. At the same time, the recognition of 'Gender in Research Content' which is the other key aspect of gender-sensitive research (European Commission 2009) is much less addressed and hardly established in the organisational routines. Accordingly, it seemed that the value added by the JERRI action planning

would be highest in this particular field. Consequently, our interviews focused on this topic. As a background information, it should be noted that there is indeed a history of Fraunhofer engaging with this subject. When the European Commission started to push for “Gender Mainstreaming” including recognition of gender aspects in research content throughout FP6 and also German ministries begun implementing similar requirements (Bundesministerium für Familie, Senioren, Frauen und Jugend 2005), Fraunhofer started to address the topic. From 2004 on, a two-year research project named „Discover Gender“ was launched with the aim to „generate knowledge and methods for the integration of gender aspects into applied research and technology development“ (Schraudner et al. 2006; Bühner, Schraudner 2006). This pioneering research project which had backing from the highest level of the organisation analysed in depth the advantages of including gender aspects in research content, elaborated a number of detailed examples of both failures due to lack of such a gender perspective and good practice examples in several fields and conducted a number of awareness raising workshops. The team also developed a guideline for identifying gender aspects that is until now widely cited and used in several contexts outside Fraunhofer. In spite of this pioneering early and major effort, interviewees in JERRI shared the assessment that a “systematic consideration of gender as a key analytical and explanatory variable” (European Commission 2009) is not at all embedded into Fraunhofer research culture. Also, awareness that failure to properly address relevant gender issues compromises research excellence was seen as rather low. One researcher related that the demand for a training in this area was so low that in spite of an excellent free training offer from the yellowwindows team several had to be cancelled. As the JERRI vision does not give much detail on the aspect of gender in research content, we started the interviews by asking interviewees how they would like to see gender in research content embedded in Fraunhofer in the long term. The following key aspirations emerged across all interviews:

- Competences for gender in research content are widespread in Fraunhofer
- Gender sensitive research is taken for granted as a mandatory part of excellent research and innovation
- Gender perspectives are fully integrated into all research processes. This has boosted validity and relevance of research at Fraunhofer.
- Gender sensitivity is deeply embedded into Fraunhofer’s culture

Interviewees pointed to the following enablers and barriers for realising this vision:

4.3.2. Barriers

- **Lack of relevance recognition**
 - The relevance of gender perspectives in research content is not recognised. This leads to a lack of motivation (we have other really important problems ...).
 - No money, no time no obvious benefit recognisable by the researcher.
- **(Lack of) Organisational routines and adequate processes**
 - Routines in the research process are highly ingrained therefore nobody moves
 - Often, even if gender experts are part of a project, they are not taken seriously and subsequently not truly integrated into the research process. Rather their activities run in parallel to the project.
- **General societal environment**
 - In contrary to many other aspects, the gender dimension concerns each person as an individual and in her/his role in life. Prejudices developed in a lifelong process. Therefore, many people strongly reject any reflection of gender related topics as a reflex. Men often feel offended at the pure mention of them.
 - The more progress advances, the stronger the resistance of the old system becomes (see rise of popular parties in Europe).
- **Lack of competences and support**
 - There is a lack of competence to implement gender sensitive perspectives
 - Many researchers assume that their topics do not have any gender aspects
 - There is a lack of knowledge about gender aspects, often opinions are based on completely false beliefs (e.g. “natural” differences between boys and girls)
- **Organisational structure**
 - The decentralised structure of Fraunhofer makes it very difficult to achieve change. Only substantial weighing in from high level leadership will move something.
 - The equal opportunity officers⁴ are not the suitable contact points for this. They have other tasks and other competences.

⁴ This function exists in most of the 73 Fraunhofer Institutes

- **Organisational culture**
 - Too little actual change of the organisational culture
- **Nature of the research**
 - Some of the fields we research in Fraunhofer are very far from actual applications (e.g. chip development). In these cases, it is difficult to identify gender aspects. Examples in these fields are often highly artificially constructed

4.3.3. Enablers

- **Pressure from the external environment**
 - Gender sensitivity needs to be systematically embedded into evaluation procedures. Formal criteria are not enough, evaluators need to be trained (FFG in Austria is a pioneer in this, see also working group gender mainstreaming at DeGeEval)
 - If researchers fail to get an important research contract because the lack of gender perspective is assessed as low quality, this could be a catalyst for change
 - Money and regulation - otherwise nothing moves. Especially money is important.
 - The EU requirements were a strong push factors and helped to gain visibility for the topic
- **Incentives for individuals and organisation as a whole**
 - A typical enabler at Fraunhofer is the establishment of gender sensitivity as a road to market success: Gender sensitive research means better innovation that better meets the diversity of user requirements. The fact that increasingly women are making buying decisions should be a powerful enabler.
 - The benefit for the researchers needs to be clearly visible
 - Pressure to mobilise female researchers may be a motivation to address also gender in content.
 - If gender is seen as an excellence topic this helps also the wider struggle for gender equality
 - The Austrian FemTech programme was unique in Europe and became a USP for Austria. If gender excellence becomes something pioneering to be proud of this will motivate others to follow.
 - Anticipatory action: Be the first organisation that seriously implements gender sensitive research

- **Smart communication & alignment with established powerful narratives**
 - It is important to communicate this as a matter of excellence for research and improvement of market potential in the case of product development
 - It may be useful to align this with the debate on user integration as this is widely accepted by now.
 - The view on gender sensitivity as quality aspect is now slowly progressing. This will be a strong enabler.
 - Successful and convincing examples should be widely communicated (e.g. voice recognition example). Also recent examples are needed (not always the same)
 - Gender sensitivity should be framed as a self-evident feature of identity of a modern organisation. This is especially powerful when voiced by a high-level actor (e.g. board member). A gender illiterate organisation should be brandished as simply backwards.
- **Provision of easily accessible and usable knowledge & competence building within the organisation**
 - Easy access to the knowledge required to implement gender perspectives into the research would enable uptake. It would need to be related to the specific discipline though. E.g. at the level of research clusters (Verbund) we could have biologists, engineers etc. with gender competence. Financing is important though.
 - We need easily accessible knowledge and information
 - A targeted training of multipliers (Train the Trainers)
 - Gender competence would need to be a mandatory part of basic research training already at the university but also at Fraunhofer e.g. integrated into code of conduct of good scientific practice.
 - Integration into leadership training
 - In order to achieve deep institutionalisation we need a change of identity. This would need to be reflected in all training programmes e.g. new staff training, leadership training.
 - A guideline would be a key enabler, as this would support researchers to discover on their own the gender aspects in their specific research. It is important though to have good accompanying processes. Possibly, there could be multipliers on the level of the cluster (Verbund) or even institute. These persons could be trained, so they could then advise the colleagues of their fields.

- **Intelligent integration into organisational structure and routines**
 - Integration into the guiding principles (Leitbild) and leadership guidelines and corporate identity would be strong enablers.
 - It would be good to integrate gender sensitivity with other crosscutting issues from Fraunhofer research such as ethical deliberations and diversity. It is important to align with the things that are already there.
 - Fraunhofer strives to become an agile organisation meaning dynamic exchange between bottom-up and top-down initiatives. We need to find out what that would mean for gender in content.
 - A question on gender in content could be integrated into the yearly report on equal opportunities done in all Fraunhofer institutes. This could initiate a thinking process.
 - A flagship project e.g. a MAVO or WISA⁵ could be very useful to highlight the benefit.
 - Gender sensitivity could be integrated as part of the ambitions to integrate ethics reflection into strategic research planning.⁶ If ethic is interpreted broadly, gender sensitivity is certainly an aspect of ethics.
- **Find the right change agents**
 - for gender in content the actors are different than for gender equality. This needs to be addressed as a part of research planning from the highest strategic level up to the set-up of each individual project. This means that actors from central level strategy (e.g. think tank) up to individual project leaders need to be mobilised.
 - The BfC could function as mediators (but not as core part of their task). E.g. at a BfC meeting trainings could be offered.
 - The BfC could be a possibility but it would be key to communicate this as matter of research and not gender equality.
 - CeRRI could play a role as enabler
- **Clear transparent rules and processes**
 - Experience shows that sexist behaviour only stops when the organisation clearly communicates that it does not tolerate any of it. Just mentioning that the behaviour is sexist is not enough. So also for gender in content, official, formal and transparent rules and sanctions are important.
 - transparency and clear processes (even box ticking exercises) e.g. for the internal strategic programming are required

⁵ These are formats of internal Fraunhofer strategic research projects

⁶ This is one of the JERRI activities within the ethics dimension c.f. Deliverable 2.2

- Systematic demand for use of gender sensitive language
- In research projects, it is important that the gender experts are involved in the definition phase of the project (finding from the evaluation of Austrian FemTec programme). Some of these gender experts were from the respective domain (e.g. architect) with and additional gender qualification. Others were full gender researchers.
- It is key to create spaces for reflection within research projects. These reflection processes need to be facilitated however.
- **High level support**
 - Too little commitment from high level will lead to shallow institutionalisation
 - This kind of change will most likely not come from bottom up
 - This is only possible with a strong commitment from the leadership.
- **Cooperation**
 - Cooperation with universities that already practice gender sensitive research can be a strong enabler

4.3.4. Conclusions

Findings from the interviews converge into a set of key aspects to be tackled to understand and drive a change process towards systematic integration of the gender perspective into research content at Fraunhofer:

- Smart communication & alignment with established powerful narratives to raise the awareness of the relevance for excellence
- Provision of easy accessible and usable knowledge & competence building within the organisation to enable the uptake of the knowledge
- Identify and create incentives for individuals and organisation as a whole
- Intelligent integration into existing organisational structure and routines
- Find and mobilise the right change agents
- Create clear transparent rules and processes (on organisation and project level)
- Mobilise high level support within the organisation
- Identify and mobilise pioneering cooperation partners
- Keep up pressure from the external environment especially from evaluation of contract research proposals
- Don't stop at shallow institutionalisation, target deep lasting change of organisational culture and identity
- Be aware of the inhibiting influence of the societal environment and adapt strategies accordingly to avoid gender rejection reflex.

4.4 Societal Engagement⁷

4.4.1. Recap of vision and pilots

The Fraunhofer vision on societal engagement describes that Fraunhofer covers all levels of participation from participatory agenda setting via participatory research to active participation in societal debates (D2.2). In particular, it envisaged that Fraunhofer bears responsibility by pursuing a participatively developed roadmap for addressing the Sustainable Development Goals. As a foundation for this, the vision states that a culture of participation is deeply institutionalised at Fraunhofer and resources and leeway for participation activities are provided to the staff.

Interviewees pointed to the following enablers and barriers for realising this vision:

4.4.2. Barriers

- **Low priority of societal engagement in the hierarchy of goals**
 - The higher the institutional focus is on industrial projects, the lower is the openness for societal engagement.
 - Projects are rated for the financial resources they bring, but not for the social impact they might have.
 - Little interest in societal engagement from large companies who are important clients.
- **Lack of resources and tools**
 - Clients demand citizen engagement into research projects but are not willing to give financial resources for it.
 - Those researchers who are engaged for forms of societal engagement often do this on a voluntary basis.
 - Due to the time consuming task to acquire new projects researchers do not have the necessary resources (time and financial). Consequently, the motivation to deal with societal engagement is low, even when they are interested in this topic.
 - Concrete tools to implement Societal Engagement formats are missing.
- **Lack of serious recognition of value of societal engagement**
 - Even though societal engagement is more and more part of public tenders, it is not really taken seriously, neither by the clients nor by the researchers themselves. There is often no sincere dealing with concepts of open or citizen science.

⁷ As explained in previous deliverables Fraunhofer integrated the science education dimension into the activities for societal engagement

- Often there exists no institutional strategy, procedures or resources to support forms of societal engagement.
- Researchers' attitudes often inhibits societal engagement. Many researchers do not recognize citizen scientists or laypeople's knowledge as relevant even though case examples show that it has a positive impact on results, e.g. citizen participation in the discussion about nuclear energy in Germany. Therefore, science culture needs a change in its self-image, language and habitus.
- Lack of recognition of societal aspect of innovation within established innovation theory. The fact that innovations emerge in response to societal needs and are shaped by user input is too little recognized.
- **Challenges in the nature of societal engagement**
 - The implementation of forms of societal engagement will slow down the research process.
 - Sometimes it is difficult to find interested citizens for research projects. It is not easy to decide which topics are better for Societal Engagement and participation than others.
 - Need to consider occupational safety when working with citizens e.g. in the lab

4.4.3. Enablers

- **Capacity building**
 - more support from the Fraunhofer central level, like check-lists based on past experiences, information events, training for researchers or PR staff, more exchange between the institutes, societal engagement as topic at PR events.
 - Financial and human resources for each institute, clear contact persons at each institute and development of new and creative formats for Societal Engagement
 - Promote co-creation and open innovation processes, creating open and free spaces for citizen scientists and bottom-up approaches
 - More open science formats that guarantee a permanent visibility, like Talent Schools, Science Slams, Girls Days etc.
 - More integration of humanities and social sciences to, on the one hand, make technological developments more capable for science communication and, on the other hand, for societal discourses like technology or risk assessment.

- **Citizen involvement into research and strategy processes**
 - Citizens should be involved directly and seriously into research projects especially into the ones that deal with general societal questions with an immense impact on people's lives, like Industry 4.0 or Digitalisation.
 - Involve citizens into strategic processes at Fraunhofer and not just representatives from industry.
 - Citizens should become representatives in advisory boards of larger research projects that have a high societal impact.
- **Society oriented communication strategy**
 - Early involvement of PR staff into research projects to develop potential Societal Engagement concepts or events in advance.
 - Communication strategy for broad impact themes that are of interest for media and citizens
 - Fraunhofer scientists should give more statements to media and press for themes that are highly discussed in society because they are more likely to get attention than classical research outcomes.
- **Re-orienting the business model**
 - Increase the evaluation of the social impact of research and prioritize high quality over high quantity of research.
 - Adapt Fraunhofer business model and research practices to bottom-up approaches of research, including integration of citizen scientists
 - more openness for trial-and-error approaches to create more learning experiences.
 - Update of the Fraunhofer self-conception, more research related to societal needs, considering of civil society aspects for funds allocation.
 - Ease non-disclosure constraints
 - Exploit the fact that small- and medium-sized enterprises show increasing interest for societal engagement, often to test their innovations for their everyday suitability.
- **Supportive Framework for Societal Engagement (external)**
 - Science funding policies have to become more flexible. Especially in the case of contract arrangements and in the use of funds, e.g. to pay citizen scientists fees or travel costs. This could increase the incentive or empower citizens to participate.
 - Science in general has to become more open and should offer citizen scientists public access to participate in research projects.
 - Support Open Access to spread research findings into society. Results from publicly funded research projects should be generally freely available for all citizens.

- Demanding more financial resources and allocation possibilities by public clients who often request Societal Engagement but do not provide appropriate resources.

4.4.4. Conclusions

From the barriers and enablers that were discussed in the interviews some key aspects stand out:

In order to truly advance societal engagement, Fraunhofer needs to re-orient its business model to better include social impact. This entails assessing the societal impact of projects in addition to the economic one. This reorientation will help to advance the position of societal engagement within the hierarchy of organizational goals. Subsequently researchers may well start to better recognize the value societal engagement adds to research. In addition, it will help to argue for the provision of resources both financial and time wise that are required to implement societal engagement in high quality. At the same time, capacity for societal engagement needs to be developed by providing supporting processes, tools and building up competences.

These changes in the organization need to be complemented by supporting changes in the institutional environment especially recognition of the value of societal engagement and the resources required to do it well by clients and policy makers.

As a meta conclusion the need to raise awareness about the different aspects and types of societal engagement and to develop of a shared understanding of societal engagement within Fraunhofer stands out as the notions varied widely between interviewees.

4.5 Open Access

4.5.1. Recap of vision and goals

The Fraunhofer JERRI long-term vision on Open Access adopts a wide understanding of Open Access that emphasizes both a supporting technical infrastructure and efforts in the culture of science. As an ambition for 2030 it states: "Fraunhofer has undergone a fully-fledged cultural transformation towards Open Access and now lives up to its social responsibility." (D2.2, p. 34). To realize this vision, two major areas of change were singled out: Culture and resources. It was then specified that the cultural transformation towards Open Access should be sensitive to the different disciplines and their actual state of development towards Open Access. The development of open access business cases was seen as crucial to align Open Access with the financial pressure of

Fraunhofer. Regarding resources, three aspects were specified: (1) staff resources (2) financial resources and (3) technological hardware to meet the requirements of new publication practice. To meet these long-term goals we had decided to carry out four Open Access activities:

- Setting up and testing the open data infrastructure FORDATIS
- Development of an open access business model and IP clarification support
- Development and test of "open paragraphs" in research contracts
- Development and communication of a marketing-strategy for Open Access at Fraunhofer

These aspirations formed the background for our interviews. It is interesting to note that for the Open Access dimension we encountered difficulties to find suitable interview partners as several researchers did not feel confident to discuss the subject as they saw themselves as too little knowledgeable.

Interviewees pointed to the following enablers and barriers for realising this vision:

4.5.2. Barriers

There was a high level of agreement among interviewees on the barriers for Open Access. These are related to the general publication culture in science, the Fraunhofer business model and the lack of a framework for Open Access.

- **Publication culture in science**
 - A general barrier for the success of Open Access is the dominant culture within the scientific community. A successful career in science is based on a high number of publications and, especially publications in scientific journals with a high impact factor. The 'publish or perish' culture forces (especially) early-stage researchers to get their papers into top-ranked journals with a high impact factor. For them, pure Open Access journals are not an appealing option, because they usually do not have a comparably high impact factor.
 - Due to this, a change towards a new understanding of publications within the scientific communities of different research fields is needed. Nevertheless, for young researches it is unattractive to decide for Open Access as long as this decision would be a first-mover disadvantage.
- **Publishing landscape**
 - The structure of the current publishing industry is too oligopolistic to support a change of the publication culture. A handful of important publishers control the journal or scientific publication market. Even though

some of the publishers offer the possibilities to publish Open Access via the Gold or Green Route, the problem of “double dipping”⁸ occurs and harms the further development of Open Access.

- Framework conditions for a general Open Access approach are seen as still very poor. Almost all publishers have different standards for Open Access, which makes the publishing process much more time-consuming. Overall, many participants mention a very complex system that is hard to see through and demand consistent standards from the publishers for Open Access publications.
- **Fraunhofer business model & general structures**
 - The high amount of industry-financed projects and the contractually guaranteed secrecy hinders the spreading of open knowledge and Open Access. It is unclear how these aspects can be combined.
 - It is very complicated to get Open Access into contractual arrangements.
 - Researchers at Fraunhofer have to spend a lot of time for the acquisition of new projects compared to researchers of other RTOs. Regarding to several interviewees this time consuming procedure lowers the incentive to deal with or invest time for new concepts like Open Access.
 - The participants mentioned several contradictions between the ambitious Open Access Strategy of Fraunhofer and other goals and actions:
 - Fraunhofer almost exclusively presents and awards high-ranked journal articles
 - Fraunhofer research indicators ignore Open Access publications. More specifically, Open Access publications do not have the same status like high-ranked publications. This lowers the incentive for researchers to publish in Open Access journals.
- **Insufficient supporting framework**
 - Almost all interviewees miss concrete concepts of implementation when it comes to Open Access publications. The Fraunhofer Open-Access-Strategy is well known but most interviewees complain about missing tools to implement Open Access more effectively. As it is today, Open Access realization depends on the engagement of individual leaders at each institute to convince and support scientists in publishing open access.
 - The usability of Fraunhofer e-Prints (Open Access Library) is outdated, so the whole platform needs to be reworked.

⁸ Double-dipping refers to charging both authors and subscribers for Gold OA content

- **Insufficient Communication Processes**

- Library staff report that many researchers do not know much about Open Access publication possibilities or already existing formats at Fraunhofer. The Fraunhofer e-Prints (Open Access Library) is continuously ignored by employees, therefore it should be communicated more effectively inside Fraunhofer.
- In many cases, publication experts and group leaders at the institutes are not at all or too late involved into the publication process, so that Open Access is not seen as an option or possibility by researchers already in the very beginning.

4.5.3. Enablers

- **Institute culture and support**

- Open Access is (or can be) successful when the concept and process gets support by the institute leadership, so that it can be integrated into the institute culture and daily practices.
- Interviewees encourage other institutes to implement Open Access by a trial-and-error approach, because most problems and possibilities only occur on the operational level

- **Publication strategies for Institutes**

- At some Fraunhofer Institutes where Open Access plays or should play an important role in the future it is discussed to adopt a general publication strategy. Even though these strategies concentrate on all forms of publications, they all contain the goal to set-up a more specific support for Open Access.
- These strategies also include a social media strategy to promote especially Open Access publications. Due to their free availability, Open Access publications are ideal for spreading them via social media systems for researchers (like Research Gate or academia) or business networks (like LinkedIn or Xing). They can also promoted through general social networks like Facebook or Twitter.
- An important aspect of this strategy is the idea to simplify decision-making structures for publications. It can take a long time to get all permissions from researchers and project partners to publish in Open Access. This also includes to establish working procedures that define a publication roadmap for each project, so that all decision-makers are involved from the beginning onwards.

- **Extension and realignment of some aspects of the Fraunhofer business model**
 - Fraunhofer guidelines should be adjusted to ease calculation and inclusion of financial resources for Open Access publications in projects.
 - Ideally, Open Access publications would be defined and determined within Fraunhofer contracts.
- **Adaptation of Open Access support measures**
 - The guidelines for the Fraunhofer Publication Fond should become more flexible to finance Open Access publications more effectively.
 - Open Access funding by Fraunhofer should fit the needs of the individual institutes to support Open Access publications and procedures.
- **Open Access Communication Strategy**
 - A progressive communication concept that combines Open Access with other concepts like Citizen Science or Societal Engagement to position Fraunhofer as a pioneer for Open Knowledge/Open Science could unfold a disruptive potential to change scientific culture.
- **Open Access incentives**
 - Especially new research topics work well for Open Access. Library managers see it as an important advantage that Open Access articles often have higher amounts of citations.
 - Funding policy by public clients should be re-designed and include guidelines that support a more public-orientated open science.
 - Fraunhofer Gesellschaft can set up incentives to make Open Access more appealing to (young) researchers by: (I) a direct support and consultation department for open access/open science questions, especially for questions of contract designs for open access and by (II) financial incentives for Open Access published articles like prizes, Awards or special Open Access rankings.

4.5.4. Conclusions

At Fraunhofer, right now, Open Access is well established on a central strategic level but has not yet found its way into the operative level at the Fraunhofer Institutes. The interview results show that many reservations towards Open Access result from misconceptions and lack of proper understanding of the concept and the available support. The greatest challenge is to deeply institutionalise Open Access attitudes into the culture of the organisation. It becomes clear however that this cannot be achieved

by the organisation entirely on its own. Rather it needs to be driven also from the organisational environment, most importantly scientific culture and publishing landscape. A particular challenge typical for RTOs is the need for Open Access models that can be applied also in contract research for industry.

5 Conclusion: Enablers and barriers of deeply institutionalizing RRI at Fraunhofer

In order to gain a bigger picture of our JERRI efforts, this section emphasize a holistic perspective on the ongoing change process towards RRI. As already outlined in D10.2 one challenge within JERRI is to find the right balance between a holistic versus specific perspective on RRI (D10.2). On the one hand, each aspect/RRI-dimension requires specific actions, on the other they all interact and depend on the basic commitment of the organisation towards RRI. Therefore, this section asks in a first step for the specific challenges, which prevent or enable such interaction and synergy effects between various RRI-dimensions in order to fully realize organizational change. In other words, we ask what are important factors to gain synergy effects and to achieve an “overflowing effect” (D1.2) for the whole organization.

We identified the following common patterns/challengers across all RRI dimensions:

(I) interorganisational & environmental level

- to establish a professional moral code for research that enables future researchers and engineers to drive responsibility within the organisation. This includes appreciating different science disciplines and also interdisciplinary approaches in research. For example, ethical or gender competence would need to be a mandatory part of basic research training already at the university.
- Organisations need to deal with conflicting goals and expectations posed by its environment such as e.g. the expectation to deliver results in short time on the one hand and implementing responsible practices on the other. This includes also contradictory policies e.g. excellence vs. relevance oriented incentives.
- Need for provision of sufficient resources (time and money) for responsible research.
- Policies on national or European level may exercise substantial pressure on organisations to implement responsible practices e.g. through regulation or integrating RRI aspects into funding rules.
- Cooperation with other scientific organizations like universities or RTOs that have a longer experience with RRI-practices can be an important enabler.

On the **(II) intraorganisational** level these factors are crucial for a deep institutionalisation of RRI:

- organisational structure: integrating RRI into the research processes requires adaptations of the organisational structure such as reduction of silo thinking, stronger collaboration between units to support horizontal thinking and developing more interdisciplinary working groups.
- institutional logics: the ability to deal with and combine different logics and conflicting goals, which means to adapt these new responsible goals to the older goals without 'responsible washing'. A good example would be topic of sustainability, which as a normative goal is so far a great innovation and research driver.
- competence building within the organisation connected with the question what the right Fraunhofer organizational levels would be for that competence building
- consideration of the specific decentralised structure of the Fraunhofer Gesellschaft.

On the **(III) actor level** we identified the following aspects:

- Enabling of the individual scientist
- Mobilising change agents i.e. actors with the potential to move the organisation
- Commitment of leadership
- Creation of incentives for RRI
- to use effectively the efforts of individual actors it is important to match the task of these actors/change agents with the different organizational levels (institute, Fraunhofer groups, Fraunhofer headquarters) where they are positioned. Here also the specific decentralised structure of FhG needs to be considered.

It is interesting to note that most of the barriers and enablers are positioned on level II (intra-organisational logics) and subsequently level III (actor-level). Level I is currently not so crucial, because it seems to be out of reach for direct intervention by Fraunhofer staff. E.g. the changing of the professions towards a greater inter- and transdisciplinary cannot be realized by Fraunhofer.

REFERENCES

Bührer, S.; Schraudner, M. (Eds.) (2006): Gender-Aspekte in der Forschung. Wie können Gender-Aspekte in Forschungsvorhaben erkannt und bewertet werden? Stuttgart: Fraunhofer IRB-Verlag.

Bundesministerium für Familie, Senioren, Frauen und Jugend (Ed.) (2005): Gender Mainstreaming in Forschungsvorhaben. Available for download at <https://www.bmfsfj.de/blob/80448/292e691a5db4b14dc3d29e8636e9c89d/gm-arbeitshilfe-forschungsvorhaben-data.pdf> (Last accessed May 2018)

D1.1: Teufel, Benjamin, Lindner, Ralf; Gransche, Bruno; Goos, Kerstin; Nauta, Joram; Steen, Marc; Emmert, Sophie; Joignant, Anne (2016): Synthesis on existing good RRI practices. JERRI Deliverable 1.1. Available for download at: http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-1/JERRI_Deliverable_D1_1_Synthesis_on_existing_RRI_practices.pdf

D1.2: Randles, Sally (2017): Deepening 'Deep Institutionalisation' Elaborating a Concept and Developing a Typology to Analyse and Contrast the Institutionalisation of De-facto responsible research and innovation (rri); and H2020 RRI in Research and Technology Organisations (RTOs). JERRI Deliverable 1.2. Available for download at: http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-1/JERRI_Deliverable_D1_2_Deepening-Deep-Institutionalisation.pdf

D2.1: Warnke, Philine; Teufel, Benjamin; Röß, Andreas (2017): Fraunhofer Concept on Organisational Goal Development. JERRI Deliverable 2.1. Available for Download on http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-2/JERRI_Deliverable_D2_1_Fraunhofer-concept-on-organisational-RRI-goal-development.pdf

D2.2: Teufel, Benjamin, Röß, Andreas (2017) Description of specified RRI goals at Fraunhofer, JERRI Deliverable 2.2. Available online at: http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-2/JERRI_Deliverable_D2_2_Description-of-specified-RRI-goals-at-Fraunhofer.pdf

D9.1: Daimer, Stephanie; Fan, Chen; Teufel, Benjamin (2017); Global RRI Goals and Practices. Synthesis report on the first round of case studies in the international mutual learning process. JERRI Deliverable 9.1. Available for Download on: http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-9/JERRI_Deliverable_D9_1_Case-Study-Part-1-RRI-Goals-and-Practices.pdf

D10.2: Warnke, Philine; Röß, Andreas; Teufel, Benjamin; Nauta, Joram; Steen, Marc (2017): Lessons Learned for Goal Development JERRI Deliverable 10.2. Available for

download at: http://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-10/JERRI_Deliverable_D10_2_Lessons_learned_for_goal_development.pdf

European Commission (2009): Gender in EU-funded research. Toolkit. Brussels: European Commission.

https://www.ki.si/fileadmin/user_upload/KINA24840ENC_002.pdf (Last accessed May 2018)

Schraudner, M.; Lukoschat, H.; Bessing, N. (2006): Gender als Innovationspotenzial in Forschung und Entwicklung. Stuttgart: Fraunhofer IRB Verlag (DiscoverGender).

ABBREVIATIONS

BfC	Beauftragte für Chancengleichheit (Equal Opportunity Officer). This position exists at most of the 73 Fraunhofer Institutes
CeRRI	Fraunhofer Center for Responsible Research and Innovation (Part of Fraunhofer IAO, JERRI project partner)
FemTech	FEMtech is a programme of the Austrian Federal Ministry for Transport, Innovation and Technology (BMVIT) that supports women in research and technology and promotes equal opportunities in industrial and non-university-research, at universities of applied sciences and in focus areas of research and technology.
Fraunhofer	Fraunhofer-Gesellschaft
JERRI	Acronym for the project Joining Efforts for Responsible Research and Innovation
NGO	Non-governmental organization
OA	Open Access
R&I	Research and Innovation
RRI	Responsible Research and Innovation
rri	De-facto responsible research and innovation
RTO	Research and Technology Organization
TNO	Netherlands Organization for Applied Scientific Research
MAVO	Marktorientierte strategische Vorlaufforschung (market oriented strategic research): Internal research funding programme at Fraunhofer
WISO	Wirtschaftsorientierte strategische Allianzen (industry oriented strategic alliances): Internal research funding programme at Fraunhofer

ANNEX I: INTERVIEW GUIDELINE

I Looking forward (Visioning)

Purpose: Opening up for interviewees own perception of rri

Imagine a FhG in 10 years' time where xxx (e.g. gender sensitive research) has been incorporated into the DNA of the organisation...

How would the change be noticeable?

How do you assess the situation with respect to gender sensitive research in Fraunhofer?

A Enablers for organisational change

A1: Possible Enablers

Consider the "vision" How could such a change have come about?

What could have been triggering factors?

What may have happened to make the change lasting?

Can you give examples for change processes towards gender sensitive research from the past?

What were the triggering factors in these cases?

What helped to achieve a lasting transformation?

B Barriers for organisational change processes

re-consider the change scenarios from above

What could hinder the take-off of the change processes?

What could have stopped or reversed the process midway through?

Can you give specific examples of impediments in past change processes?

What did not go so well in past change processes?

D Final question (if feasible)

Is there any recommendation you would have for policies that would support the change process? In general/In your dimension?

Background notions to be brought up in the discussion if applicable:

- Which structures/institutional logics have to be de-institutionalized to enable RRI in TNO/FhG?
- What is your recommendation how to deal with multiple logics of responsibility and contradictory institutional logics?
- Are there any research areas where you see especially promising inroads for RRI e.g. due to a looming legitimacy crisis?
- Do you see the danger of "shallow institutionalization" i.e. decoupling of RRI from the operational level? Any suggestions for counteracting this dynamics?
- Do you have any suggestions how policies could enable this deep institutionalisation of RRI practice?
- To what extent are specific societal values internalized; embedded into practices and processes within TNO/FhG
E.g., a societal value like 'democracy'; citizens should have a say in the development of technologies that impact society (for Societal Engagement).
- To what extent is the transformation made towards specific normative goals, in practices and processes of TNO/FhG?
E.g., a normative goal (for Gender Equality / Diversity) like 'so many % of employees should be female', and how far are we in transforming TNO/FhG to achieve that goal.
- Are there multiple governance tools, devices, techniques and forms of agency? And are these aligned, integrated, interconnected?
E.g., a goal or activity or policy that has only one tool, and only on an ad-hoc basis is not very deeply institutionalized
- Is there leadership / support (for RRI, or for this RRI dimension)? E.g., a vision, a framing of RRI as 'in the core of our culture', or 'business as usual'?
What type of leadership or support would work (better)? E.g., top-down or bottom-up?
Support from above? Support from experts?
- To what extent is their clarity about roles, tasks, responsibilities, processes, regarding RRI / this dimension?

Or in terms of 'processes in place' or 'structures in place', e.g., Who is currently running for this?