

Evaluation Framework for Promoting Gender Equality in Research and Innovation

Evaluating Gender Equality in Research and Innovation – Theories, Methods, and Results from the EFFORTI project

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Content



- Our background: who we are and what the project is about
- Our ambition: what did we want to achieve?
- Our approach: how did we proceed to reach our aims?
- Our achievements
- Our future

















Background















Basic Information



- Project: EFFORTI Evaluation Framework for Promoting Gender Equality in Research and Innovation
- Programme: H2020 Science with and for Society (SWAFS)
- Type of Action: Research and Innovation Activity RIA
- Duration: June 2016 May 2019
- Budget: approx. 2 Mio. EUR

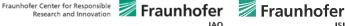














The EFFORTI Project Team



















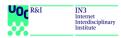
The EFFORTI Project Team





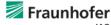














Stakeholder invovlement





Policy designers, officers and evaluators from the realms of research funding, ministries and research performing organizations

- Dr. Elizabeth Pollitzer, Director Portia Ltd.
- Dr. Klaus Schröder, design-people Strategic Innovation Director, partner/CEO
- Prof. Barbara Poggio, University of Trento, Vice-Rector **Equality and Diversity Policies**
- Prof. Gabriele Jacobs, Rotterdam School of Management, Erasmus University (RSM).

Contributing to a transnational expert community

















Ambition















Motivation



- Motivation
- Gender equality (GE) is one of the top priorities since decades
- The scientific knowledge of the underrepresentation of women within research and innovation (R&I) systems and the most important hindrances are comprehensive
- A plenty of measures and toolkits exist that aim at the promotion of GE
- Progress is made at a rather low pace
- More evidence is needed that gender equality leads to improved R&I outcomes and processes, e.g. improved societal relevance of R&I, better contribution of R&I to societal challenges, innovations better suited to markets (H2020 Interim Evaluation on GE)
- EFFORTI aims to deliver such evidence by developing an evaluation framework which establishes the link between Responsible R&I and Gender Equality















Our Objectives



Generation of knowledge on

- the link between GE interventions, GE outputs and R&I outcomes and impacts
- with a special emphasis on innovative indicators like RRI

Tools & Products

- Conceptual **Evaluation Model** (EFFORTI 1.0)
- Evaluation Toolbox (EFFORTI 2.0)

Policy Recommendations

- for the design and GE interventions
- for evaluations and



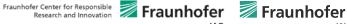














Approach









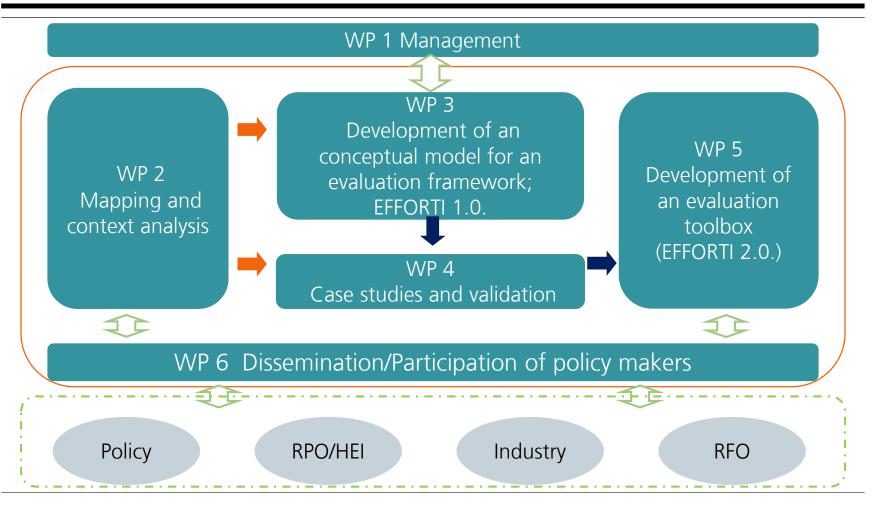






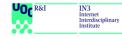
Work Packages



















The EFFORTI Core Model



THREE MAIN GENDER **R&I OUTPUTS & TYPES OF INITIATIVES OBJECTIVES & TO PROMOTE GE RESULTS RESULTS** At individual / team Measures on More women in Organisational context performance level: individual level R&D Research quality Research productivity Innovation Structural / RRI institutional Women in leadership positions measures At institutional level: Structure Measures Quality concerning research Efficiency Competitiveness funding Integration of a gender dimension At system level: in research content Legislative measures Productivity and curricula Furthering ERA progress

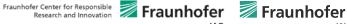














Performance Effects of GE



ECONOMIC BENEFITS SCIENTIFIC BENEFITS ↑ Creativity & innovativeness ↑ Thematic diversity • ↑ Strategic decision-Making ↑ Share of citations ↑ Financial performance ↑ Interdisciplinarity • ↑ Job satisfaction • ↑ Scientific excellence **BENEFITS OF** ↑ Employer attractiveness • ↑ New Research Topcis **GENDER & RRI** ↑ Networking & market access **SOCIETAL BENEFITS** • ◆ Gender-based discrimination ◆ Environmental consciousness • ↑ RRI / SWAFS ↑ Sustainability initiatives • ↑ Empowerment & confidence • ↑ Eco-innovations ↑ Corporate Social Resonsibility

















Evaluation Key Terms



Evaluations can ...

- take place ex ante, **interim**, **ex post** or as an accompanying exercise
- address different levels and "objects" (single researchers / teams, projects, **programmes/ interventions,** institutions or whole R&I systems)
- serve different purposes: legitimisation for the allocation of public money, targeting and controlling of funding, improvement of the management and "fine tuning" of programmes, but also learning.
- investigate different types of effects, i.e. **outputs** as (measurable) results of the intervention, outcomes as broader effects on the beneficiaries but also midand long-term effects / sustainable changes (typcially called impacts).
- look at **indirect** as well as **intended** and **unintended effects**















The Evaluation Approach



Inductive:

examples (e.g.



Deductive:

Theory Based Evaluation TBE / Contribution Analysis CBA



EFFORTI Toolbox















Central Aspects of TBE



Two main components

Conceptional component

Design of a programme or intervention theory / theory of **change**: implicit or explicit assumptions how and why an intervention should work (impact pathways and mechanism)

Empirical investigation

of the programme / intervention theory

- TBE applies a variety of qualitative & quantitative methods
- Useful approaches for TBE: Contribution Analysis (CA), Casual Process Tracing (CPT)

Investigate "contributions" instead of attributions















Intervention Logic Example



OBJECTIVES

INPUTS

ROMOTE GE IMPLEMENTATION ACT

OUTPUTS, RESULTS & IMPACTS

GE (Gender Equality) EFFECTS

R&I (Research and Innovation) EFFECTS

Main objectives:

- to strengthen Germany's position as a science location in the long term and
- to further improve its international competitiveness

Sub goals (phase III):

- Dynamic development of the science system
- Networking in the scientific system
- Deepening international and European cooperation
- Strengthening the exchange of science with industry and society
- Attracting the best minds for German science
 Ensuring structures and processes that are suitable for opportunities and family-

friendliness

- offering financial planning certainty
- increase the annual financial allocations by 3 % per year (phase 1 and 3) respectively 5% (phase 2)
- improved framework conditions: autonomy and flexibility in budgeting and human resources, as well as in construction, awarding of contracts and right of participation
- Establishment of a continuous monitoring

EFFICIENCY

THROUGHPUTS

- Concrete interventions depend on the single RPOs, but as common element:
- Target quotas to achieve defined proportions of women in accordance with the cascade model
- Further activities are:
 Mentoring & career
 bulding programmes
- Flexible working-time models / home office
- Care facilities / familiy services
- Dual career offers
- Unconscious bias
- Strategic orientation of the GE activities

Outputs

- Increased number of women in teams and at top positions
- improved gender balance of boards or committees
- Implementation of new or adoption of existing GE instruments

Outcomes

- improved job satisfactiontransparent promotion
- transparent promotion systems
- improved confidence in own ability
- improved organisational committment to GE increased budget allocated for GE activiities
- perceived personal gains experienced as a result of

Outputs

- better quality of research outputs (no. of citations)
- increased interdisciplinarity of publications

Outcomes

- New research topics / societal relevance of research topics / adressing SDGs
- increased number of projects with gender in research content
- improved links to societal actors (but less links to industrial actors)

Impacts

 Better alignment to society (science education, public engagement, science communication, userorientation, ethics)

POLICY CONTEXT

- Increasing budgets over the past decade, even during the financial crisis
- Shared responsibility for R&I between the State and the 16 "Länder"
- Joint Science Conference (GWK) responsible for ambitious programms like Excellence Initiative, Female Professors, Programme, HEI Pact
- Improved childcare systems, but still high parttime rates for women
- Precarious working conditions for women in science (temporary contracts etc.)

ORGANISATIONAL CONTEXT

- Intensive monitoring activities but lack of sanctions
- Committment to GE goals, but no legally binding measures
- Different missions and disiplinary background of the four German RPOs (MPG, Leibniz, HGF, Fraunhofer)

EFFECTIVENESS

corporate cultures

TEAM CONTEXT

 Headquarters of the RPOs with only limited influence on the recruitment and retaining activities of the single institues

Theory of Change Example



(stigmatization) of

female researchers

new ideas, procedures

thus more innovative and

and experiments, and

creative.

TESTED ASSUMPTIONS: EMPIRICAL PROGRAMME Facilitating factors in **Target Group: EVIDENCE + CONTEXTS** policy context: **German RPOs** Further initatives to **Assumption 1**: Female scientists show a different promote GE in the science publication behaviour than male researchers system (DFG standards **Empirical Assessment**: Interviews Conclusion: • Strong financial incentives Continuous monitoring **Assumption 2**: Female scientists show different network INPUTS patterns than male scientists (as regards scientific actors, Hindering factors in policy industrial actors, societal actors) context: **Empirical Assessment:** Lack of sanctions Conclusion: • High level of autonomy of the German RPOs **Key Players: Assumption 3:** Female scientists are engaged in different research topics than male scientists (relevant, innovativ, directed towards problem solutions) THROUGHPUTS **Empirical Assessment:** Conclusion: Facilitating factors in organisational context: in accordance with the cascade model Committment of top-**Assumption 4**: Female scientists are more inclined to level decision-makers. consider RRI aspects in their research (public engagement, corporate culture **OUTPUT, RESULTS AND IMPACTS** science education, ethics, science communication) **Empirical Assessment:** Conclusion: GE EFFECTS RTDI EFFECTS Hindering factors in (Observed) (Observed) organisational context: Outputs Corporate culture, strong Outputs role of the single Facilitating factor in Hindering factor in team institutes team context: context: • Outcomes Diverse research teams • Risk facing backlash in from diverse origins are the research in general more open to

Impact Stories



Reduce complexity

Connect the conceptual evaluation framework with the case study work

Build the basis for the **EFFORTI** online toolbox















Impact Stories



Measure: Revision of internal policies | regarding promotions

Output: More transparency in promotion processes

Outcome: Higher performancerelated justice in promotions

Impact: Stronger focus of the organisation on performance of its researchers

requires to:

- analyse effects of the current promotion rules and practices
- reformulate the promotion rules
- make the rules known among its recipients
- take care that the rules are correctly and sustainably applied.

Immediate technical results:

 Transparent and flexible promotion/ten ure criteria

Indicators:

- · comparison to best practice guidelines on transparent promotion policies
- employee survey on perceived transparency of promotions

Direct effects:

- Improved compatibility of family and career
- · Positive individual job rating
- · Overall work climate
- · Strengthened confidence for promotion and responsible positions
- Organisational/cultural change with regard to GE
- · Higher performance incentives

Indicators:

- · employee survey on perceived equality of opportunity
- employee survey on the perceived competition among team members
- · employee survey on career satisfaction

Intended middle- or long-term effects:

- Increased number of women in academic and other RTDI positions
- Reduced gender segregation
- Higher research performance

Indicators:

- · increase of the proportion of women in leadership positions
- · increase in the number of publications per head
- · increase in funding raised per head
- decrease of gender wage

















Achievements















WP2 Context Analysis



- **Objectives**: Understanding the influence of the context
 - Research and Innovation system
 - Gender equality in the labor market & welfare policies
 - Governance of gender equality in R&I / situation of women in R&I
 - Evaluation culture and policy
- **Tangible** Outcomes:
 - Seven "National Country Notes" (AT, DE, DK, ES, FR, HU, SE)
 - Comparative Background Report
 - Presentation synthesizing main findings
- **Knowledge** Outcomes: Identification of
 - The influence of the general labour market situation on R&I by comparing gender equality in the labour market and in R&I
 - Main strengths and weaknesses of the innovation system and their impact on GE in R&I
 - Main issues of evaluation culture and policy in R&I and the role of the gender dimension in it















WP3 Evaluation Framework



Objectives:

- Development of a tentative conceptual evaluation framework on how GE measures can affect output and other outcomes
- Draft proposal of the evaluation framework that was tested and refined during the case study work (EFFORTI 1.0.)
- **Tangible** Outcomes: Comprehensive conceptual framework including
 - A detailed description of the EFFORTI categories, dimensions and subdimensions
 - More than 700 indicators with extended descriptions of key indicators per category
 - Smart practice examples and impacts stories
- **Knowledge** Outcomes: Scientific knowledge on theories of change how
 - Contextual and cultural issues influence evaluation at **national/system** level
 - Contextual and cultural issues influence evaluation at organisational level
 - Contextual and cultural issues influence evaluation at **team** level
 - Gender equality shapes **research and innovation** processes and outcomes











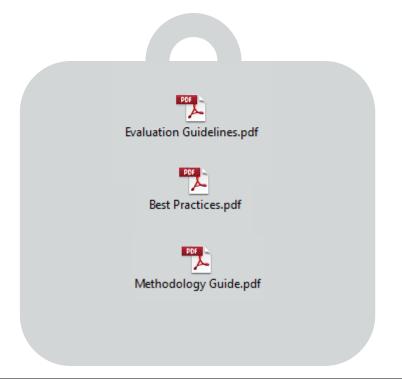


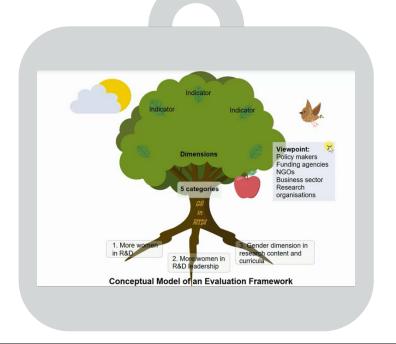


Key Components of the Toolbox



- 1. Static toolbox (guidelines, smart practices, methodology guide) with tools that have to be adapted to an evaluation case
- 2. Dynamic toolbox (Efforti Tree) with theorybased impact models showing which measures/interventions contribute to which effects and how those effects are indicated



















WP4 Case Studies



Objectives:

- Validation of the EFFORTI evaluation framework EFFORTI 1.0
- Conduction of impact assessments for the selected case studies
- Developping and testing theories of change
- Identifying smart practices of promoting gender equality in R&I systems

Tangible Outcomes:

- Synthesis report comparing results of all case studies
- Collection of good practices and lessons learnt

Knowledge Outcomes:

- Strengths and weaknesses in terms of the design of the intervention
- Strengths and weaknesses in terms of the implementation of an intervention
- Facilitating and hindering factors for impacts
- The difficult and problematic nature of ascribing outcomes and impacts as direct effects of the interventions















WP5 Toolbox EFFORTI 2.0



Objectives of WP5:

- Design and establish the methodology for building the EFFORTI evaluation toolbox, including indicators who pass the validation phase.
- Develop and test the final version of the EFFORTI evaluation toolbox (EFFORTI 2.0).
- Synthesis of information contained in the knowledge base.
- Revising and completing EFFORTI Toolbox, based on the outcomes of the validation phase when this evaluation framework will be tested, validated and improved.

Tangible Outcomes: Three reports

- Report describing the methodology & design principles of the EFFORTI Toolbox
- Final version of the EFFORTI Toolbox (EFFORTI 2.0) (Web tool)
- Report on methods and guidelines for evaluating relevant GE measures

Knowledge Outcomes:

- A methodological approach for designing complex web-based services and tools on policy management and evaluation structures.
- Elements of adaptable knowledge representations, dynamic graphs, auto-predictive searching, including UX aspects and process flows.

















Our future















Outlook



- **EFFORTI Online Toolbox**
- Scientific Publications:
 - Special Issue of Interdisciplinary Science Review on Gender in Science
 - Special Issue of Evaluation and Programm Planning
- Conference presentations, e.g.
 - ESA (European Sociological Association)
 - Eu-SPRI (European Forum for Studies of Policies for R&I)
 - ISSI (International Conference on Scientometrics and Infometrics)
- Further networking via ACT and other H2020 projects the team member are engaged in (e.g. SUPER-MoRRI, NewHoRRIzons)

















Thank you very much for your attention!

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Instant Poll















Which country are you from?



















Institutional background



Higher Education Institutions

Funding Agencies Councils

Ministries/ European Commission

Research Performing Organizations

Associations **NGOs**

















How would you assess the current state of gender equality in your country?

poor

on average

excellent













