

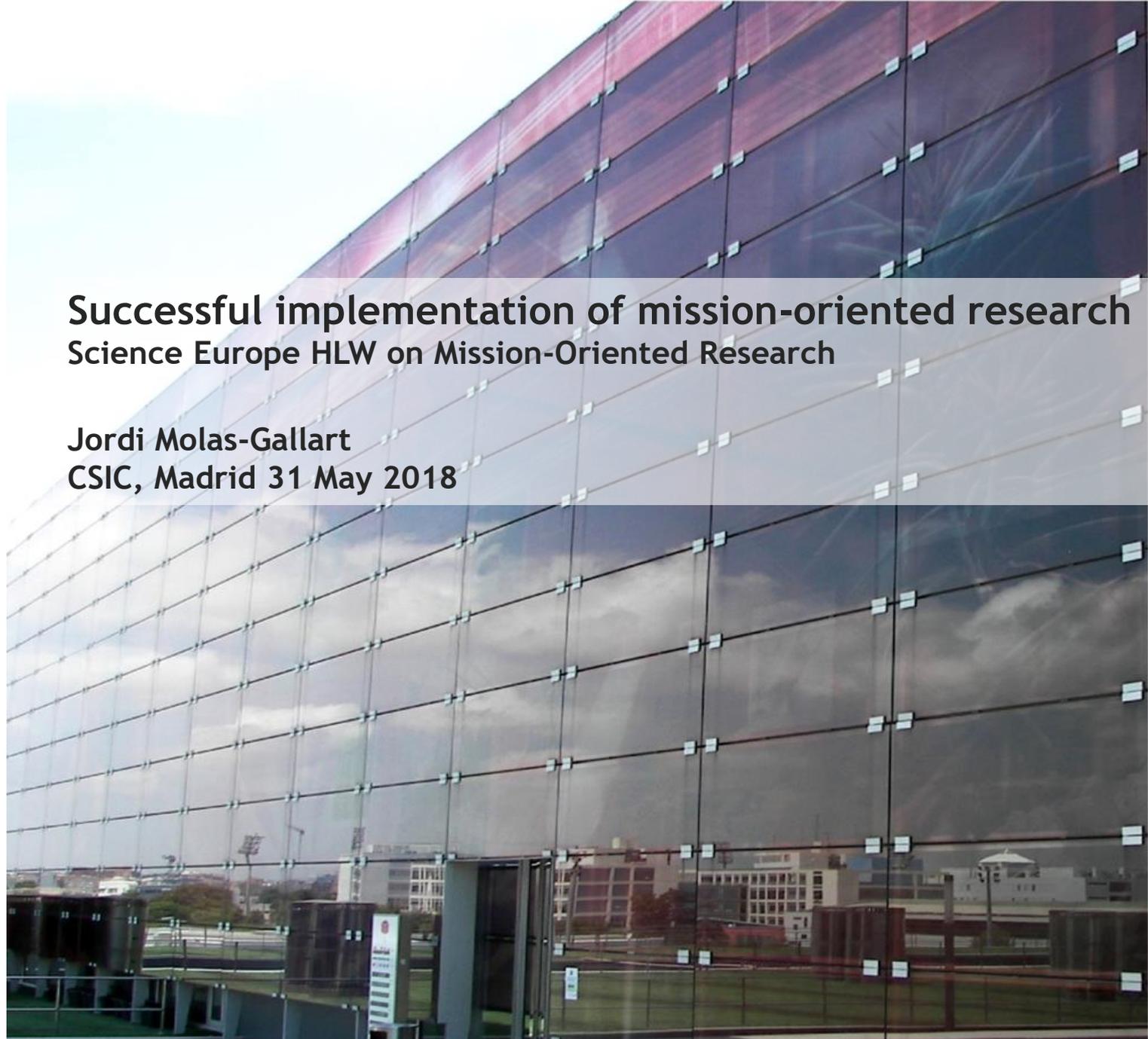
Successful implementation of mission-oriented research Science Europe HLW on Mission-Oriented Research

Jordi Molas-Gallart
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“Policy is being made as it is being administered and administered as it is being made” Anderson (1975) *Public policy-making*. New York: Praeger

The importance of implementation

- There is a plurality of mission-oriented R&I initiatives rather than a singular... definition (JIIP et al. 2018)



- Mission oriented policies will be defined, partly, through their implementation

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- “...the future missions will also require new approaches to implementation...” (Mazzucato, 2018)

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- The details of policy implementation are crucial

Two approaches: Transformers vs. accelerators; narrow vs. broad; old vs new missions

OLD	NEW
Defined in terms of technological achievements, little regard for economic feasibility	Defined in terms of economically feasible technical solutions to particular (environmental) problems.
Goals set in advance by small group of experts	Direction influenced by “wide range of actors” (participatory selection process!!)
Centralised control by a government administration	Decentralised control, broad involvement
Diffusion is of minor importance or discouraged	Diffusion is key and actively encouraged
Limited to a small group of firms able to develop radical technologies	Incremental approach allows large number of firms to participate
Self-contained projects with little need for complementary policies and scant attention paid to coherence	Complementary policies vital for success and close attention paid to coherence with other goals

Soete & Arundel (1993), cited in Mazzucato (2017)

Two approaches: Old vs New missions (Soete & Arundel (1993), cited in Mazzucato (2017))

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Implementation of new missions: conditions/challenges

- Portfolio approach
- Participatory processes
- Inter/Transdisciplinarity
- “Dynamic assessment criteria that can nurture and evaluate market shaping processes and capture the spill-overs that are created across sectors”
 - “New categories of thought are needed” (Mazzucato 2017)
 - But... (Mazzucato 2018)
 - “Be formulated in binary ways...or quantified (as clearly as whether a certain percentage reduction in carbon emissions ... has been reached ...)”
 - “...funding should be distributed on a ‘stage-gate’ principle, where successive tranches of funding are only allocated based on reaching an intermediate milestone.”
 - Note: the importance of timeframes (A. Thompson, today)

Some issues for discussion

- Defining
 - Whether and how to implement bottom up/participatory processes in mission definition
- Managing
 - How to manage (multi-level) transdisciplinary research portfolios
- Evaluating
 - Does mission orientation require
 - A more holistic “formative” approach to evaluation/impact assessment?
 - What does it mean to be successful in missions? (Marc Schiltz, today)
 - Or a stage-gate approach?
- Final Note: The new missions as catalysts for profound systemic changes.
 - Is “the journey more important than the destination” (Vermeulen, today)?



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Some issues for discussion

- Does an emphasis on grand challenges require a different kind, a more holistic formative approach to research evaluations, with new forms of engagement during the impact assessment itself?
- What work needs to be done in order
 - to define and operationalise grand challenges in a better way?
 - to understand the impact of science on the very formulation and direction of the grand challenge itself (not its “solution” only)
- How to map and understand
 - the non-scientific actor landscape and
 - the various interactions with science that make science have an impact on the way GC develop?

Key characteristics of new missions

- The mission as a strategy to trigger necessary systemic change
- “Missions should not be achievable by a single development path, or by a single technology. They must be open to being addressed by different types of solutions... the trajectory to reach the outcome must be based on a bottom-up approach of multiple solutions — of which some will fail or have to be adjusted along the way” (Mariana Mazzucato, ????)
- ///stimulating cross-discipline academic work, with a strong focus on the intersection between natural sciences, formal sciences, social sciences and humanities; collaborations across different industries; and new forms of partnerships between the public sector, the private sector and civil society

Difficult to operationalise

- Missing link between the macro-level discourse and the practice of R&D
- Challenges/missions have different dimensions, can be tackled at different levels
- “Public participation in the selection process must be followed by public inclusion in the implementation” (MM2018)
- “Furthermore, as missions are cross-actor and cross-discipline, social innovation will be a key element of implementation” (MM2018)

Main implementation lessons (MM 2018)

- Main implementation lessons:
 - - Engagement of diverse national and regional stakeholders
 - - Measurement and impact by goals and milestones
 - That is to say, it must be possible to say definitively whether the mission has been achieved or not
 - Appropriate indicators and monitoring frameworks will need to be established to measure progress.
 - Realtime data, publicly available, on progression the milestones will also keep a sense of urgency, achievement and motivation among involved actors.
 - The use of AI and big data for creating dynamic metrics will be very important.
 - In addition to the milestones, broader measures of the cross-sectoral and crossscience impact are needed. So even if a milestone or the overall mission objective is not reached, the mission might still be considered to be successful (at least to an extent) if the process produced positive, economy-wide spillovers
 - ///note these are two different things
 - - A portfolio of instruments to foster bottom-up solutions
 - - Flexibility, pro-active management and building in-house capabilities
 - Evaluation of project proposals should pay as much attention to the portfolio of projects, as to the excellence of individual proposals. If individual projects, after a period of time and based on clear indicators, seem not to be contributing to the mission objective, it should be possible to redirect funding to other activities.
 - Funding should follow a stage-gate approach in which tranches of funding should only be allocated on reaching an intermediate milestone .
 - and changing everyday routines and processes to build dynamic organisational capabilities (including dynamic performance management, procurement, and human resources).

Impact, challenges, missions: shifting STI policy rationales

- Drivers
 - Concern about the alignment between research and innovation and societal needs
 - We should not expect that Increasing research investments will automatically generate outcomes that are valuable for society
 - Innovation and research has directionality
 - Not all directions are equal
- Responses
 - The “impact agenda”
 - UK White Paper, *Realising Our Potential* (Office of Science and Technology 1993): research should more directly contribute to economic growth and be planned for end uses.
 - Shifting STI policy rationales: Grand challenges/ societal challenges/mission-orientation
 - Orienting research towards societal purposes
 - New priorities and new funding instruments in the EU, in countries and in powerful private foundations

A recurrent debate

The use of science and technology policies to achieve environmental goals constitutes a new focus for technology policy. Superficially, this requires a return to the emphasis in the 1950s and 1960s on *public goals* that were met through mission oriented projects.

Soete & Arundel Maastricht Declaration 1993

Raises concerns in the scientific community

- Could lead to narrowing the scope of scientific activities
 - Short-termism
 - Utilitarian logic
- Perceived threats to research quality and academic freedom
- ...yet it all depends on how “impact” is defined and the “impact agenda” implemented

Science Europe Position Statement



On a New Vision for More Meaningful
Research Impact Assessment

JULY 2017



**SCIENCE
EUROPE**
Helping the future of research

Our experience at Science Europe Evaluation Working Group

Journey 1: From impact to contribution

- Concepts and definitions circumscribe what matters and how you look at it
- ‘Impact’ suggests
 - unidirectional, direct and rather immediate effect of research on society
 - preferably based on observable ‘change’

Instead...

- The effects of science on society are multifaceted
 - They occur in many different and complex ways
 - Many possible different *pathways* linking knowledge generation and its application
 - These ways are seldom unidirectional
- They require
 - the contribution of many different actors
 - the combination of research results with many other inputs
- They take time
- Much research is foundational, incremental and replicating

Therefore...

- Focus on results reflected in a set of available narrow “impact indicators” is not adequate
- Focus on collaboration, networks and contributions, rather than point-to-point knowledge transfer
 - Note: Processes are very important!!

Journey 2: From impact to value

- The pursuit of public values as the core rationale for public research, therefore...
- ...when assessing research contributions to society
 - Value judgements are necessary
 - We need to consider the value they can generate for future generations
 - We need to consider how research can broaden the options available to society

From impact to value (2)

- Core concept in the Position Statement:
 - Value will be deemed to accrue when research has a direct or indirect influence on the generation of effects that are valued by society, including the pluralism contributed by academic freedom
- Value depends on what whole societies, or segments thereof, hold as important based on their needs and preferences at a specific point in time

Contestableness, debate and the use of evaluation results

- Evaluating the contribution of science to society is difficult and contestable
 - Different understandings of what is valuable
 - Not everything that is valuable is directly observable (do not be driven by the availability of indicators)
- Applications
 - Are often unanticipated and unplanned
 - Do not depend only on the researchers
 - Could lead to “bad” impacts
- Importance of methodological diversity
- The results of “impact assessments” should not determine, on their own, the allocation of funds
 - Use with care: they may generate unintended effects on research activities