Consiglio Nazionale delle Ricerche
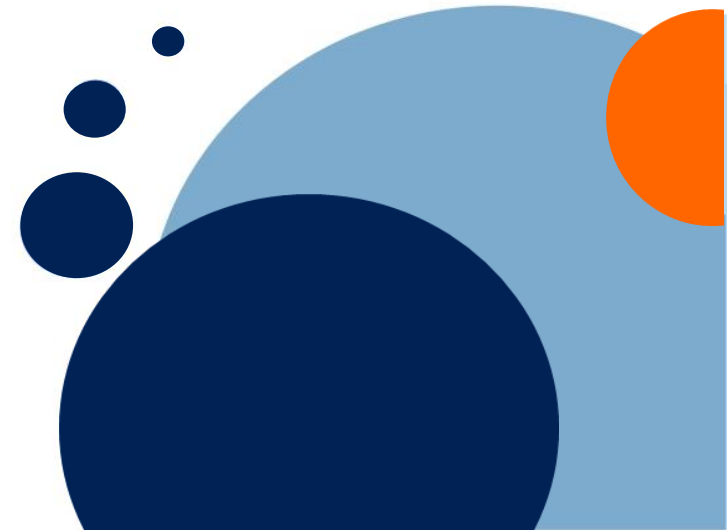
IRCrES

ISTITUTO di RICERCA sulla CRESCITA ECONOMICA SOSTENIBILE
RESEARCH INSTITUTE on SUSTAINABLE ECONOMIC GROWTH
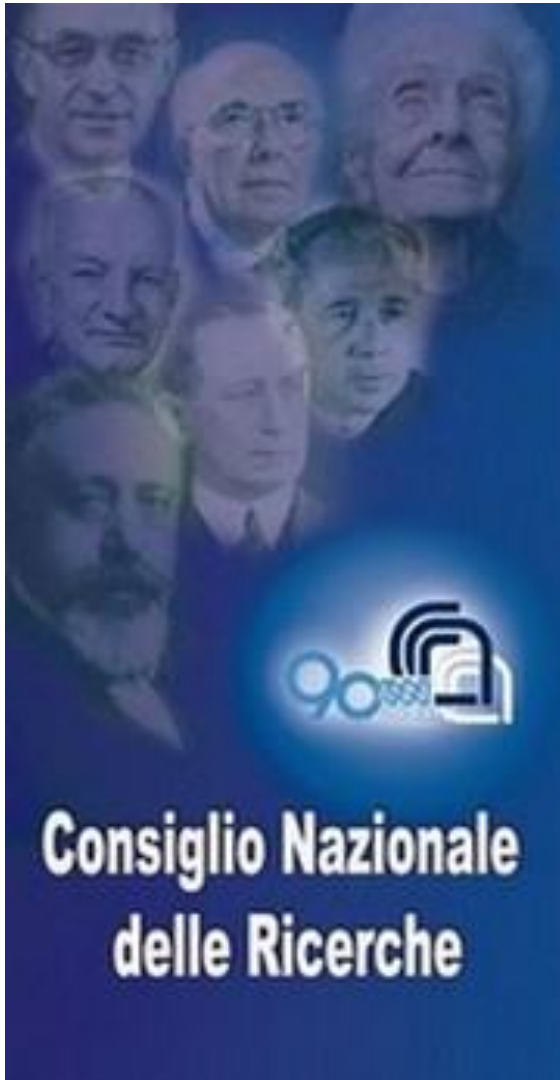
Problems related to the assessment of research impact

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About CNR

Consiglio Nazionale delle Ricerche

Mission

Performing R&D

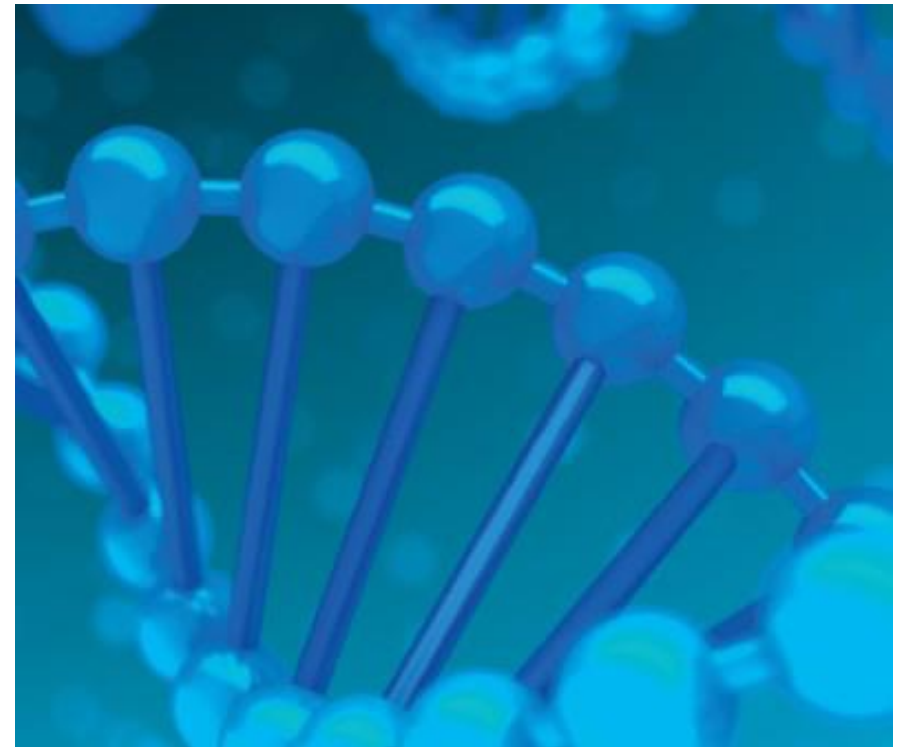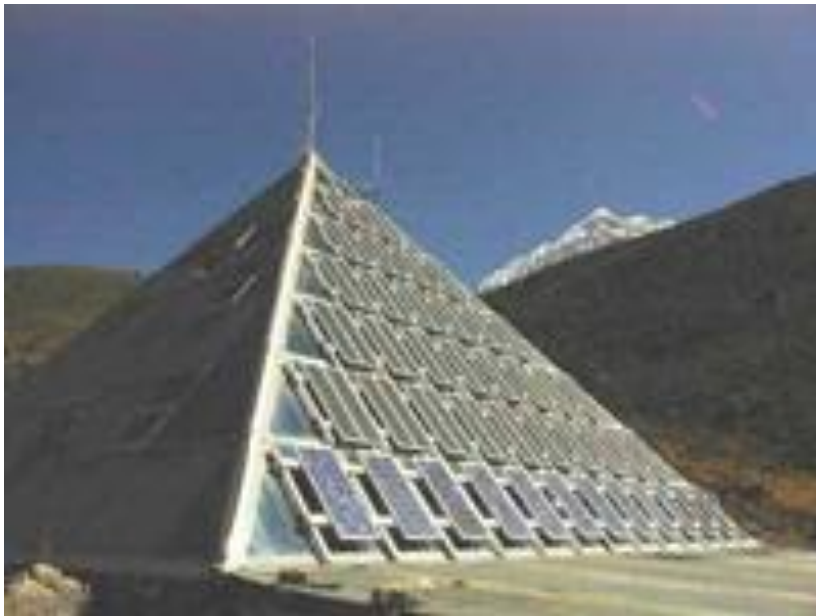Promoting innovation and competitiveness of the industrial system

Internationalization of the national research system

Providing technologies and solutions to address grand challenges and social needs

About CNR

The largest PRO in Italy
8.400 units of research staff

Multidisciplinary
covering all disciplinary fields

7 scientific Departments
102 Institutes
330 secondary sites and
laboratories in Italy
2 polar sites

About CNR IRCRES

- IRCRES is one research institutes of CNR
  - Dealing with sustainable economic growth
- Thematic areas:
  - Evolution of the industrial system
  - Organization and sustainability of the large systems in contemporary society
  - Environment
- Horizontal themes
  - Innovation, Evaluation of public policies

- About 50 units of staff (30 researchers, research associate, PhD students and early career researchers)

4

CNR IRCRES Unit of Rome

- The Unit of Roma deals with Science Technology and Innovation Policies

    – Higher Education (governance, funding, policies)
    – Evaluation of research (activities, organizations, programmes)
    – Evaluation of R&DI policies
    – Innovation and patent issues
    – Horizontal thematic areas:
        - STI indicators
        - SSH research
        - Mobility and knowledge circulation

- Extensive participation in EUFPs and other European projects
- RISIS - Research Infrastructure on Research and Innovation Policy Studies

THREE QUESTIONS

1. *What are the differences between assessing output, outcome and impact of R&D and how do you assess what you want to assess?*

2. *To what extent do you need to take a shared or differentiated approach of assessing impact between different disciplines?*

3. *How can performance indicators of impact assessment and parameters of research strategies reinforce each other and how can you avoid the risk of perverse incentives?*

Different answers according to:

- The type of evaluation (ex-ante or ex-post; summative or formative)
- The type of entity under evaluation (project, program, organization, department, group), or driving the evaluation (research performer, research funder, stakeholders, etc.)

FEATURES OF R&D

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.
(Oecd, Frascati Manual 2015)

- *Novelty of results* (new findings)
- *Creativity of concepts and hypotheses*
- *Uncertainty on the final outcome* (at least quantity of time and resources needed to achieve it)
- *Systematic activity* (planned for and budgeted)
- *Transferable and/or reproducible results* (freely transferred or traded in a marketplace)

Intrinsic uncertainty of research related to the output and the outcome that can derive from the effort –moreover when it is developed within public research organizations:

Uncertainty of   *an*

quandum

quantum

Intrinsic uncertainty makes very difficult to know:

-the value of a research result –especially breakthrough and results from high-risky research

- the impact (actual change) produced to have a robust and reliable ex -ante knowledge of the outcome of a research activity

RESEARCH EVALUATION OBJECTIVES

- *Quality*: originality of ideas and methodology, importance of research output for the discipline, scientific impact and international prominence of the research group.

- *Productivity*: relates inputs to outputs of research; staff numbers and size of research funds are used as input measures; output indicators include number and nature of scientific publications, and number of dissertations, patents and invited lectures.

- *Relevance (Impact)*: to the advancement of knowledge in the discipline and to science in general; possible impact and application for future technology and social benefits.

- *Long-term viability (Utility)*: based on the submitted plans, ideas for future research, publication policy, coherence of the programme and continuity of research lines

What are the differences between assessing output, outcome and impact of R&D and how do you assess what you want to assess?

ASSESSING OUTPUT

R&D outputs are generally identified with 'publications'

Publications incorporate a very wide set of outputs whose relevance is strictly related to the scientific field/research area

- Papers in international indexed journals
- Chapters in books
- Books
- Reports
- Conference presentations
- Datasets, software
- Tools for dissemination and engagement
…..

ISSUE: THE QUALITY OF RESEARCH OUTPUTS

The definition of quality in the academic research is extremely controversial
(Lamont, 2009; Langfeldt et al., 2019; Aksnes et al., 2019; Abramo, D'Angelo, Reale, 2019)

Two notions of quality coexist generating tensions and conflicts (Langfeldt et al, 2019)

1. generated by the research sector (different scientific communities with shared rules and practices on how knowledge is generated, reputation, ethics, methods, theories, instruments etc.)

2. generated by policy (communities external to the research activities with different composition, quality judgement based on rules and practices based on standards and indicators generating different evaluation regimes)

«Research evaluation generates a notion of quality that is made operational through the combined use of tools and measures. In this way it indicates the level necessary to obtain legitimacy, prestige, resources and to access the academic career, generating in principle a push towards adaptation to the rules and criteria selected»

Bibliometric methods

      Publications, Citation, H index

Peer Review - Case studies - Narratives

      Qualitative/quantitative – Contextualization

      Time consuming – Scarce generalization

Impact-related metrics

      Profit made, Jobs provided, Trained personnel recruited

      Visitors to an exhibition, Items purchased

Risks (Penfield et al. 2014):

    (1) The full value (either quality or impact) will not be realized, as we focus on easily quantifiable indicators

    (2) Attention towards generating results that enable boxes to be ticked rather than delivering real value for money and innovative research

    (3) They risk being monetized or converted into a lowest common denominator in an attempt to compare the cost of a new theatre against that of a hospital.

Heroux et al., 2022

Research must be well designed, properly conducted and clearly and transparently reported.

The Quality Output Checklist and Content Assessment (QuOCCA) based on 11 items: transparency (items 1–3), research design and analysis (items 4–6) and research reporting practices (items 7–11).

The evaluation of the quality involves also the process of the research effort incorporated in the output.

EC, Toward a Reform of the Research Assessment System, Scoping Report, 2021

«The research process is undergoing digital transformation, and is becoming less linear and more collaborative and open, and more multidisciplinary with a larger diversity of outputs.
At the same time, the current research assessment system often uses inappropriate and narrow methods to assess the quality, performance and impact of research and researchers»

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

CoARA Agreement, p. 2

WHAT IS OUTCOME

Outcomes are the changes that occur as a result of your actions. These typically involve improvements for a product or service. (Indeed Editorial Teams)

The Outcome is the resolution to the final research question through the presentation of key findings from the research. (SACE Project)
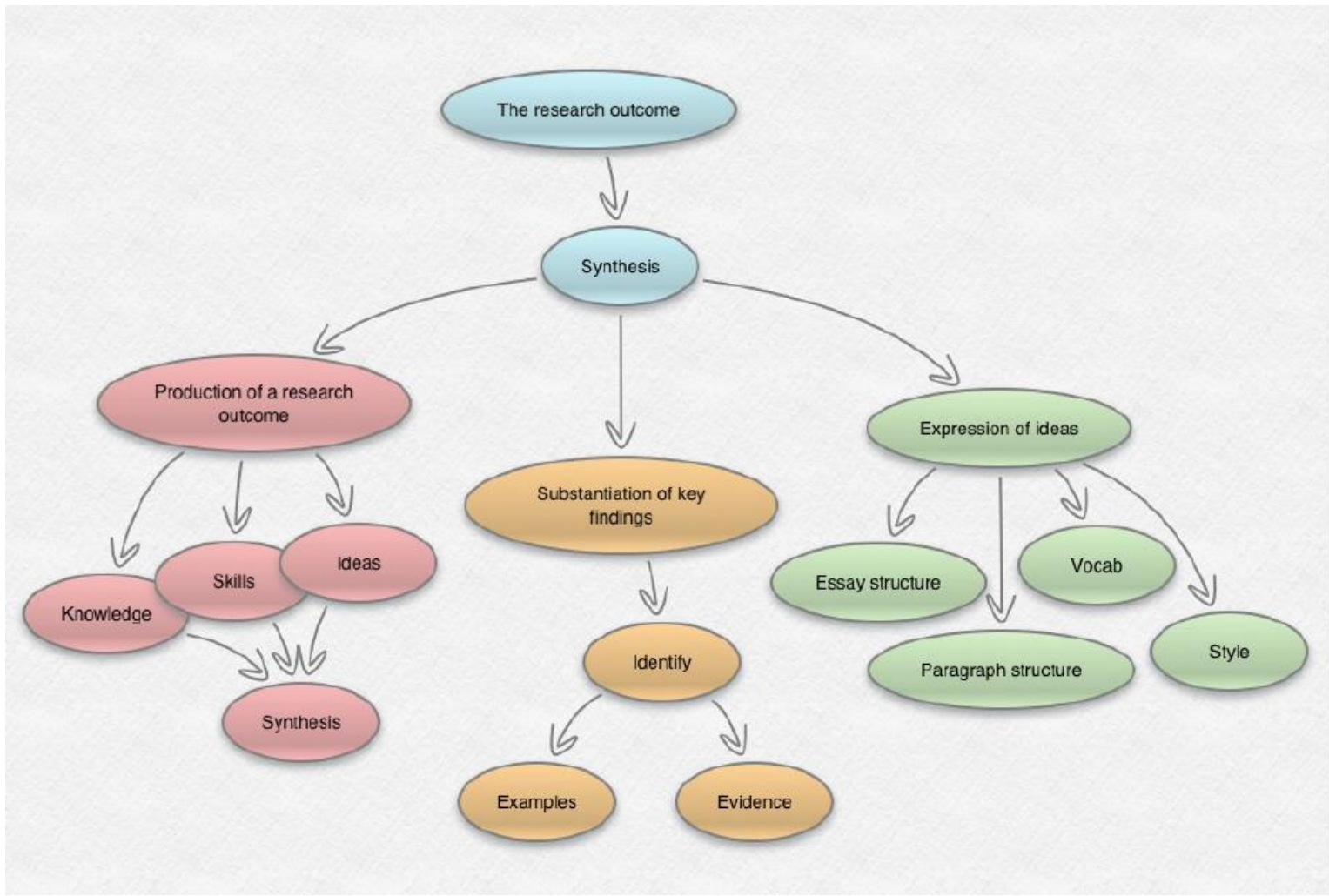
Outcomes (also called events or endpoints) are variables that are monitored during a study to document the impact that a given intervention or exposure has on the health of a given population. (Carvalho Ferreira and Patino, 2017)

The outcomes are directly correlated to the findings. Outcomes drive a short-term or immediate change in the reader as a result of the information that came from the research itself. (Impatio)

Outcomes research is a broad umbrella term without a consistent definition. However it tends to describe research that is concerned with the effectiveness of public-health interventions and health services; that is, the outcomes of these services. (JEFFORD ET AL., 2003)

ASSESSING OUTCOME

SACE Research Project https://sites.google.com/site/saceresearchproject/the-research-outcome/criteria

## Examples of project outputs and outcomes:

Project	Output	Outcome
Disaster relief	Provided 20 blankets to hurricane victims	Beneficiaries are warm, more comfortable, and are less likely to become sick
Health	Supplied 2,000-bed nets to families in rural India	Lowered Malaria outbreaks, increasing life expectancy and quality of life for affected children
Education	Trained 50 primary school teachers	These 50 teachers educated 1,250 pupils, enabling these children to find better jobs and move on to higher-level education
Environment	Released a research paper on the effects of climate change on food prices	Galvanized increased support for stricter environmental laws
Human rights	Organized an international conference for indigenous peoples around the world	Provided a safe space for human rights leaders to meet, share information, and partner to improve the efficacy of their actions

Alonzi A. What the difference? Project outputs vs Outcomes, proposalsforngo.com

ERA LEARN PROJECT

- **Outputs** are items directly produced by activities (e.g. workshop reports, Strategic Research and Innovation Agendas, databases of programmes, etc.) and are typically produced within the short-term.

- **Outcomes (or intermediate impacts)** can be defined as the likely or achieved medium-term effects of an intervention's activities and outputs.

- **(Global) Impacts** can be defined as positive or negative, primary and secondary long-term effects produced by an intervention, directly or indirectly, intended or unintended.

CSA Action in Horizon 2020 https://www.era-learn.eu/support-for-partnerships/governance-administration-legal-base/monitoring-and-assessment/r-i-partnership-evaluation-toolkit-ripe/carrying-out-the-evaluation-of-partnerships-in-r-i/building-the-logic-frame

ERA LEARN PROJECT LOGIC FRAME

Challenges → Objectives → Inputs → Activities → Outputs → Outcomes → Impacts
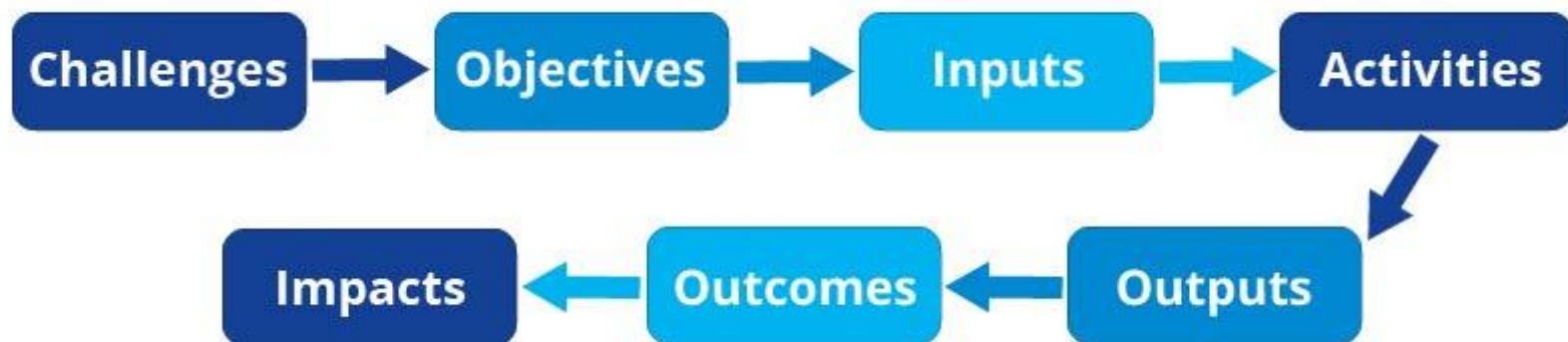
«A Logic Frame outlines the connection between the ends and means of an intervention.»

	Timing of impacts	P2P audience
Outputs	short-term	P2P direct target group
Outcomes	medium-term	P2P direct + indirect audience
Impacts	long-term	P2P wider environment

IRCFES

ASSESSING IMPACT

- *Process of identifying future consequences of current actions at individual, organisational or system level*
  - "...any difference and/or change of social actors or phenomena that can be partially or wholly attributed to other social actors or phenomena." (Becker, 2001)

- *Impact is a difference of B that can be attributed to A*
  - Impact as attributable change
  - Outline the object precipitating change
  - Outline the changing object(s)
  - Causal attribution of change
  - Measuring the change

- *Impact as the potential change a policy instrument is likely to generate*
  - Achieving a political aim (e.g. internationalization)
  - Addressing issues faced by knowledge dynamics (what drive internationalization, what explain the selection of a particular instrument, what are the institutional constraints, etc.)

IMPACT AND OTHER RELATED CONCEPTS

VALORIZATION
Activities for the exploitation of an asset that goes beyond the ordinary use of the same.
The normal use of knowledge is its codification (publication) and the circulation within outstanding scientific environment, while valorization indicates the types of activities that allow you to go beyond the publication and circulation.

IMPACT
Change produced by the knowledge in the *scientific*, *economic, social and political realm*.
It is generally directed to a pre-formed target for growth, but it must be a specific effect of change that is derived from the research work.

THIRD MISSION
Further articulation of the missions of the University that serves to bring out a number of activities and results-oriented society, the economy and politics.
Now extended to research bodies, it has many problems of conceptualization.

- Topical issue because of:

  - *Evaluation*: effectiveness question whether the policy instrument/individual or group activity is doing the right thing

  - *Reflexivity*: scrutinizing the relationships between the actual requirements of a system, activities and results, and the ultimate change the policy instrument wants to achieve

  - *Advocacy*: impact is used to justify the future of a particular policy instrument (e.g. funding scheme) or HEI' activity taking into account values and commitment

TYPES OF IMPACT

	Intended	Unintended
Expected	Straight runs	Collateral
Unexpected	Long shots	Accidentals

IMPACT AT THE SYSTEM LEVEL

Very different *definitions* of impact between countries revealing different cognitive perspectives and the importance of the issue

Multiple actors involved in planning, funding and conducting research not necessarily corresponding to a particular way to approach research assessment despite multiple interactions

Evaluation is embedded in different bodies (Ministries, Funding agencies, Higher Education Institutions, Public Research Organizations, etc.) and in several cases *specific agencies have been created* in charge of government evaluation

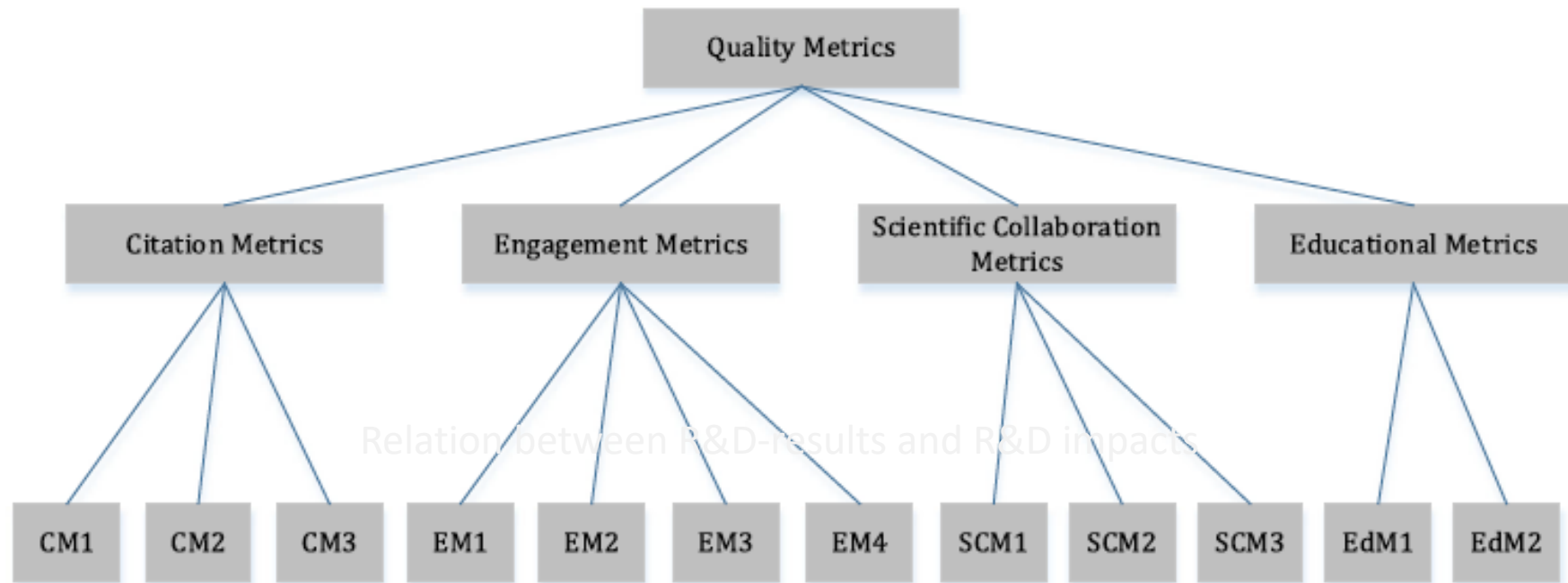**Eleven dimensions of the impacts of science** (Box 3.1 OECD, 2009)

Science impacts Technology impacts Economy impacts
Culture impacts Society impacts Policy impacts
Organisational impacts Health impacts Environment impacts
Symbolic impacts. Training impacts

R&D-RESULTS AND R&D IMPACTS

Fig. 1 A conceptual model. CM1: citation count, CM2: field-weighted citation impact, CM3: citation benchmarking; EM1: scholarly activity, EM2: social activity, EM3: scholarly commentary, EM4: mass media; SCM1: national versus international collaboration, SCM2: single-discipline versus cross-discipline collaboration, SCM3: academia versus industrial affiliation collaboration; EdM1: usability of the research paper for undergraduate students, EdM2: usability of the research paper for graduate students

Salimi, 2017, p.202

SUMMING UP

- Difficult to have a clear distinction between outputs, outcomes and impacts unless it is settled by the evaluation design

- The research endeavour is a non-linear process going from ideas to impact where evaluation is mainly directed to judge the value

- Quality is the main issue for assessing the value of outputs, outcomes and impact

- For practical reasons it is useful to distinguish between different types of impacts and to frame impact around changes in the societal realm

- The same indicator can be a proxy of the value of outputs, outcomes and impact (e.g. citations, third party funding, patents) therefore the evaluation design must decide how to consider it.

To what extent do you need to take a shared or differentiated approach of assessing impact between different disciplines?

Critical aspects of assessing social impact

Tools and methods to measure impact (Martin, 2007; Reale et al., 2017):
- the problem of attribution
- the temporality issue
- the evaluation approach (summative vs formative)
- the ways for understanding and disentangling the mechanisms that generate impact
- the scale issue

- Conceptual framework (Hemling et al., 2011):
    - the difficulties of defining clearly boundaries between types of impact
    - the several domains that can be observed when investigating social impact
    - the highly diversified types of actors, beneficiaries and needs to be addressed
    - the use of different types of indicators that are often domain or context specific

THE SPECIAL FOCUS ON SSH

- Tendency to consider the contribution of SSH to economy and society less relevant than natural sciences
  - Non-productive investment
  - Researchers in Humanities "useless frills" (Nussbaum, 2012)
  - Humanities as "forgotten sciences"(Bod, 2013)

- Research evaluation and research policy tend to be designed with the life sciences and natural sciences in mind -SSH research commonly being an afterthought

- There are relevant pockets of literature spread across a wide range of social sciences and humanities journals, not to mention books, chapters and grey literature

CHARACTERISTICS OF HUMANITIES

'Arts and Humanities' (Ochsner et al., 2012)

- Focus on theory, sources and texts
    interpretative methodology

- Aimed at introducing new perspectives of analysis and new conceptualization more than discover new facts
    critics as essential dimension of research in humanities

- Individual research
    the linkage between quality of research and quality of the researcher is more pronounced than in other fields

- Productivity and success are not recognized quality categories

- Orientation toward society needs is very important
    understood as capability to influence/orient society and to maintain cultural identity

- The influence of society on research activities is negatively assessed
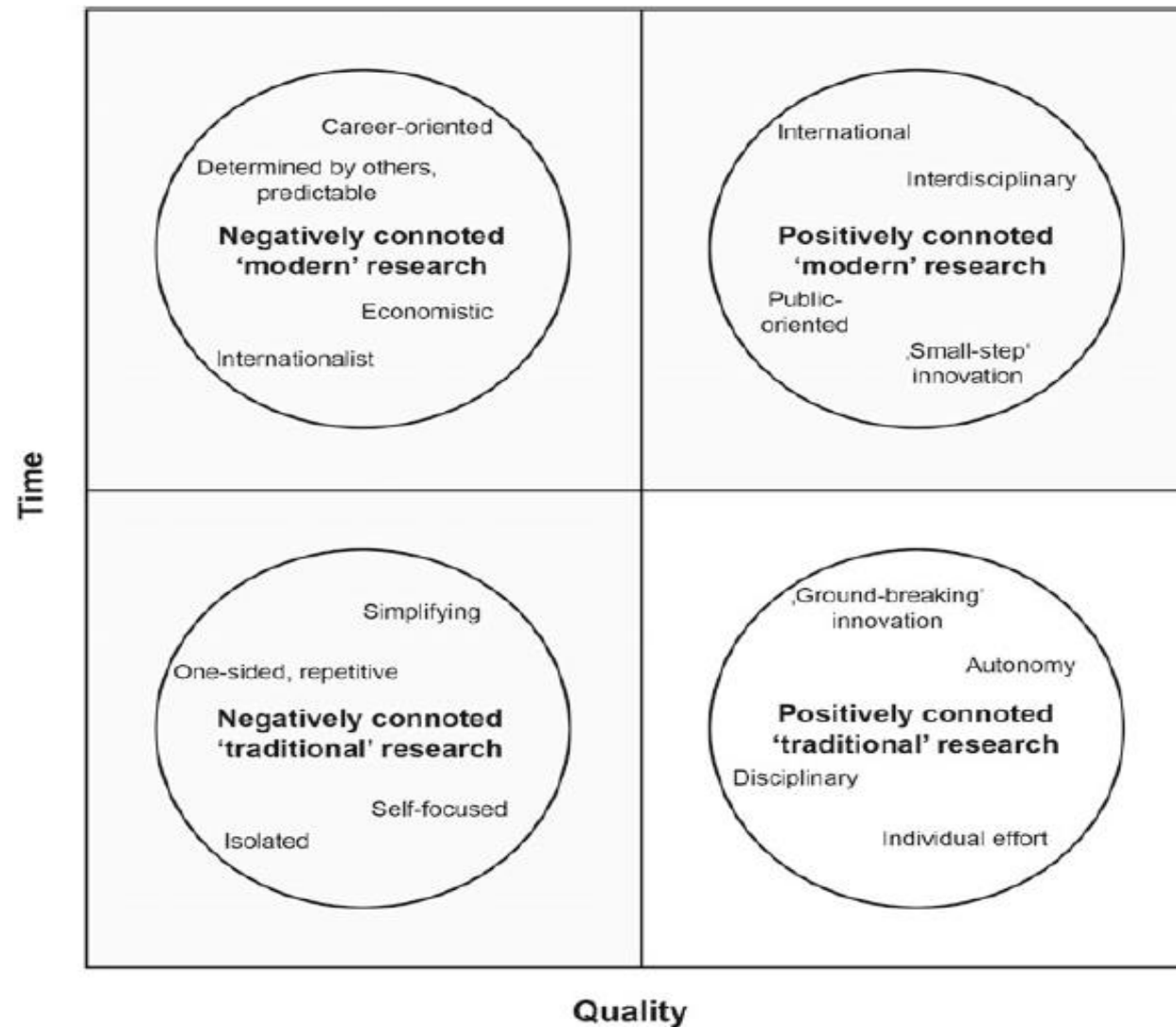   external funders/ evaluators/ stakeholders

Fig. 2 Four types of research in the humanities. Commonalities across the disciplines. *Source* Ochsner et al. (2013), p. 86

ORGANIZATIONAL ASPECTS OF SSH RESEARCH

- *Steering of SSH is weaker than other fields of science*
  - Less relevance of resources (lower research costs and not expensive research infrastructures)
  - Less dependence from external funders
  - Very high fragmentation of disciplinary areas
  - Difficult to identify the national/international arena

- *Organizational characteristics* (Whitley, 2000)
  - The prevalence of one scientific paradigm is more difficult than other fields and several schools of thought can co-exists (*Task Uncertainties*)
  - Less dependence from the results of other colleagues in the field for the advancement of our own research project (*Functional mutual dependence between scientists*)
  - Less need to be accepted from other scholars in the field as to the importance of the scientific approach developed (*Strategic mutual dependence between scientists*)

- The notion of '*search regime dynamics*' distinguishes between consolidated sciences and new sciences: integration between SSH e HS is in the latter (Bonaccorsi, 2008)

STEM-SSH DIFFERENT TYPES OF USABILITY

Quoting Olmos-Penuela et al., 2014

STEM and SSH research are characterised by different types of usability.

SSH researchers tend to use less formal pathways to engage with visible users, (formal pathways are more easily tracked and measured)

SSH researchers are far more likely to become involved in popularisation STEM researchers prefer outreach activities for a mass 'public'audience

STEM researchers work with visible users who are relatively homogenous in terms of the types of things they seek—process inputs creating economic growth

SSH researchers work with visible users who have a much more diverse range of uses for knowledge.

STEM-SSH DIFFERENT TYPES OF CREDIBILITY

How to build credible historical narratives so that the evaluator recognizes the research has produced a social impact (Hammer, 2008)

CRITERIA

Normativity: there must be a reason for the occurrence of the effect according to the state of the available knowledge.

Identifiability: there are elements of observation that are available (e.g. variations occurred that can be observed)

Manipulability and replaceability: causal arguments that can derive from the general knowledge of the world (pragmatical power of the means to generate the effects). Replaceability poses questions whether an effect can be produced also by different causes than those that are generally associated with that effect.

Bonaccorsi et al., 2021 - Analysis of the sentences of 6,637 documents of the REF2014 (218,840 sentences) using semantic hypergraph.

CAUSAL STRUCTURE OF SENTENCES (REF 2014)

Table 5. Application of Hammer's (2008) criteria for historical causation to research impact assessment across broad disciplinary areas

DISCIPLINES	Normativity	Identifiability	Manipulability	Replaceability
STEM disciplines				
Medicine	Strong	Strong	Strong	Very limited
	Evidence based medicine paradigm	Regulated stage-gate process	Clinical guidelines explicitly review published scientific research	Evidence based medicine prescribes consensus on clinical evidence
	Systematic review practice	Highly documented		
Engineering	Strong	Moderate to strong	Strong	Limited to very limited
	Technological developments follow structured maturity stages (e.g. TRL)	Intermediate steps covered by formal documents and artifacts	Well-defined linkages among different stages of technology development	Experts in the field can evaluate the non-replaceable contribution of research
SSH disciplines				
Social Sciences	Variable	Moderate	Moderate	Moderate to high
	Motivation of researchers to engage into policy making highly variable	Formal stages of policy making process	Power of researchers in policy making variable over time and across policy fields	Role of research may be substituted by media, consulting, or advocacy
		Role of actors in policy making blurred		
Humanities	Variable	Weak	Weak	High
	Motivation of researchers to engage into cultural heritage or social engagement highly variable	Identifiability mainly related to specific events (e.g. museums, exhibitions) with authorial context	Contribution of research to content difficult to establish outside authorial context	Role of research may be substituted by journalists or experts

Source: our elaboration.   Bonaccorsi et al., 2021, p. 222

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HOW TO DEAL WITH IMPACT ASSESSMENT

- Two useful approaches:
  - *Productive interactions* (Spaapen et al, 2011; De Jong et l., 2014; Molas Gallart et al., 2007)
  - *Critical Communication methodology CCM* (Gomez et al., 2011; Fletcha and Soler, 2014)
- Which:
  - Focus on conditions and factors that are likely to improve the possibility that a social impact deriving from research projects can occur and can be captured through evaluation.
  - Assume research producing transformations in society when a proper interaction of science and society is developed.
  - Consider evaluation as a formative tool for improving accountability, rather than a control tool based on objective measurements of impacts generated by research outcomes through a linear model of knowledge transfer.

PRODUCTIVE INTERACTIONS KEY ASPECTS

- Spaapen and van Drooge (2011) define productive interactions as "exchanges between researchers and stakeholders in which knowledge is produced" which is both scientifically and socially relevant.

- The approach was developed within the SIAMPI project and focuses on contacts between researchers and societal actors (either users or stakeholders) through *direct, indirect* and *financial interactions*.

- Social impact so far is the result of knowledge circulation from researchers to stakeholders and backwards and the interactions that are put in place in different contexts.

CCM KEY ASPECTS

- CCM considers people as transformative social agents that are able to create change of existing assets when "life-world is incorporated into the research process from the beginning to end" (Gomez et al. 2011, p. 238).

- CCM has the aim of putting together 'the expert system on the one hand and the lifeworld and human agency on the other' (Flecha and Soler, 2014, p. 234), on the base of *dialogic interactions* between all the agents involved, irrespective to the standing/power they owned.

- CCM assumes researchers as responsible agents for making academic knowledge available, through communicative tools and dedicated organizational means (Fletcha and Soler, 2014).

SS IMPACT DIMENSIONS

Communication / Interactions	Dialogic exchange to identify successful actions	New approaches for research organization
Direct through personal interactions	Daily life, observations	Multicultural committees in the project organization
Indirect through results, exhibits, technical devices	Focus groups, workshops, participative events	Advisory Committee with the participation of non-academic users
Financial through new research funding or research occasions	Indicators of positive results obtained during/after the diffusion of the research results	Participative working groups, workshops, multicultural committee

- 2 cases studies on projects funded under the EUFP7 in the field of SS research, which succeeded producing social impact (INCLUD-ED, MeLa)
  - INCLUD-ED focuses on the development of education strategies for the social inclusion of communities at risk of exclusion through dialogic learning processes.
  - MeLa aims to create an inclusive European identity involving museums as social actors, which might support the cultural challenges of the contemporary processes of globalization and migration.

- 16 interviews and daily life stories for INCLUD-ED, and 8 interviews and daily life stories for MeLa
- Extensive documentary analysis on results (both mid-term and final) produced during the projects, including the analysis of the publications produced

SUMMING UP

- Considering differences between FOS is essential especially when you deal with academic research (in both universities and PROs)

- SSH need a careful consideration since their epistemological structure and research practices are peculiar

- Organizational features of the projects favouring productive interactions and dialogic learning are extremely important

- Social impact of SSH research is strongly affected by the context of application (existing rules, regulations, traditions)

- Assessing social impact of research is more than a summative effort; it is a way to evaluate research through impact, thus a process to learn how impact occurred and what transformations it produced

How can performance indicators of impact assessment and parameters of research strategies reinforce each other and how can you avoid the risk of perverse incentives?

FOUR WAVES OF EVALUTION (VEDUNG, 2010)

Four waves of evaluation in different European and non-European countries, with concomitant accumulations of sediment:

- Science-driven wave, from 50s (rationalistic model)

- Dialogue-oriented wave, from 70s (participatory model)

- Neo-liberal wave, from 80s (NPM diffusion)

- Evidence wave, from 2000s (EBP model)

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I believe in a research culture that recognises a diversity of contributions to science and society; that celebrates high quality and impactful research; and that values sharing, collaboration, integrity and engagement with society, transmitting knowledge from generation to generation.

Mariya Gabriel
Commissioner for Innovation, Research, Culture, Education and Youth

Are we moving toward a Responsible Evaluation wave?

Priority setting for research themes or areas can be divided into (Polt, 2007):

- top-down approaches: governmental priorities expressed by government ministries that reflect strategic priorities (*e.g.* economic development) or public missions (*e.g.* health).
- bottom-up approaches: priorities of research producers (researchers, research institutions and funding agents.

To prioritize it is necessary to know the impact (actual and/or potential) of different policy measures possibly using performance indicators

Priority setting and evaluation interact but remain distinct dimensions of policy making (OECD, 2009).

> Priority setting is a more complex exercise, involving a broader range of actors (e.g. funding agencies) and relying on different approaches and methodologies.

The evaluation design is the phase through which the questions to be answered are identified and the hypothesis around which one intends to work is determined it is essential in order to manage conflicts between incentives

When you design an evaluation it is necessary to conceptualize methods and tools through which measuring the results and to build a system to coordinate the different components of the evaluation (participants, products, measures, standards) trying to avoid incoherence and/or conflicts

How the incentive toward excellent research works?

How the incentive toward producing impact can be harmonized with excellence?

How incentives toward productivity can affect the HEIs' strategies?

Analysis of the information and formulation of a judgment constitute the operational phases of the evaluation, which is followed by the use of the results for political and management purposes (e.g. for priority setting)

«Within the past decade, the development of ever more sophisticated measures has accelerated rapidly….

Right now we're going through a Cambrian explosion of metrics" says Johan Bollen, an informatics scientist at Indiana University in Bloomington. It has become all but impossible even to count today's metrics.

Bibliometricians have invented a wide variety of algorithms, many of them unknown to the everyday scientist, some mistakenly applied to evaluate individuals, and each surrounded by a cloud of variants designed to help them apply across different scientific fields or different career stages. (See 'Metrics explosion', page 866.)….

Nature categorizes metrics old and new, lays out their strengths and weaknesses—and examines a growing feeling among researchers that it is time to slow down and discuss what these measures are actually for.»

SUMMING UP

- Conflicts between performance indicators of impact and R&S priority setting are always present in our evaluation

- PI can create conflicting incentives to individuals especially early career researchers
  - A way to eliminate conflicts is to broaden the notion of quality of research to include results beyond publications

- At organizational level they might create problems for harmonizing different goals and aims into a coherent strategy

- PI of impact cannot be directly used to draft strategies

- Improving the evaluation design is essential to reducing perverse effects (indicators first and foremost)

CNR IMPACT STRATEGY
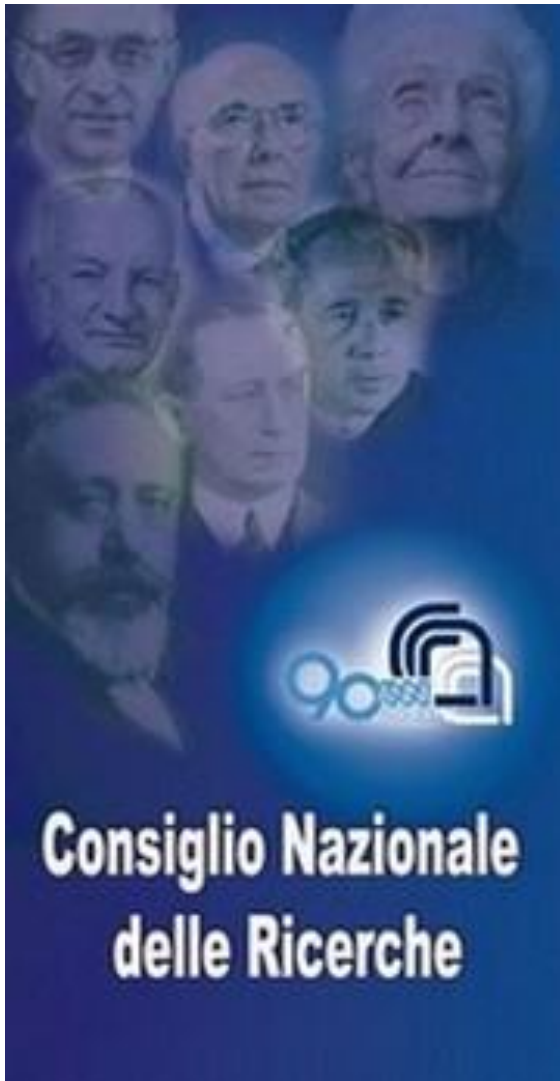
Performing R&D

publications/other outputs

Promoting innovation and competitiveness of the industrial system

technology transfer/patenting/spin off

Internationalization of the national research system

collaborations/networking/STM

Providing technologies and solutions to address grand challenges and social needs

public engagement: actions for school

THE EVALUATION OF IMPACT (ANVUR RULES)

- Impact is part of the Universities' third mission and it is based on case studies

- The evaluation of the third mission concerns the organization as a whole: merit evaluation by field of action.

- Departments for Universities and Institutes for PROs that have self-selected themselves by presenting a case study of impact are also evaluated.

- The evaluation is transversal, by field of action, between Departments of universities and institutes of entities. No penalty is envisaged for institutes (of organizations) that have not presented any case studies.

- Case studies must concern activities carried out both before and during the 2015-2019 period, provided that they have generated an impact in part or in the entire 2015-2019 period.

FIELDS OF ACTION IN A NUTSHELL

- Enhancement of intellectual or industrial property
- Academic entrepreneurship
- Brokerage and technology transfer structures
- Production and management of artistic and cultural goods
- Clinical trials and health protection initiatives
- Permanent training and open didactics
- Production of public goods of a social, educational nature and inclusion policies
- Innovative tools to support Open Science
- Activities related to the UN 2030 Agenda and the Sustainable Development Goals (SDGs).

Five class of merit
- Excellent and highly relevant
- Excellent
- Standard
- Sufficient Relevance
- Little Relevance or Unacceptable

CRITERIA TO ASSESS THE FIELDS OF ACTION

1. Social, economic and cultural dimension of the impact

2. Relevance with respect to the reference context

3. Added value for beneficiaries

4. Contribution of the proposing structure, enhancing the scientific aspect where relevant

Case studies that foresee a *potential future impact* or in any case an impact that occurs outside the evaluation period are not considered eligible for evaluation.

Outputs are not eligible for evaluation as case studies if submitted as outputs in the research evaluation.

THE CASE STUDIES

- The case study must concern the activities, the conditions and context, the role played by the structure, the temporal development, the subjects involved and their role, the resources employed.

- The case study must describe in detail the impact generated with reference to the territorial area, the reference period, the added value for the beneficiaries, the economic, social and cultural dimension.

- The difference between the situation prior to carrying out the activity and the subsequent one should emerge from the description, and this difference must be verifiable through pertinent and significant impact indicators.

- Indicators can be self-certified, derive from internal or external monitoring activities or from the consultation of beneficiaries and stakeholders. The sources of data collection must be indicated in detail and the relative documentation must be attached

CNR HAD TO:

- Choose a strategy of concentration on some fields of action in which it has a better presence and has robust empirical evidence of impact outside the scientific community.

- Select the cases respecting the total number of agreed case studies (90 in the CNR - if the total number is not respected there is a penalty).

- Support the cases with indicators that are congruent, robust, and verifiable by ANVUR.

- In the selection of the case studies, if for the same field of action there are several cases, these should be all a high level in order not to incur a lowering of the class of merit in that field of action for the institution.

A. ISTITUZIONE
B. ISTITUTO DI RIFERIMENTO:
C. EVENTUALI AREE SCIENTIFICHE DI RIFERIMENTO DEL CASO STUDIO:
D. PERSONALE ACCADEMICO DI RIFERIMENTO:
E. PAROLE CHIAVE   In questa sezione andranno indicate 10 parole chiave che si ritiene siano caratterizzanti per qualificare il caso studio e il suo impatto.
F. DESCRIZIONE DETTAGLIATA DEL CASO STUDIO   In questa sezione andrà illustrato il caso studio con particolare riferimento al contesto di riferimento in cui si è collocato, al ruolo svolto dalla struttura, allo sviluppo temporale, ai soggetti coinvolti e al loro ruolo, alle risorse impiegate e, più in generale, a tutti quegli elementi che qualificano le azioni intraprese.
G. DESCRIZIONE DETTAGLIATA DELL'IMPATTO NEL PERIODO 2015 – 2019   In questa sezione andrà illustrato l'impatto delle attività svolte con riferimento all'ambito territoriale, al periodo di riferimento, al valore aggiunto per i beneficiari, alla dimensione economica, sociale e culturale.   Nella descrizione andrà data evidenza alle differenze derivanti dalle azioni intraprese rispetto alla situazione di partenza in cui si è collocato il caso studio.
H. EVENTUALI INDICATORI ATTESTANTI L'IMPATTO DESCRITTO   In questa sezione sarà possibile inserire gli indicatori, ritenuti pertinenti dalla struttura proponente, che consentano di apprezzare l'impatto delle attività svolte in coerenza con quanto riportato nella sezione G. Si possono inserire anche elementi di tipo qualitativo utile a dimostrare l'impatto dell'intervento.
I. EVENTUALI PUBBLICAZIONI DI RIFERIMENTO DEL CASO STUDIO (MAX 5)   In questa sezione andranno indicate: a) principali pubblicazioni scientifiche di riferimento a livello nazionale/internazionale che supportino la rilevanza del caso studio;   b) principali pubblicazioni scientifiche dell'Istituzione o del Dipartimento/i coinvolti rilevanti attinenti al caso studio o all'impatto da esso derivato.

THE ISSUE OF INDICATORS

Quantitative and qualitative indicators have been used
qualitative indicators are often aimed at presenting the context of application of the case study in order to provide useful information to assess the value of the impact

Often not indicators (proxies of one phenomenon) but counts
(e.g. number of event, number of persons attending the event, etc.) not intensity measures

Means for verification are compulsory for each indicator
especially for the calculation of the change

More problematic cases related to SSH impacts (Production of public goods of a social, educational nature and inclusion policies)

Experimental implementation of third mission assessment by the use of case studies

key issue are indicators and the possibility to establish the value of the impact produced

Keep in mind the Open Science movement and the indication on impact evaluation (EC Indicator frameworks for fostering open knowledge practices in science and scholarship and CoARA Agreement)

«Recognise the contributions that advance knowledge and the (potential) impact of research results. Impact of research results implies effects of a scientific, technological, economic and/or societal nature that may develop in the short, medium or long-term, and that vary according to disciplines and research types (e.g. basic and frontier research vs. applied research).»