



Evaluation of Research in Context

Presentation: Jack Spaapen, UAS meeting Dublin 24 November 2009



2006: ERiC = Evaluating Research in Context



**2009: SIAMPI = Social Impact Assessment
Methods through Productive Interactions
between research and society**

ERiC

www.ERiC-project.nl



Goal: develop new evaluation approach

- Focus on wider context, attn for both scientific and societal aspects of research
- Consider differences between fields of research
- Keep it simple and doable
- Integration in national systems



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KNAW, NWO, VSNU, HBO (UAS-NL)

- 1. Development of discipline specific evaluation methods**
- 2. Development of criteria and indicators for social relevance/impact**
- 3. Integration of these methods in new SEP (2009 – 2015)**

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Standard Evaluation Procedure – SEP

all publicly funded research in the Netherlands

- **Self evaluation report is a vital element**
each institute reviews its past performance and looks ahead to its future mission
- **4 criteria for comprehensive evaluation:**
 - Quality (position internationally)
 - Productivity (focus on scientific production)
 - **Relevance (for policy, industry and society)**
 - Vitality and feasibility (management)
- **Assessment is both retrospective and prospective**
the accent is on the latter
- **External site visits every 6 years, (extended) peer review**
every three years there will be a mid term evaluation



Societal relevance in SEP

- ❑ ***Societal quality of the work.*** This aspect refers primarily to the policy and efforts of the institute and/or research groups to interact in a productive way with stakeholders in society who are interested in input from scientific research. It may also refer to the contribution of research to important issues and debates in society.
- ❑ ***Societal impact of the work.*** This aspect refers to how research affects specific stakeholders or specific procedures in society (for example protocols, laws and regulations, curricula). This can be measured, for example, via charting behavioural changes of actors or institutions.
- ❑ ***Valorisation of the work.*** This aspect refers to the activities aimed at making research results available and suitable for application in product, processes and services. This includes activities regarding the availability of results and interaction with public and private organisations, as well as direct contributions such as commercial or non-profit use of research results and expertise.



SIAMPI (FP7): methods for social impact assessment

KNAW/Rathenau, CSIC, CNRS/MSH, univ of Manch

- Health (NL)
- Nanotechnology (NL, FR, EU)
- ICT (NL, UK, EU)
- Social sciences and humanities (ES, UK)

Originated from international ERiC conference nov
2007



Differences and similarities

ERiC

- All higher education
- Broad evaluation
- Cases in NL

SIAMPI

- Universities, national and European programs
- Focus on social impact
- Cases in four EU countries



Changing contexts

- ❑ Research context : mode 1 / mode 2 ; academic, disciplinary / application oriented, transdisciplinary, problem solving, Focus on productive networks, socially robust knowledge
- ❑ Policy context : Lisbon ambitions, knowledge gap, national economies, valorization
- ❑ Evaluation context : broader demands, not only scientific quality, but also socio-economic value (ranking and classification, peer review under pressure, goals of evaluation (improve or rank))



Research policy issues

- New forms of research to evaluate, not only 'academic', mode 1 and mode 2
- Focus on ISI-indicators challenged
- Does Peer review have a future?
- Rankings, classifications, valorization



Tensions in evaluation procedures

- ❑ Scientific quality vs? societal relevance
 - ❑ Judgement (jury) vs? Improvement (coach)
 - ❑ Ranking (allocation) vs? classification (policy/strategy)
 - Individual, group, program, institute
 - Ex post, ex ante
-
- ❖ Evaluation procedures often try to mix a lot of these things
 - ❖ Instruments are lacking to evaluate comprehensively in a robust way, still relying on traditional indicators and classic peer review



Principles of SIAMPI/ERiC approach (1)

- ❑ **Mission oriented:**
the evaluation starts with analysis of the mission of a group or program or faculty or institute

- ❑ **Early stakeholder / user involvement:**
 - (i) stakeholder environment is divided in various social domains: policy, industry, society
 - (ii) stakeholders are actively engaged in the development of field specific indicators



Principles of SIAMPI/ERiC approach (2)

- ❑ Methodological mix:

Use of both quantitative and qualitative data, gathered through reports, interviews, focus groups, quantitative methods

- ❑ Feed back:

Feed back is formative (future oriented) more than summative (backward looking)



Principles of SIAMPI/ERiC approach (3)

Recognition of different research profiles

- oriented toward scientific community
- industry oriented, professional sector
- society, policy

often it will be a mixture



Summary of ERiC / SIAMPI evaluation

- Focus on mission of research group / program
- Analysis of **productive interactions** of research with relevant social environment: (a) direct / personal; (b) indirect / medium; (c) money
- Involvement of social domains (policy/politics; industry, professional sector, society at large)
- Feed back (researchers and stakeholders)

Evaluation should be comprehensive, include qualitative and quantitative elements, and peer review should be expert review



productive interactions between science and society

- ❑ Direct (personal) interactions : **joint projects, advisory, consultancy, double functions, mobility**

- ❑ Indirect interactions :
 - Texts : **articles, books, catalogues, protocols**
 - Artifacts : **instruments, exhibitions, models, designs**

- ❑ Money : **contracts, subsidies, patenting, licensing**



SIAMPI/ERiC evaluation method (i)

A: Conceptual phase

The field is analysed in terms of knowledge production and circulation, output and stakeholders

- Analysis of research field and production: what, why, how
- Analysis of relevant stakeholder environment: who, demand, input
- Review of interaction between science and social domains (knowledge circulation)
- List of potential indicators



SIAMPI/ERiC evaluation method (ii)

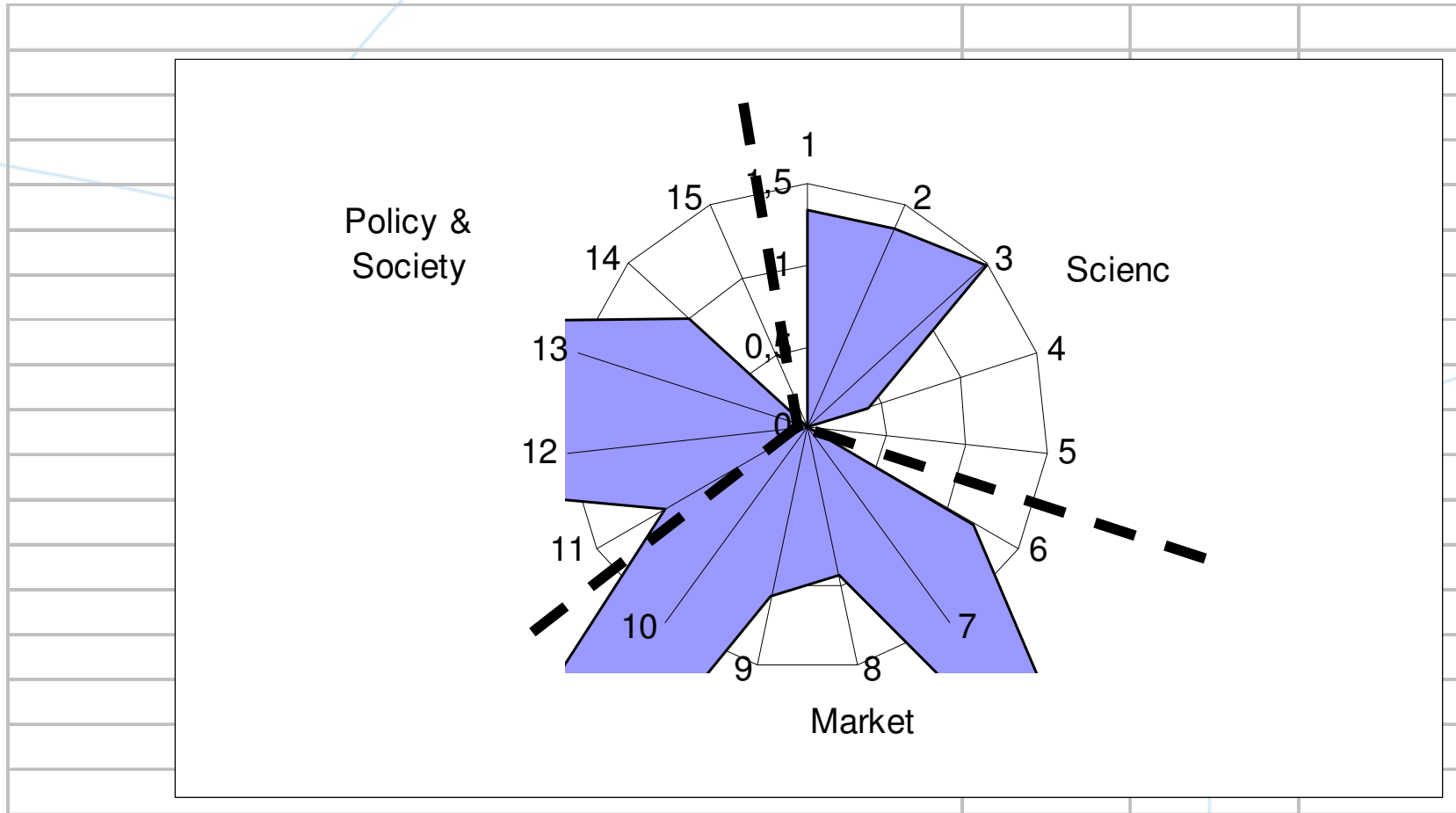
B: Test phase

Potential indicators are tested in the field, including (international) benchmarking

- Discussed with the researchers and stakeholders (feed back)
- Indicators suggested to be used in self evaluation
- Model developed of interaction and/or knowledge circulation

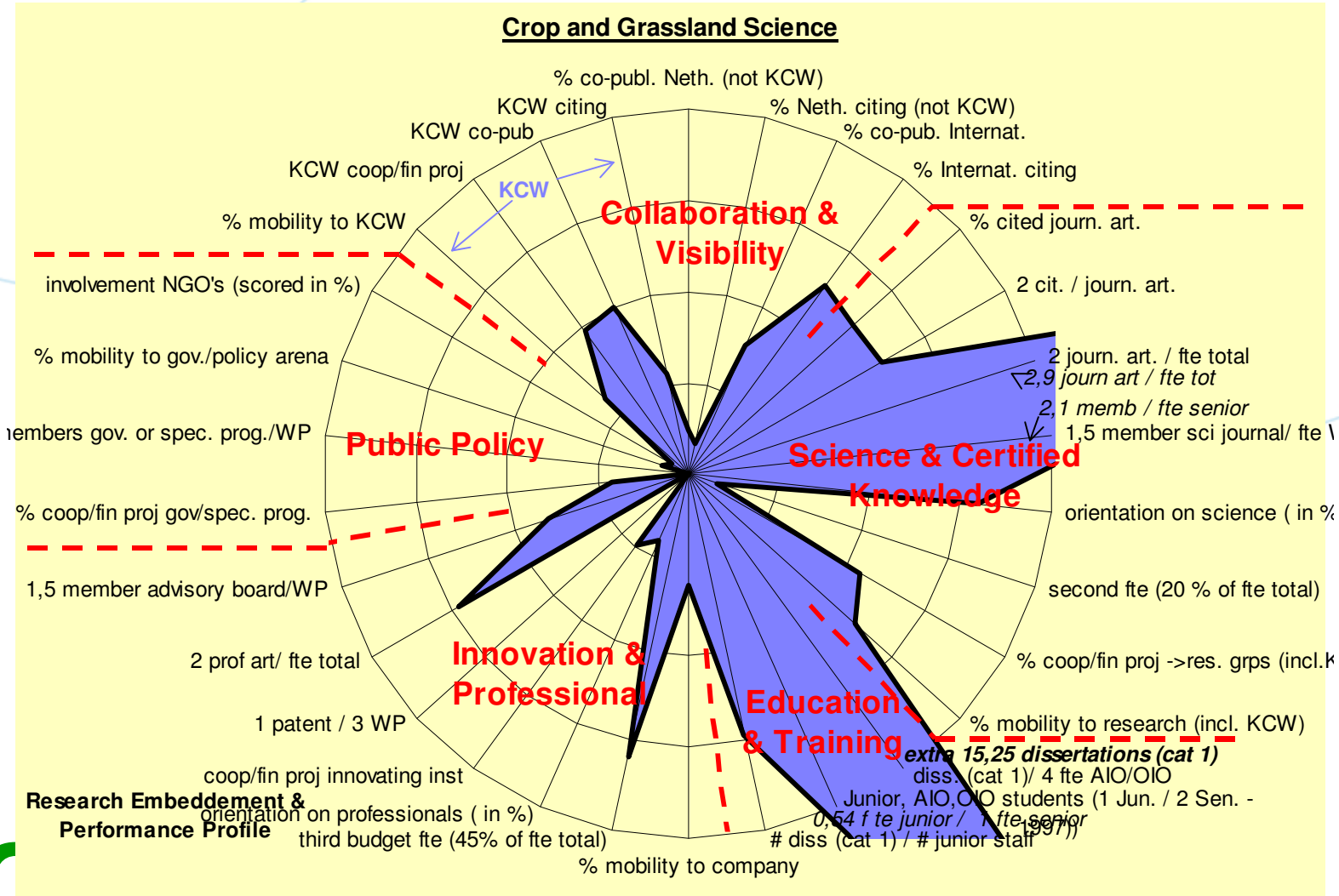


ERiC model 1 : radar graph





REPP – full profile





ERiC model 2: table

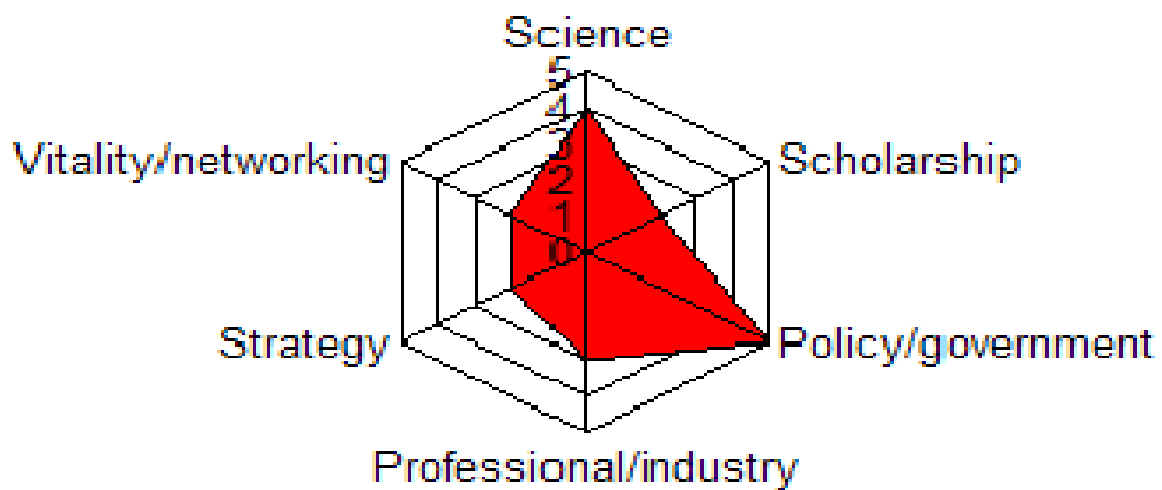
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Science, certified knowledge		
	relative citation impact	--
	productivity scientific publications	++**()
	international visibility and collaborations	=
	representation in editorial boards	++
	invited lectures	++
Industry, market		
	non-academic/commercial citing environment	++
	productivity professional publications	++*(1)
	involvement in industry/market	-
	advisory and expert roles in commercial domain	--
	editorships professional journal	++**
Policy, societal		
	involvement in policy domain	+
	memberships and expert roles in governmental bodies	++
	memberships of societal organisations: advisory/ education	++*
	production of public goods	+
	additional grants from policy	+



ERiC model 3: spider web

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Discussion

Fairness of assessment

- **slanted focus of criteria and indicators, disadvantageous for many fields**
- **scientific quality and societal quality (or impact or valorisation) → finding an alternative evaluation method; Narrowness of criteria : how to evaluate research comprehensively**

Simplicity

- **quantitative vs qualitative measures; numbers = simple?**
- **how to reduce the 'evaluation burden': better attunement of different procedures, focus on core information**



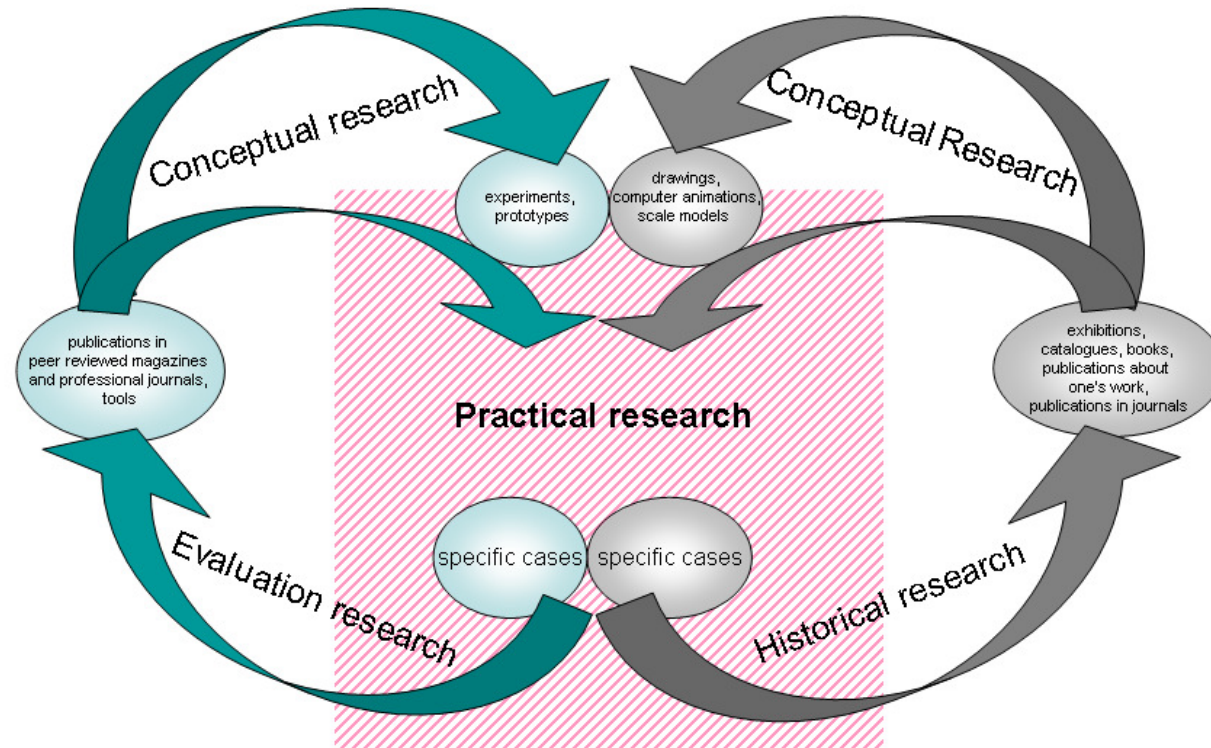
Research in architecture

- 'Research by Design', 4 types of research
 - Evaluation research
 - Historical research
 - Conceptual research
 - Practical research
- Types of research differ in outputs and stakeholders
- List of possible indicators



Knowledge circulation in architecture

Types of research in architecture





Quality and relevance of architecture research

- Scientific Quality
- *Scientific Production*
- Scientific Recognition
- Responsiveness of research agenda
- Collaboration with (possible) users
- *Dissemination and knowledge transfer*
- Actual impacts and use of research

Note: in some areas of architecture research scientific quality and recognition is strongly related to societal contribution.



Evidence/ indicators of q & r

Scientific Production

- Articles in refereed journals or journals with a clear editorial strategy to select on academic quality
- Book chapters presenting new work mostly are subjected to editorial scrutiny
- Books, monographs, catalogues
- Conference papers
- Edited volumes of conference proceedings
- Major reviews of literature or of exhibitions
- PhD Theses



Evidence/ indicators of q & r

Dissemination and knowledge transfer related to the mission

- **Production of texts/professional publications/non scientific publications/exhibitions, etc.**
- **Dissemination of technology/artefacts/standards**
- **Advisory and consultancy roles**
- **Popularization/education/contributions to societal debate**
- **Training of professionals/mobility/master theses**



Collaborations and stakeholder assessment

Different collaborative links with stakeholders

- **Commissioned research**
- **Funding related to societal themes**
- **Actual collaborations in research, testing and evaluation**
- **Establishment of consortia including non academic organizations**

Stakeholder assessments through interviews of stakeholders selected by program management



Test Results

Data quality is low

- Budget information not according to standards and unreliable
- Many statements refer to intentions, rather than achievements
- Attribution of past performance to current programs is impossible

More explication of ‘valorization partners’

Stakeholder information provides valuable complimentary assessment of performance



Scientific Benchmark Study

- Literature on architecture in ISI, not a strong publication culture yet, but growing
 - 473 publications (75% article)
 - Number is growing fast
 - Scattered sources, not ISI oriented
- Other faculties face similar problems as Delft

Undesirable to use standard bibliometric indicators in current situation



SIAMPI : health case study

- Mission**
- Consulting researchers and stakeholders**
- Data gathering, indicator development**
- Feed back**
- UMC Leiden univ
- NIVEL (primary health care)



Proposed UMC system

Societal impact

Process 6 measures: advisory committees, collaboration stakeholders, Dutch publications, training professionals, authorized public information, public media

Product 6 measures: protocols & guidelines, policy documents, technology & services health care, medical tests, medication, methods to improve quality of care

Economic impact

Process 1 measure: membership of company advisory committees

Product 3 measures: commercial products, spin-out companies, patents



Why do research?

- curiosity, discovery, theory [scientific community]
- problem solving [scientific comm., target gr]
- societal demand : policy, industry, patient groups, NGOs, etc. [wide variation]
- career, esteem, money [self – varied]