

ASSESSING THE BROAD SOCIETAL IMPACTS OF RESEARCH: THE CASE OF THE NCCR NORTH-SOUTH PROGRAMME¹

CLAUDIA MICHEL, SIMON HEARN, GABRIELA WUELSEER and THOMAS BREU

There is growing interest in the impact of academic research on society. If we define research impact as the “demonstrable contribution that excellent research makes to society and the economy”, the concept encompasses a variety of contributions of research-related knowledge and skills that benefit people and the environment.² Prominent research networks such as the Research Councils UK, quoted above, are driving efforts to document the social and environmental benefits of research. Meanwhile, individual researchers from diverse disciplines are using their studies to address key issues – e.g. poverty, environmental degradation, or health burdens – and successfully helping solve societal problems. This trend towards emphasising the extra-academic benefits of research means that universities and researchers must contend with new expectations that go beyond those of scholarship and education. Some observers have begun using the term “third academic mission” to describe universities’ efforts to engage with societal beneficiaries and achieve extra-academic returns (Göransson, Maharajh, and Schmoch, 2009).

In the following, we argue that research benefits society in a variety of ways, producing tangible returns over and above economic impacts, and that this has concrete implications for research evaluation. The Swiss National Centre of Competence in Research (NCCR) North-South provides a useful case example. It was a 12-year international research programme on sustainable development and global change that effected social, environmental, and economic returns around the world. Located in Bern, Switzerland, the programme’s management centre developed and adapted its own self-assessment tools because the assessment instrument supplied by its main academic funder focused primarily on economic benefits, unnecessarily overlooking other contributions. After describing these assessment tools, we conclude our discussion by highlighting the potential and challenges of evaluating the diverse impacts of such research.

THE IMPACT OF RESEARCH ON SOCIETY: EMBRACING A BROADER PERSPECTIVE

The impact of research on society is often viewed primarily through an economic lens, focussing on wealth creation, productivity increases, profits, and strengthened global competitiveness. The EU’s Framework Programme for Research and Innovation, for example, associates research and innovation with “successful commercialisation”.³ In Switzerland, the country’s federal agency for the promotion of science-based innovation, or Commission for Technology and Innovation (CTI), emphasises entrepreneurship and the creation of start-up companies.⁴ This stress on economic returns and enhanced cooperation between academia and industry dominates both on the national and the international level.

However, some observers argue that the impact of research must be considered more broadly. Claire Donovan, for example, describes research impact as belonging to a “social contract that exists between science and society...[and]...entails that research must address pressing social issues” (Donovan, 2011, p. 176). This new definition of research impact still includes economic returns, but it also accounts for social, cultural, and environmental dimensions. In this way, research impacts may be pursued on a variety of levels. Depending on their disciplinary background, individual researchers may measure the impact of their research in terms of environmental improvements, greater social cohesion, or reduced health burdens. Economic factors will continue to receive significant attention despite any new, broader conception of research impact. However, the well-being of societies in industrialised, emerging, and developing countries depends on more than just economic factors. Societal well-being also depends on factors such as social equity and the health of our natural environment.

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 2 Information on the British research councils’ “Excellence with Impact” framework: <http://www.rcuk.ac.uk/kei/Pages/home.aspx>; retrieved on 4 March 2013
 3 http://www.swisscore.org/SiteCollectionDocuments/Newsletter/syn_syn_1302.pdf; retrieved on 7 March 2013
 4 Commission for Technology and Innovation CTI: <http://www.kti.admin.ch>; retrieved on 2 November 2013

BEYOND QUANTITATIVE APPROACHES TO IMPACT ASSESSMENT

Broadening our understanding of research impact has direct implications for research evaluation and the standards of quantitative and qualitative evaluation. Within academia, certain quantitative indicators have established themselves as the primary means for assessing research excellence. Publication counts, the impact-factor of publications, and competitive funds obtained, for example, have become popular proxies for research excellence (Donovan, 2007). These indicators may provide useful information about the resonance of particular research in the academic arena, but they say little about extra-academic returns. Other quantitative means for assessing extra-academic research returns have been developed, but they still have considerable flaws (Donovan, 2007). Many of these indicators and metrics have been adopted from the business world – such as level of industry funding, number of patents generated, or number of start-ups launched – and are commonly used for impact assessment by research funders and other key academic stakeholders. Rooted in economics, they fail to capture other important benefits that research may afford society. Finally, there have been efforts to create quantitative indicators that specifically assess societal returns, but these too are problematic. As Claire Donovan concludes: “The search for quantitative impact indicators has delivered an array of novel metrics that represent low-order impact, technometrics that privilege private over public interest, and sociometrics that rely on macro-level data with no credible link to the efforts of particular researchers” (Donovan, 2007, p. 591).

Qualitative methods of assessing extra-academic benefits are often appreciated for the greater flexibility they offer, enabling evaluators to account for various dimensions, including the public value of research. Experts in research assessment generally recommend combining quantitative and qualitative methods to evaluate research impacts, and they recommend peer review as a primary means of qualitative assessment. But peer review bears its own problems when used for broad impact assessment. Some observers point out that current practices of peer review are overwhelmingly based on discipline-specific value judgments. Disciplinary criteria of excellence are often poorly suited for assessing interdisciplinary research, or determining the societal relevance of research. According to Paul Nightingale and Alister Scott, “[t]he difference between the disciplinary emphasis of knowledge producers and the interdisciplinary needs of users is the most obvious relevance gap” (Nightingale and Scott, 2007, p. 545). They argue that research evaluation procedures such as peer review have contributed to expanding, rather than closing, the gap between the perceived quality of research and its actual relevance to society. Among other suggestions for improving research evaluation, they recommend furnishing reviewers with specific relevance criteria for use in the peer-review process, and offering reviewers guidance as to how to apply these criteria.

In sum, the prevailing methods used to assess the extra-academic impact of research focus too heavily on economic returns (neglecting social

and environmental benefits), give undue weight to insufficient quantitative criteria, and/or are constrained by discipline-specific perspectives. Whether quantitative or qualitative, these assessment methods require further refinement in order to adequately capture the diverse ways that research may impact and benefit society.

THE NCCR NORTH-SOUTH: RESEARCH TO BENEFIT SOCIETY

Despite the continuing lack of adequate methods for assessing the broader societal impacts of research, individual researchers are still working hard to achieve such impacts – and learning how to assess them in the process. Below, we outline the experience of the NCCR North-South programme in developing a new approach for reporting and assessing the broader extra-academic impact of its research. The NCCR North-South was a transdisciplinary, international research programme based on partnerships between Swiss universities and other institutions in Africa, Asia, and Latin America (Hurni, Wiesmann, and with an international group of co-editors, 2010; Wiesmann U, Hurni H, and with an international group of co-editors, 2011). Comprising a network of around 1,200 researchers active in over 40 countries, the programme was dedicated to addressing challenges of global change and sustainable development. It received approximately 100 million Swiss francs in funding from 2001 to 2013, and enabled researchers to conduct advanced studies on topics such as livelihoods, institutions, conflicts, health, sanitation, economy, governance, and the sustainable use of natural resources.

As a research programme truly dedicated to improving human well-being and the environment, the NCCR North-South had a research mission that sought “to support societies in partner countries and institutions in their efforts to address syndromes in their regions and find means to mitigate them” (Hurni H, Breu T, Wiesmann U, and with contributions from the Board of Directors and the Management Centre of the NCCR North-South, 2013, p. 45). As a result, programme researchers were expected to strive for results that would benefit entire societies, not just marketable products to benefit the economy. Individual researchers conducted projects that aimed, among other things, to support more effective and efficient public services, more responsive policies, and improved understanding of global change.

Various structural conditions helped the research programme to achieve sustained, measurable impacts. The single most important factor was the programme’s combination of funders: the Swiss National Science Foundation (SNSF) and the Swiss Agency for Development Cooperation (SDC) provided roughly matching funding to the programme.⁵ These funding bodies – one oriented towards **academic excellence** (SNSF), the other towards **societal benefits** (SDC) – ensured that both academic rigor and extra-academic impacts were pursued over the programme’s entire lifespan. In addition to this central supporting factor, four other key elements facilitated an enabling environment for impact creation. First, the programme’s leaders had a shared understanding of the importance of societal impact, based on the research mission articulated above. Second, the programme’s review panel, which evaluated it yearly and pro-

vided feedback, was comprised not only of senior researchers, but also included representatives from international development work (albeit fewer in number). Third, the programme's funding scheme mandated establishment of a "knowledge and technology transfer" unit, whose aim was to channel relevant research products into the economy and society. Fourth, the programme's reporting scheme, provided by the SNSF, included sections for assessing academic quality and societal impact.

Nevertheless, the standardised SNSF reporting scheme could not account for the majority of the programme's societal benefits. The reporting scheme focussed on quantitative indicators designed to measure a research programme's economic benefit, such as the number of generated patents, licences, start-up companies, prototypes/demonstrators, processes/products, and CTI projects.⁶ Aside from the number of processes and products it generated (98), the NCCR North-South programme performed badly on such metrics. The programme only produced one patent, five start-up companies, four prototypes or demonstrators, and no licences or CTI projects (Hurni H et al., 2013). However, the focus of the programme had been on knowledge transfer to policymakers and civil society actors. It aimed at generating research-related knowledge and skills that would benefit people and the environment. Outputs relevant to technology transfer (e.g. patents) or for-profit purposes (e.g. licences) were considered of minor importance vis-à-vis the programme's mission. In the end, while the review panel regularly expressed approval for the programme's societal impacts, their positive feedback was overshadowed by the programme's poor performance according to the standard reporting/assessment scheme of the SNSF.

RESEARCH IMPACT PLANNING AND SELF-ASSESSMENT: A NEW SWISS APPROACH

As a result of the mismatch between the SNSF's reporting/assessment scheme and the NCCR North-South's mission, the programme's management team developed and adapted instruments for reporting, planning, and assessing its impacts. It launched a series of NCCR North-South "reports on effectiveness". These publicly disseminated reports provided an overview of the programme's various impacts with respect to international development (Michel, Heim, Herweg, Zimmermann, and Breu, 2010), knowledge exchange between academic and non-academic actors (Heim, Michel, Salmi, and Breu, 2011; Michel et al., 2013), the career development of programme researchers (Heim et al., 2012), and maximising research impacts (Michel et al., 2013)

In addition to this series of impact reports, the management team introduced instruments to support programme researchers in maximising the effect of their engagement with societal beneficiaries. To aid the planning and monitoring of research impacts, the NCCR North-South adapted the RAPID Outcome Mapping Approach (ROMA). ROMA was developed by the Research and Policy in Development (RAPID) programme at the Overseas Development Institute (ODI). It is a novel approach for analysing and maximising research's impact on behalf of poverty

reduction in developing countries (Young and Mendizabal, 2009). Its understanding of impact derives from Outcome Mapping, a methodology for planning, implementing, and evaluating development projects and programmes (Earl, Carden, and Smutylo, 2001). ROMA focuses on measuring the observable, behavioural outcomes that are necessary and sufficient for impact.

Outcome Mapping defines outcomes as "changes in the behaviour, relationships, activities or actions of the people, groups and organisations with whom a programme works directly" (Earl et al., 2001, p. 1). It applies a systems-thinking perspective to position a research programme's outcomes in terms of its contribution to ongoing development processes. The non-academic partners with whom researchers work directly and with whom they anticipate opportunities for influence are essential in the systems in which they are engaging. Development is viewed as a product of people's relations with each other and their environment. ROMA helps researchers plan ways of positively influencing the behaviour of non-academic partners from the outset of their research project; it also supports continuous monitoring of results in all stages of research. Ultimately, the seven-step ROMA framework seeks to aid researchers in achieving lasting impacts by triggering changes in broader policy (Figure 1).

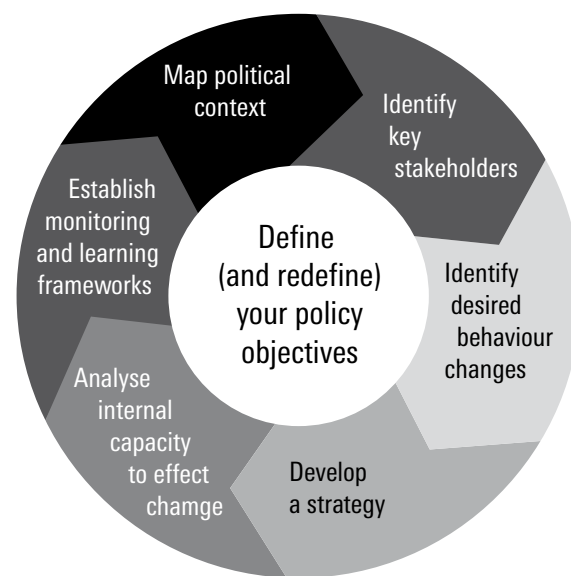


FIGURE 1 - The RAPID Outcome Mapping Approach (ROMA). (Source: Young and Mendizabal, 2009, slightly adapted. Reproduced with kind permission of the authors)

In contrast to the SNSF reporting/assessment scheme, the ROMA approach was well suited to the NCCR North-South's impact goals. Programme researchers found the ROMA tools and instruments useful. In 2012, for example, a group of NCCR North-South postdoctoral researchers jointly reflected on the benefits and limits of applying the ROMA approach within their research projects. Using the approach, they identified desired research effects in a variety of fields such as health policy in Tanzania and Chad, urban planning in Bolivia, and natural resource management in Tajikistan and Pakistan. ROMA enabled them to rapid-

ly identify their objectives in terms of influencing policy and to present key findings to policymakers in a comprehensible way. It helped them structure their ideas, emphasise the role of stakeholders, and focus on outcomes. Many felt that the approach supported them in better translating research into action for the benefit of their societal stakeholders (Michel et al., 2013).

NCCR North-South researchers generally appreciated the ROMA approach, but certain steps proved challenging. The most difficult step for researchers was that of identifying desired changes in behaviour on the part of key societal stakeholders. Researchers found it hard to specify how people's behaviours, relationships, activities, or actions should be transformed based on successful researcher–stakeholder interaction. Researchers were asked to clearly delineate how changes could be evaluated using short-term to long-term qualitative indicators. Despite the fact that programme researchers were trained in collaborating with non-academic stakeholders and in assuming different roles vis-à-vis research users (Pohl et al., 2010), they still found this task difficult. What clearly emerged from the group's collective reflection was the need for even stronger engagement between research evaluation specialists and researchers in order to develop coherent, effective mechanisms for self-evaluating the impacts of the NCCR North-South and similar research programmes.

CONCLUSION

Researchers, programme designs, and donor strategies are increasingly drawing attention to the potential impact of research on society. In many cases, however, economic benefits receive the most focus when assessing research impacts, and social and environmental benefits are overlooked. Indeed, the prevailing methods of research evaluation are of limited value for assessing the diverse societal impacts that research may have, especially research on sustainable development. Some of the popular quantitative metrics that are used to evaluate research have been adopted from the business world and macroeconomics, and favour private over public interests. Qualitative approaches such as peer review generally offer more flexibility in research evaluation, enabling adaptation of criteria to specific contexts and complex issues. Yet the current standard procedures of qualitative research assessment are overwhelmingly based on discipline-specific value judgements. In order to adequately evaluate the impacts of interdisciplinary research, for example, qualitative assessment procedures like peer review require further refinement. As regards quantitative approaches to research evaluation, the NCCR North-South programme provides an instructive example of the limitations of commonly applied models, such as that used by its primary academic funder the Swiss National Science Foundation (SNSF). The SNSF's reporting/assessment scheme focussed on economic returns such as generated patents, licences, or start-up companies.

Several key factors enabled the programme to strive for and accomplish societal impacts: long-term co-funding by an academic and, especially, an extra-academic development-focused funding body; a mixed review panel comprising academic and non-academic members; a programme design with a clear societal mission at its core; and participating researchers committed to engagement with non-academic stakeholders/societal beneficiaries. In the process of pursuing its societal mission through research, the programme's management team developed a

new reporting procedure to aid impact assessment. Further, it adopted the ROMA planning, implementation, and monitoring tools to maximise the impact of the programme. Individual researchers appreciated these tools, but found that additional research evaluation expertise was necessary to realise their full potential.

Several other relevant lessons may be drawn from NCCR North-South programme. The demand that academic research beneficially impacts broader society requires a fundamental shift in research orientation. This shift in focus from academic achievements to extra-academic impacts cannot be delegated to lone researchers and cannot be treated as a supplementary, voluntary task. It requires establishment of additional tools and policies at the highest levels of research institutes and universities, as well as on the level of Science, Technology and Innovation (STI) policies. At present, research institutes and universities generally do not sufficiently incentivise or reward research that strives for extra-academic impacts. In Switzerland, the STI policy framework does still not embrace a broad understanding of research impact that accounts for societal and environmental returns, in addition to economic ones. Indeed, greater political will and institutional resolve are needed in order to bridge the gap between academic research and society.

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AUTHORS

CLAUDIA MICHEL

*Centre for Development and Environment (CDE),
University of Bern*

E: claudia.michel@cde.unibe.ch

SIMON HEARN

Overseas Development Institute (ODI)

E: S.Hearn@odi.org.uk

GABRIELA WUELSE

*Institute for Environmental Decisions,
ETH Zurich*

E: gabriela.wuelser@env.ethz.ch

THOMAS BREU

*Centre for Development and Environment (CDE),
University of Bern*

E: thomas.breu@cde.unibe.ch