

How University Research can Create Impact

A.S.M.A. Haseeb^{1,2,*}

¹ Innovative Industry and Sustainability Science Research Cluster, University of Malaya,
50603 Kuala Lumpur, Malaysia

² Department of Mechanical Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur,
Malaysia

*Corresponding author email:
haseeb@um.edu.my

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ABSTRACT

Universities are under increasing pressure to demonstrate that research carried out by using public money creates significant impact beyond academia which are categorized as cultural, economic, environmental, social, health and well-being, policy influence and change, legal and technological developments. Research impact is complex, diverse and long term in nature. The linear Results Chain Model suggests that a research project can go through a few phases before it creates impact: 1. Inputs, 2. Activities, 3. Outputs, 4. Outcomes, and 5. Impact. In this long process, researchers have a greater role to play in the early phases. In the later phases, researchers alone cannot make much progress without engaging with appropriate stakeholders. Stakeholders may include industry, policymakers, NGO, etc. depending on the type of the project. Researchers need to deliberately aim at non-academic impact, in addition to their traditional intellectual contributions. Universities, on their part, have to provide a supportive environment for researchers to pursue impact. The presence of effective ecosystems at national and regional levels is a necessary condition for increasing the chances of creating impact out of university research.

Keywords: research impact; Results Chain Model; stakeholder engagement; research communication

Opinion

Research impact is a much talked-about topic nowadays. Universities are under increasing pressure to demonstrate that research carried out by using public money creates significant impact. This phenomenon is observed worldwide.

Academics in universities have long been required to demonstrate that their research activities create academic impact by making intellectual contributions such as generation of new knowledge, development of new theories, gaining increased understanding of phenomena, etc. Academics illustrate these by publishing research papers in high ranking journals. Academic impacts are nowadays measured using publication-based metrics such as citation count, h-index, etc.

However, academic impact alone does not satisfy funding agencies, policy makers and tax payers any more. They demand that research done at universities create impact beyond academia. The Australian

Research Council defines research impact as the contribution that research makes to the economy, society, and environment, beyond the contribution to academic research. Research impact outside academia can be very wide ranging. The UK Research Council categorises research impact into eight types: cultural, economic, environmental, social, health and well-being, policy influence and change, legal and technological developments.

Although impact beyond academia is not totally new to researchers, it is only relatively recently that they are facing tough demands to explicitly demonstrate the impact of their research. The 2010 America COMPETES Reauthorization Act of the Congress requires all research projects funded through the National Science Foundation (NSF) to demonstrate impact beyond academia. The UK has been evaluating impact of government funded research programmes under its Research Excellence Framework since 2014. Many of the programmes under the EU Horizon 2020 that started in 2014 require the delivery of impact by researchers. Excellence in Research Australia (ERA) has started assessing impact of publicly funded research since 2018.

Research impact is complex, diverse and usually long term in nature. The linear Results Chain Model is often used to describe the process that leads to impact. This model suggests that a research project can go through a few phases before it creates impact: 1. Inputs, 2. Activities, 3. Outputs, 4. Outcomes, and 5. Impact. In the first phase, researchers gather the inputs necessary to implement the project. Researchers then carry out activities directed towards achieving project goals in the second phase. Outputs, achieved in the third phase of the Results Chain Model, are the first level results which are direct and immediate. Outcomes are the second level or medium-term results achieved in the fourth phase. Outcomes can eventually lead to impact which is the longer-term beneficial consequence of research. In real life scenarios, the process is not necessarily linear, but is rather complex and iterative.

In the context of academic research, inputs include research funding, expertise, laboratory facilities, library, and research assistants. Activities are actual research undertakings like literature survey, experimentation, simulation, survey, data analysis, theory building, etc. Publications are most common outputs of research projects. Other examples of outputs include patents and prototypes. If a research project has come up with a prototype of a certain device, a company may show interest if it has a commercial potential. The company may invest technically and/or financially in developing it further towards a commercially viable product. Such an uptake by the company can be considered as an outcome of the research. If the commercialization of the product eventually succeeds and it generates revenue, creates jobs, etc., then this is a manifestation of the impact achieved by this research project.

In the case of a social science project, the research output can be a policy paper. If this policy paper generates interest among relevant stakeholders and leads to further discourse, then this is a desired outcome of this project. The policy paper, after further improvement through deliberation, may be accepted by the relevant authority, or by lawmakers to prepare a new legislation. If the eventual adoption of the legislation leads to the improvement of quality of life, public policy, etc., then this research project can be considered to have achieved an impact.

The above examples show that it may take time to achieve impact from depending on the type of research. In this journey, researchers have a greater role to play in the early phases. In the later phases, e.g., the outcome and impact phases in the Results Chain Model described above, researchers alone cannot make much progress without engaging with appropriate stakeholders. Stakeholders may include industry, policy makers, NGO, etc. depending on the type of the project.

Thus, researchers are not the only players in the process of achieving impact. In order to create impact, they must identify and engage with stakeholders. The earlier this engagement happens the better. Early interactions to define research questions jointly refer to the notion of co-creation of research theme by academia and stakeholders. If researchers engage with stakeholders at the conception stage of a research project, they are more likely to identify real life problems that are of genuine interest to the industry and society. Researchers should also keep on engaging with the stakeholders while implementing the project and continue to work with them further to achieve outcome and eventually impact.

Research cannot create real world impact if it does not reach the right people. It is therefore crucial that researchers communicate their research to potential research users beyond academia, e.g., business, public and other relevant sectors. Such communication should use broad range of formal and informal means such as workshops, bi-lateral meetings, public events, policy dialogues, field visits, conventional media, social media, etc. Research communication is not just dissemination, but rather engagement and should not be left to the end of the project.

Research can create impact in extremely diverse ways and is difficult to measure. Manifestation of impact can take a long time; it can be direct or indirect and can happen in unexpected ways. It is generally recognised that research impact beyond academia cannot be fully assessed by any standardized metrics or quantifiable indicators. Narratives and case studies backed by evidence have been used in the UK to assess research impact in a qualitative way. A combination of metrics and narratives have also been applied by others.

To summarize, impact beyond academia is an inevitability that academic researchers are increasingly going to face. Researchers therefore need to deliberately aim at non-academic impact, in addition to their traditional intellectual contributions. They may approach impact with a long-term career perspective, as impact may not result from a single research project. Impact is more likely to be a result of sustained and cumulative efforts in finding solutions to problems that industry and society have genuine interest in. Researchers have to recognize that they alone cannot achieve impact. They need to engage effectively with relevant stakeholders to achieve it. Universities, on their part, have to provide a supportive environment for researchers to pursue impact. Universities should have systems in place to train researchers on how to plan and achieve impact, support effective and fruitful engagement with industry and stakeholders, help disseminate research achievements through different media, and indeed provide incentives to researchers pursuing impact. The presence of effective ecosystems at national and regional levels is a necessary condition for increasing the chances of creating impact out of university research.