

Alan C. O'Connor

Senior Economist and the Director of Innovation Economics, RTI International

Mr. O'Connor's core research practice consists of economic evaluations for R&D organizations, government, and supporters of regional innovation systems. He works nationally and internationally with a diverse group of clients active in or supporting different phases of the innovation cycle. The unifying theme of his research is the role of public funding and public-private partnership in catalyzing and accelerating innovation to overcome technical and market barriers to socially optimal outcomes. He leads interdisciplinary research teams that quantify the economic, energy, environmental, and health impacts of innovation and technological change. His diverse research interests include renewable energy, medical imaging, technical infrastructure and standardization, immunization technology, start-up company support, and advanced manufacturing.

Q&A with the Expert



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1. How is this study unique?

The methodology we used in this study follows that used by other scholars and evaluators who have investigated the return on investments in science and technology. While the approach is not unique, the scope of the investigation is. That's because the distinct contributions of CFI and CIHR were considered, along with those of provincial partners and universities.

2. Why not use an input-output approach?

Input-output analysis is not an evaluation method. Rather, it is a useful approach for studying incremental changes in economic activity within a given region. For example, a new facility will directly employ some number of people and, by consuming the output of another facility, indirectly support additional employment.

Estimates of the rate of return to public and private investments in science and technology require a more sophisticated framework of analysis, one that can capture the nuance associated with the economic impact of new knowledge. The CT perfusion (CTP) case study in the report analyzed how public support accelerated the development of an important medical imaging tool and how that tool's use enhanced the ability of doctors to treat their patients.

3. Is a ROI of 2:1 good?

One should not think of a benefit-to-cost ratio as being "good" or "bad," or even "high" or "low" because its value is dependent on when the evaluation study was conducted. Generally, costs are incurred in early periods of time and benefits then begin to accrue in later periods of time. In this study we were asked to capture only the benefits that accrued through 2012. Had we done the study in 2013 or 2014 the benefits would obviously be greater and thus the benefit-to-cost ratio would likewise be larger. This time-related impact on a benefit-to-cost ratio will continue until a new competing technology is available. In the case of CTP, such a situation would be far in the future.



About RTI International

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RTI International is a trade name of Research Triangle Institute.

4. Why are there ranges of ROI in the technical report?

We present ranges for our calculated ROI to emphasize that there is always an element of uncertainty in a return on investment study, especially one that deals with benefits associated with the creation of new knowledge. It has always been the practice at RTI International to be transparent in the presentation of our findings and to be conservative in how we interpret them.

5. Why are there not more of these studies?

Benefit-cost studies of public and private investments are not uncommon; what are uncommon are detailed studies of public and private investments in science and technology that lead to the application of new knowledge. This is because such studies require a portfolio of skills ranging from an understanding of the underlying science and resulting technology, to knowledge of current expected future market applications of associated innovations, to an ability to interact with the spectrum of affected individuals including scientists, policy makers, and market users of the technology.