

FOR IMMEDIATE RELEASE

## Market-Pull Innovation Creates Economic Impacts in New Brunswick

November 16, 2020, Fredericton, NB - Technological innovation begins when someone identifies a problem or opportunity and has an idea for how to address it in a way that is practical and commercialisable. This is called the market-pull, as opposed to the concept-push approach to innovation. Concept-push leads to outcomes including discoveries, new knowledge, and highly qualified personnel. Although glamorous, concept-push produces less than ten percent of innovations.

Most innovations, more than ninety percent, have been found to come from applied research and development that is focused on specific business/industry problems or opportunities. An example of market-pull technological innovation is the steam-powered ship, which was specifically developed to achieve faster ships than could be provided by sails alone.

Even if the goals are clear, this approach does not make innovation easy. Multiple studies have found<sup>1</sup> that the majority of innovation efforts, estimated at 95%, fail. The reasons for such dismal success rates are many and include: lack of capital, poor cash flow, loss of momentum, failed demonstration, misunderstanding the market, poor customer experiences, supply chain limitations, and market timing mismatches. As a result, it can take a lot of time, effort, money, and risk to get from the concept stage all the way to a commercially successful product, process, or service.

While large, multinational corporations have the resources, and the staying power, to deal with such problems, small-and medium-sized enterprises (SMEs) generally do not. This is where research and technology organizations (RTOs) excel. RTOs can bring the needed skills, experience, tools, networks, and processes to bear on a business/industry problem or opportunity. While the RTO does not normally create the entire innovation, it handles the technological hurdles and barriers, accelerates the process, and de-risks it such that the business/industry client can bring the right new product, process, or service to the marketplace at the right time, and at an affordable cost in terms of time and money.

It is for this reason that RTOs are a critical component of successful innovation ecosystems, which can be defined<sup>1</sup> as places where business and industry can practice open innovation, pool technical resources, achieve economies of scale, and gain synergies in a conducive environment. This applies to all of small-, medium-, large-, and multi-national companies and effective regional innovation-ecosystems can be critical to fostering start-ups, attracting outside businesses to relocate, retaining businesses and, of course, growing businesses.

### ***Is there a way to measure success?***

The best way to measure technological-innovation success is through direct, incremental economic impact evaluations. In other words, were new products, process, and/or services actually developed, commercialized, and actively sold in the marketplace within a specific period of time? This can be done for an organization or for an innovation ecosystem or region.

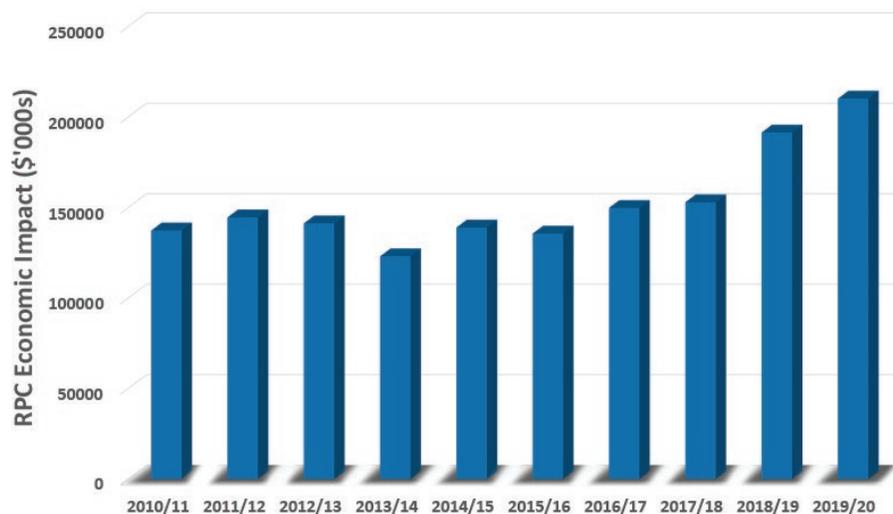
In New Brunswick, for example, the Research and Productivity Council (RPC) recently obtained independent estimates of the impacts of its work. For the 2019/20 fiscal year, RPC's work with business/industry contributed to direct economic impacts estimated at more than \$210 million. The cumulative estimated direct economic impacts achieved by RPC over the 10-year period from 2010/11 through 2019/20 is over \$1.5B. These results provide a strong testament to RPC's ability to make a sizeable contribution to the provincial economy.

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<sup>1</sup> For examples, see Schramm, L.L., **Technological Innovation: An Introduction**, de Gruyter, Berlin, 2018.

## Market-Pull Innovation Creates Economic Impacts in New Brunswick *(continued)*

In general, RTOs around the globe are increasingly estimating and reporting their annual economic impacts. Whereas this has been commonly practised by most European RTOs for many years, it is only beginning to be broadly adopted in Canada. This approach is understandably being welcomed by stakeholders, because it represents a huge advance over previous performance metrics, such as inputs (such as numbers of researchers, additions of infrastructure, and receipt of revenues), activities (such as goal setting, project/program launches, etc.), and outputs (such as numbers of projects completed, patents, technologies licensed, and publications). While such metrics are informative, the current best-practice is to go a step further and estimate the organization's direct economic impacts. In RPC's case, it provides many kinds of services to business, industry, government, and individuals across New Brunswick. Certainly, the bulk of RPC's work is performed for business and industrial sectors, and ranges from testing, analysis and measurement, to problem solving, to applied research and development, to piloting, demonstration, and technology commercialization. Examples of work performed for all three levels of government include technical support and analyses such as such as medical gas inspections for hospitals, water quality for municipalities and breathing air analyses for the Navy. Examples of work performed for individuals include testing and analysis (such as for radon gas, air and water quality, and DNA parentage).



In the past ten years, the amounts of such work performed each year have grown such that RPC's total revenues in 2019/20 are more than double the 2010/11 level. One of the contributors to this growth has been the addition of new services and capabilities, with RPC becoming increasingly recognized as a one-stop-shop for practical technological solutions. The increased breadth and depth of services provided have also enabled the translation of RPC's work into greater economic impacts, as shown in the chart below.

Since 2011, the cumulative direct economic impacts of RPC's work come to over \$1.5 billion.

Not captured in the impact numbers are the resulting growth in private-sector jobs, the greenhouse gas (GHG) reductions energy savings achieved by some projects, the health and safety benefits of other projects (such as those related to air and water quality, for example), or the positive environmental and/or social impacts of still other projects.

### **Conclusion**

There has been much discussion about how to improve New Brunswick's (and Canada's) innovation performance. Businesses and industries will make their own decisions, in accordance with their corporate strategies. Governments can help with increased emphasis on market-pull innovation policies, so that they enable and assist business/industry in ways that are effective. Universities and colleges help by continuing to focus on developing new knowledge and highly-qualified people. Intermediary organizations, including RTOs like RPC, help by being market-pull oriented, providing applied R&D, piloting, scale-up engineering, and other forms of pre-production support. RTOs like RPC also provide a critical function by acting as the hub that links all the other components of the innovation ecosystem together, thus providing business and industries with a one-stop gateway from which all support services can be accessed.

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