

# **PUBLIC INVESTMENTS IN UNIVERSITY RESEARCH: REAPING THE BENEFITS**

## **Position Paper Prepared by a Task Force of the Academy:**

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## **THE ACADEMY'S POSITION**

The Academy welcomes and endorses this timely report, which recognizes the excellence of research performed at Canadian universities, proposes increased financial support, and puts forward measures to enhance the financial return to Canadians of intellectual property resulting from government funded research.

In fact, although the Report of the expert panel focuses on scientific research, much of the research leading to new products and processes is in fact carried out by engineers.

We are therefore pleased that the thrust of the recommendations of the Report support those of the Academy's report on university research in Engineering:

"A major objective should be to develop a greater national, collective and individual ability of creating and exploiting improved products, processes and systems for the benefit of Canadian society."

Implementation of the key recommendations of the Report of the expert panel should also lead to an increase in the number of successful university high-tech start-ups, which were found in one study to "come from research-oriented faculties having an external orientation (consulting, co-op programs, external linkages, research institutes working closely with industry, participation in external networks, etc.), located in universities with well-established industrial liaison offices".

University start-ups were one of the subjects treated in the Academy's recent study of technological entrepreneurship, and were found to be a growing source of wealth creation.

The Academy feels that the Report of the expert panel should be seen in a wider context, as its authors' mandate necessarily focuses it on just one element of the contribution of universities to Canada's innovation system — the process for developing goods and services for the market from those inventions judged to have potential for commercialization — and one core strategy, the commercialization of intellectual property.

For instance, one of the most positive anticipated results of the Report of the expert panel will be to legitimize entrepreneurship and wealth creation as worthy pursuits for Canadian universities. This shift in culture should with time involve the student population and facilitate the emergence of research-based institutions which can match the best US universities in generating innovations and wealth for the national economy.

To this end, the Academy study strongly recommends, as set out in its 1998 report, that technological innovation and entrepreneurship skills be taught as part of the engineering curriculum, in the interests of fostering innovation and wealth creation. This Academy study also recommends that university business and engineering schools pool their skills to form the necessary curriculum.

More broadly, the primary role of universities is education. The major impact the universities can have on the economy is the preparation and attitude of students for contributing to wealth generation. Enhanced technological innovation and Entrepreneurship skills in new graduates should lead to more start-ups and the creation of high-level employment opportunities. Optimal preparation for employment in industry should also be emphasized. For example, shortening the time by which a graduate, once employed, adapts to efficiently contribute to industry (by say a year) would have an enormous impact on Canada's productivity. This requires closer working relationships between universities and industry, and wider application of the co-op programs successfully offered by many universities. University-industry relationships should be strongly encouraged and could be the single largest contributing factor in generating and exploiting university intellectual property.

The underlying themes for the implementation of the Report of the expert panel need to be: to promote the generation of IP, and to get the IP into the marketplace for the benefit of Canadians as quickly as possible, through whatever means works. Otherwise, the IP is worthless, whatever its merit or potential.

As regards timing for the implementation of the Report of the expert panel, this will obviously depend on the availability of increased funding and on the capacity of the universities to effect the required changes. In the interests of seeing benefits, faster is better.

The full Academy report includes detailed comments on each recommendation of the Report of the expert panel. These are intended to clarify some ambiguities which may lead to barriers to implementation, and to suggest alternate orientations where these might be helpful. These comments do not compromise the Academy's support for the principles developed in the Report of the expert panel. The complete position paper may be requested from the Academy Offices (acadeng@ccpe.ca).

## **CONCLUSIONS**

The Canadian Academy of Engineering welcomes and supports the Report of the Expert Panel on the Commercialization of University Research.

We agree with the overriding objective of the Report: "to increase the return to Canada on the investment in university research made by Canadian taxpayers". We suggest however that the focus should be on accomplishing this principle, rather than on prescribing mechanisms.

The Academy believes that the universities will find it difficult to acquire the commercialization capacity required to implement the recommendations of the Report, even with increased funding, and we have offered some suggestions on how to achieve this.

We support a review of the tax system, and the removal of disincentives as measures to stimulate personal entrepreneurship.

We hope that our suggestions on the detailed recommendations of the Report will help to make it more effective and promote a consensus among the many players involved in its implementation.

The Academy has long promoted innovation and entrepreneurship to generate economic well-being for Canadians. We consider the Report of the expert panel to be an important contribution in this direction and we encourage the early implementation of its key recommendations.