

College/Institute

TECHNOLOGY TRANSFER INITIATIVE



Advantage Canada

IDEAS TO ACTION



As the national and international voice of Canada's 150 publicly-funded community colleges, institutes of technology, cégeps and university-colleges across Canada, a primary role of the Association of Canadian Community Colleges is to engage proactively in discussions and debate with respect to the role and capacity of these institutions in the nation's economic and social development. With campuses in over 900 communities across the country, 1.5 million full-and part-time learners, and 60,000 professionals, our institutions play the pivotal role in employer, individual and government-funded skills updating and have traditionally been the implementers of federal retraining programs for the unemployed.

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Introduction

On November 23, 2006, Finance Minister Jim Flaherty released the government's Economic and Fiscal Update along with **Advantage Canada**, a multi-year economic plan for the country. The Association of Canadian Community Colleges (ACCC) welcomed the federal government's policy **commitment to help businesses, including small and medium-sized enterprises become more innovative by accessing the technology development and application capacity residing in community colleges and to expose more students to private sector research challenges through internships and targeted collaborative research.**

To assist the federal government in designing a program which will enhance collaboration between colleges/institutes and industry and enable these institutions to create a competitive advantage for industry and in particular SMEs' to contribute to economic growth, the Association of Canadian Community Colleges recommends a five year targeted investment in the form of a ***College/Institute Technology Transfer Initiative.***

The Association has long advocated for a college/institute-specific funded program which would:

- recognize the strong history of college/institute responsiveness to market needs and industry-identified challenges within their communities,
- recognize the research, development and commercialization process in colleges and institutes primarily involves development and commercialization and is inherently applied, focussing on responding to "technology push" - the movement of new technologies or knowledge from basic research institutions to commercial products or processes, or "market pull" - the incorporation of new technologies or knowledge by business and industry to solve problems and meet a specific goal (see Annex 1),
- not require matching funds from industry, in particular from SMEs,
- be designed based on policies and guidelines that respond to the reality of the college/institute system and their industry partners and not within existing granting council policies and requirements,
- be based on the principles of flexibility, transparency, accountability and pan-Canadian knowledge transfer.

The Association recommends a targeted investment in the form of a **College/Institute Technology Transfer Initiative.** The Initiative would be comprised of the following five components:

- A:** College/Institute Technology Transfer Units
 - Generic Technology Transfer Units
 - Thematic/Sectoral Technology Transfer Units
- B:** College/Institute Student Industrial Award Program

- C:** College/Institute Faculty Fellowship Program
- D:** College/Institute Collaborative Networks
- E:** Specialized Equipment and Facilities Fund

The overall objective of the Initiative is to foster collaboration between colleges/institutes and industry and provide applied research and rapid technology transfer that responds to industry problems and delivers commercial outcomes. The Initiative will enable colleges and institutes to create a competitive advantage for industry and in particular SMEs' to contribute to economic diversification goals by developing a rich base of highly qualified personnel, an enhanced local entrepreneurial culture and increased applied research and knowledge technology transfer capacity.

The above referenced initiatives will provide opportunities for colleges/institutes to allocate a greater proportion of staff time and institutional resources towards applied research activities conducted in partnership with industry. The five initiatives will focus on three areas critical to building regional economic development:

Applied Research, Innovation and Technology Transfer

- enhance the capacity for focussed research and development that translate research innovations into commercial applications and market solutions, increase the economic benefit of research through technology transfer efforts between communities, colleges/institutes and industry, increase competitiveness by assisting industry employers to access new technologies and applying these skills for finding solutions to business problems, encouraging the participation of students as technology transfer interns who are able to convert innovation into commercial products, services and processes.

Knowledge Sharing and Transfer

- increase the amount of knowledge and technology transfer between colleges, SMEs, industry, communities and other key stakeholders using collaborative networking approaches either in specific sectors across the country and/or linking novice institutions with more well-established institutions actively involved in applied research.

Highly Qualified Personnel

- ensure that industry and the business community have the technology and adaptation expertise.

COMPONENTS OF THE COLLEGE/INSTITUTE TECHNOLOGY TRANSFER INITIATIVE

A. College/Institute Technology Transfer Units

The establishment of **College/Institute Technology Transfer Units** across the country which would:

- help businesses, including Small and Medium Sized Enterprises (SMEs') become more innovative by accessing the technology development and application capacity residing in community colleges,
- expose more students to private sector research challenges through internship and targeted collaborative research,
- improve the competitiveness of SMEs through innovation, in particular by enhancing the knowledge and skills of SMEs to develop and implement innovation, promote technology transfer, and developing cooperation between companies in the region,
- enhance the innovation culture in the region, notably with the development of HQPs' in the field of innovation, and raising awareness of innovation by promoting its role and importance,
- further develop and optimize the regional innovation system, by strengthening the region's research potential, expanding the regional support infrastructure, and reinforcing research- industry collaboration.

The College/Institute Technology Transfer Units would undertake activities such as:

- promote awareness in industry and SMEs' of the capabilities of colleges and institutes in applied research and technology transfer,
- guide businesses through the various stages of the technological process,
- adapt technological solutions to production capacity and workforce,
- build strong links with industry to effectively transfer knowledge and technology,
- develop strategies for outreach to local/regional business and industry,
- monitor implementation of outreach strategies in partnership with businesses in the region,
- provide technical assistance through knowledge and know-how transfer,
- develop technology evaluation programs to ensure that the technology developed is efficient and meets industry standards,
- conduct market and product feasibility assessments in the region,
- establish pilot facilities, technology development centres and demonstration sites,
- provide targeted SME human resource training for existing employees on new technologies or applications of new knowledge,
- cultivate connectivity between students and industry by involving students in the applied research and knowledge process with the end result being an increased number of college and institute graduates with applied research skills, and,
- develop and pioneer student technical assistance programs for SMEs.

There would be two types of College/Institute Technology Transfer Units:

Generic Technology Transfer Units - which would work with a variety of companies and community agencies.

Thematic/Sectoral Technology Transfer Units - which would focus on specific sectors, thematic areas, and/or clusters.

Depending on the size and scope of the institution, colleges/institutes could be eligible for one or more generic and/or thematic units. Funding for both categories would be subject to the ability of the College/Institute Technology Unit to demonstrate that it:

- has the support of the college/institute,
- has the support of local community organizations such as the Chamber of Commerce,
- is well anchored in the community or region,
- has access to human resources: faculty and students,
- responds to industry need within their region or addresses gaps in specific sectors.

Specific criteria would be developed through a national steering committee, composed of representatives of business and industry, colleges and Industry Canada.

Support for the following years will be subject to the Technology Transfer Unit continuing to meet the eligibility criteria and objectives and satisfactory quarterly Progress Reports.

B. College/Institute Student Industrial Awards

Colleges and institutes graduate many highly skilled personnel to Canadian society with skills derived through their involvement in applied research projects and which are not presently supported by funding agencies.

The College/Institute Student Industrial Award Program would:

- respond to the Federal Government's commitment to expose more students to provide private sector research challenges through internships and targeted collaborative research,
- stimulate the interest of students to undertake applied research projects,
- encourage networking by pairing students with industry representatives,
- provide students with an understanding of the skills required by industry,
- link students with potential future employers,
- contribute to financing their education.

Types of Activities could include:

- paid employment during vacation and or co-op internships to work on industry-specific projects,
- travel and attendance at conferences,
- on-going commitment to employment (students are hired for the summer and assuming satisfactory performance are promised a job),
- cost of publications and poster sessions,
- costs of faculty coordination, on the job training,
- purchase of equipment for student needs,

- identification of a industry mentor and payment of mentoring costs - common meetings, etc.,
- working closely with college researchers on a specific industry problem,
- technical exchange visits,
- participation in poster sessions, workshops and symposia which bring industry representatives and students together to meet and discuss research of mutual interest.

C. College/Institute Faculty Fellowship Program

A College/Institute Faculty Fellowship Program would provide college/institute faculty with released time from teaching responsibilities to initiate and conduct applied research through provision of a contribution to their salary. Activities could involve:

- early stage commercialization activities,
- supervision of students doing research,
- specific training in research methods,
- identifying industry needs and matching them to college skills,
- understanding commercial activity in their area of specialty,
- attending conferences of an industrial, as opposed to academic nature,
- providing technical advice in industry board and planning meetings,
- designing curriculum to meet specific industry needs and market shortfalls,
- accompanying students on industrial leaves,
- identifying new products to consumers and industry,
- developing proposals,
- opportunity prospecting,
- upgrading in related areas - for example, formal training in intellectual property principles,
- an extended faculty visit to industry to foster long-term industry-college/institute collaboration,
- developing innovative strategic plans for expanding and accelerating the ways in which the college/institute connects with its regional industries,
- supporting novice institutions in building their applied research capacity to respond more effectively to industry challenges in their region,
- developing of innovative collaborative-industry -college education programs.

D. College/Institute Capacity Building Collaborative Networks

Whereas a central element of the College/Institute Technology Transfer Initiative is to build the capacity of SME's and colleges themselves in assisting SME's, an integral component of the Program is to maximize on the applications of individual institutions and share knowledge across the country. The establishment of College/Institute Capacity Building Collaborative Networks would assist colleges and institutes in the effective and efficient sharing of knowledge through the system.

Both experienced and lesser experienced institutions need to have access to capacity development aimed at their particular level of capacity need and to share such with other institutions.

Types of activities could include:

- establishing a core administrative group for each network,
- developing consistent approaches and guidelines to qualifying/evaluating requests or inquiries to help them conduct R&D,
- developing consistent approaches to conducting applied research projects with industry, including consistency in IP,
- developing strategies for increasing the participation of faculty and students in applied research projects,
- developing consistent approaches to evaluating the success of applied research projects,
- developing methodologies to assessing or predicting longer term impacts of applied research projects,
- developing and implementing a method for sharing expertise at the national level that serves the individual industry partner and its local college,
- creating web-based materials and web pages,
- training in correct use of video-conferencing,
- travel associated with periodic get-togethers of network participants,
- release time for staff to provide services to such networks,
- national and regional workshops to facilitate exchange of information,
- the development of collaborative tools and approaches for exchanging information.

E. Specialized Equipment Fund Program

Investment in specialized equipment would enable Technology Transfer Units to:

- provide development services to an industry or SMEs' that cannot afford individually to purchase such equipment,
- purchase small pieces of equipment to help create a larger research project,
- introduce students in its use, and so provide new graduates with skill sets that industry can immediately apply, or use to bring their companies up to date.

ANNEX 1

Visual Chart

CANADIAN COLLEGES AND INSTITUTES

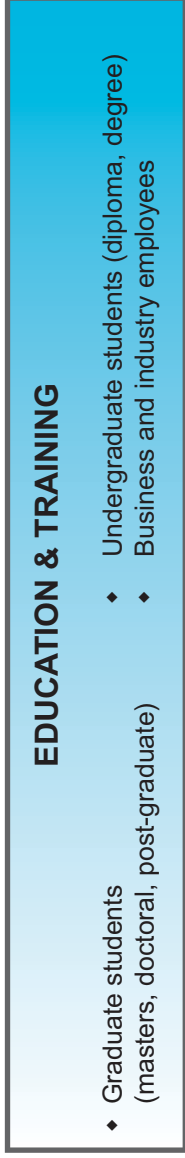
Role in Research Development and Commercialization

TECHNOLOGY/COMMERCIALIZATION/IMPLEMENTATION ASSESSMENTS



ECONOMIC IMPACT
(societal, political, economic)

TECHNOLOGY/KNOWLEDGE TRANSFER PROCESS



TECHNOLOGY PUSH (supply side)

Technology/Knowledge Developers

MARKET PULL (demand side)

Technology/Knowledge Users



Colleges and Institutes = blue

Note: process has feedback loops and is normally not as linear as this chart appears.

ACCC PROPOSED CONCEPTUAL FRAMEWORK

