

**Summary Report on
an Evaluation of Canada Economic
Development's Innovation and Knowledge-
Based Economy Activities**

Discussion Paper

Quality and Review Directorate

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EXECUTIVE SUMMARY

Summary Report of an Evaluation of Intervention by Canada Economic Development in Innovation and the Knowledge-Based Economy

Introduction

In June 2001, Treasury Board approved the transfer of \$177.2 million over four years from the Canada Jobs Fund (CJF) to Canada Economic Development ("the Agency").¹ One of Treasury Board's requirements was that an evaluation showing the results of activities related to innovation and the knowledge-based economy and funded by the CJF be conducted in 2004.

Objectives of the evaluation

The aim of the evaluation was to address two main types of concern: first, those of Treasury Board, and then the more corporate concerns related to renewal of the Agency's programming. In the case of Treasury Board, one of the objectives was to show that the Agency has increased its innovation activities, particularly in regions having trouble adjusting to the transfer of the balance of CJF funds. In addition, the Agency is in the process of planning work related to the renewal of its strategic orientations, which is scheduled for 2005-2006.

Evaluation strategy

The strategy used for the evaluation was based on the use of multiple information sources and methods of collecting quantitative data - telephone survey of client enterprises, intranet survey of Agency advisors, intervention status report (database analysis) - and qualitative data - interviews with directors and representatives of federal partners, consultation with international experts, comparative studies and case studies. The aim of the strategy was to triangulate or match the information gathered from different sources using different data collection methods. This document is a synopsis of all those initiatives.

¹ In June 2000, the Minister of Human Resources Development Canada (HRDC) announced that the CJF was being eliminated and that the money allocated to the fund was being redirected to the federal regional economic development agencies.

FINDINGS RELATED TO THE RELEVANCE OF ACTIVITIES

Adequate response to the needs of ...

... enterprises

The data collected tend to confirm that CED activities with regard to innovation and the knowledge-based economy meet the needs of the targeted enterprises.

- Almost all (98%) of enterprises said that the Agency's assistance had fully or partly met their needs.

In terms of needs, the information gathered from clients and Agency representatives show the following:

- client enterprises are especially appreciative of funding and access to consultants;
- for enterprises in outlying regions, access to consultants and to a network of innovative enterprises and co-operation between enterprises and universities are more important.

In addition to providing direct financial assistance, the Agency met the needs of enterprises through enterprise services organizations. Enterprise services organizations play a variety of roles to encourage small enterprises to become innovative. The Agency funds different types of organization in order to foster an environment conducive to enterprise innovation. It also helps clarify the objectives to be met by its partner organizations. One of the lessons that can be learned is that when an organization reaches consensus in its own environment, it is easier to carry out activities and help attain the expected results.

... regions

As shown in the various case studies, Canada Economic Development business offices have played a determining role in setting up regional innovation systems in the three regions studied. The interventions of those business offices in the area of innovation have contributed to the technological development of local enterprises and fostered the establishment of facilities related to the knowledge-based economy.

The head of the CHT [high technology centre] says, "CED's specific assistance to the Centre is very much in line with its mission; the amount of funding has always been important in covering our needs, and CED's image in innovation and SME development helps us reach enterprises." He adds, "CED's non-financial assistance is just as important." Their leadership in enterprise development and the regional innovation system provides solid support for stakeholders.

Johnson & Roy, Centre de haute technologie du Saguenay-Lac-Saint-Jean, April 13, 2004

Consistency of intervention

The interviews with representatives of the Agency and federal partners showed that CED's activities are co-ordinated with other federal departments and agencies in each region through active interpersonal networks. The observations made during this study suggest that CED holds a unique position that sets it apart from its federal partners. That position is the product of flexible, direct intervention, comprehensive knowledge of the different environments, action plans geared to each region, and the ability to be a catalyst for local strengths.

Generally, CED's approach to innovation seems to be in line with the federal strategy on innovation in terms of objectives, definition of the concept of innovation and target clientele.

Positioning of Agency activities

Compared with other approaches in innovation, CED's actions are part of its overall regional economic development mission. Our observations regarding the Agency's two main programs are:

- CED's Regional Strategic Initiatives (RSI) Program is a blend of the "industrial commissioner" and "network" approaches, since its aim is to support the development and implementation of action plans designed to strengthen the assets and competitive advantages of the administrative regions of Quebec so that the regions realize their full economic development potential. It does this by encouraging small enterprises to use and integrate new technologies and by providing funding for growth-generating industrial projects in specific sectors or regions.
- CED's IDEA-SME Program, the objective of which is to facilitate and improve the development of SMEs and help these enterprises become more competitive on the world scene, is located at the high end of the "industrial commissioner" approach. Although it does have an "innovation and productivity" component designed to encourage innovative practices, aimed at SMEs and SME groups, industrial associations and intermediary organizations, the program operates on an ad hoc or case-by-case basis (a function of the demand from proponents) without any real integration component.

Areas for improvement related to relevance

The observations reported in this study indicate that CED's general approach is appropriate considering the needs and the economic context. Based on comments from client enterprises, advisors, business office directors and partners, it can be concluded that there are still a number of areas for improvement in CED's innovation and productivity activities.

- The Agency could strengthen its support for enterprises in the form of access to consultants, networking among innovative enterprises and joint initiatives between universities and enterprises, especially in outlying regions.
- CED's intervention in innovation and productivity has many facets, which raises issues of consistency. In view of the findings of this study, it would be appropriate to define the notion of innovation more clearly in order to ensure consistency in the Agency's decisions and interventions.
- Finally, CED's federal partnerships are in the form of memorandums of agreement, but for a variety of reasons are largely unknown. The Agency should reactivate those agreements with an eye to better co-ordination with federal partners.

FINDINGS RELATED TO IMPLEMENTATION OF INTERVENTIONS

Human resources and planning

According to enterprises, advisors, directors and partners, the Agency has been successful in meeting the challenges of hiring and training human resources, defining the boundaries of intervention and ensuring co-ordination. It has been able to recruit the necessary staff, put in place measures to support staff, create *ad hoc* committees and use its networks to facilitate the co-ordination of stakeholders.

Despite a great deal of work in planning and implementing innovation and productivity activities, there are still a number of implementation problems. They relate to the Agency's necessarily limited resources, ongoing issues with adjusting activities to the situations encountered in the field, effectiveness in processing applications and harmonization of the Agency's interventions from one business office to another.

Implementation of interventions

... with enterprises

SMEs are the Agency's primary clientele in terms of number of projects. In terms of financial assistance, research centres/universities and SMEs receive roughly the same level of contribution.

... with enterprise support agencies

The Agency has worked in partnership with community players in the sector to support growth-generating investment:

- in research facilities (producers of technical expertise);
- in transfer, meshing and exchange activities (social aspect aimed at disseminating technical and scientific expertise);
- in enterprises, for projects aimed at marketing or integrating new technologies or processes.

These experiences illustrate the importance of ensuring that activities can be adjusted to changing situations in communities and the resulting strategic changes in projects and organizations.

... with regions

The case studies show that the Agency:

- has demonstrated its ability to play a co-ordinating and mobilizing role with economic stakeholders;
- has not taken the place of other stakeholders, but rather has endeavoured to fill any voids;
- has over the years become a major player in innovation projects.

The Agency has based its intervention on regional priorities identified through an ongoing strategic planning process. This has enabled the Agency to:

- become actively involved in strategic co-ordination and/or planning activities;
- constantly refocus according to successes, feedback from the community and based on assets, research opportunities and competitive advantages;
- invest regularly, substantially and over a sustained period in areas where the market is unable or unwilling to invest (no market, medium- and long-term outlook and/or too much risk).

Areas for improvement related to implementation

The main areas for improvement are related to:

- internal co-ordination of interventions to avoid differences in interpretation from one business office to another;
 - external co-ordination of interventions to ensure that federal, provincial and local resources are used wisely;
-

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- training for advisors in the area of innovation (advisors have already been trained in industrial productivity) and intervention guidelines;
 - the distribution of information to clients to ensure equitable access to the Agency's support;
 - an increase in the flexibility of intervention parameters to better tailor them to all the innovation/productivity needs identified in enterprises and at the same time ensure that intervention is as consistent as it needs to be.
-

FINDINGS RELATED TO THE IMPACT OF AGENCY ACTIVITIES

Attainment of objectives

One of the Agency's objectives was to increase its intervention in innovation with specific focus on regions that are having trouble adjusting.²

Overall, in terms of both number of projects and amount of financial assistance provided, the **Agency's intervention has increased significantly since the balance of CJF funds was obtained in June 2001.**

- Almost two thirds (62.5%) of the projects approved in 2003-2004 (584 of 935 projects) were related to innovation. In 1998-1999, the proportion was 29.8% (192 of 645 projects).
- In terms of financial assistance, the proportion of innovation projects was 46.5% (\$44M out of \$93M) in 1998-1999, then dropped to 25.5% in 1999-2000 (\$30.0M out of \$118M) before starting to increase in 2000-2001. The proportion went from 37.6% in 2000-2001 (\$90M out of \$239M) to 59% in 2001-2002 (\$131M out of \$222M), to 67.1% in 2002-2003 (\$114M out of \$170M) and finally to 61%³ in 2003-2004 (\$113M out of \$186M).

The Agency also increased its intervention in regions with adjustment problems during the period from 1998 to 2004 in terms of both number of projects and amount of assistance provided.

- Of the 452 projects authorized in regions with adjustment problems since 1998, almost half (234 projects, or 51.8%) were authorized in 2002-2003 and 2003-2004.
- With regard to financial assistance, in 1998-1999 and 1999-2000, less than \$4M or just over 3% of all Agency intervention was allocated to innovation projects in regions with adjustment problems. In the 2000-2001 fiscal year, the value of innovation projects in those regions increased to more than \$30M, or 13%⁴ of the Agency's financial assistance. The proportion continued to increase in 2001-2002 to 16.6% (\$37M) and then to 18.9% (\$32M) in 2002-2003.

²The regions having trouble adjusting are Abitibi-Témiscamingue, Bas-Saint-Laurent, Côte-Nord, Gaspésie-les Îles-de-la-Madeleine, Nord-du-Québec and Saguenay-Lac-Saint-Jean.

³This downturn in 2003-2004 is attributable in part to the approval of two major projects (\$19 M) unrelated to innovation.

⁴The proportion is calculated as follows: value of innovation projects in regions with adjustment problems in a given year, compared to the value of all projects carried out by the Agency under the IDEA-SME and RSI programs.

Finally, in 2003-2004, the proportion fell to 12.3% (\$23M). Regions with adjustment problems account for about 11% of the total population of Quebec.

Immediate and intermediate impact

The increase in Agency activities is reflected in the results obtained by the enterprises that received a financial contribution from CED. The reference period for the evaluation - April 1, 1998, to March 31, 2003⁵ - was chosen in order to be able to measure certain immediate and intermediate results of the Agency's interventions.

Impact on employment

Job creation is not an immediate result of an innovation project, but the survey showed that the Agency's most recent interventions helped create new jobs.⁶ Of the 1,405 jobs that enterprises said they created, 490 (35%) were created during the "post-CJF" period, that is, over a shorter observation period. The effect on employment is more visible in terms of preservation of jobs. Of the 1,785 jobs preserved, 980 (55%) were preserved during the "post-CJF" period.

Incentive effect

- 55% of the enterprises that responded said that their project could not have been carried out without the Agency's financial assistance. Among the 45% of enterprises which reported that the project could have been carried out without financial assistance, the Agency's intervention contributed to faster completion of projects (acceleration effect) in 36% of cases and also helped increase the scope of projects (increased-scale effect) in 34% of cases.

Awareness and ripple effect

The Agency's assistance also helped make enterprises more aware. Further, **almost two thirds of client enterprises in 2002-2003 had never taken on this type of project before getting support from CED.** The Agency also has a ripple effect.

Effect on the competitiveness of enterprises

The Agency's interventions had an effect on the competitiveness of enterprises.

- 76% of enterprises said that their project helped improve their competitive position, while 54% reported an increase in profitability. The vast majority of client enterprises in the "post-CJF" period believe that the project supported by CED helped improve their competitive position. More than half said that their project contributed to an increase in profitability, and **three quarters (75%) of enterprises said that they experienced an increase in domestic sales**

⁵Réseau Circum conducted a telephone survey of 740 clients who received a financial contribution from the Agency in the period from 1998 to 2003. The response rate was 56%. Based on Réseau Circum's evaluation, three periods were identified. The "pre-CJF" period covers interventions carried out by the Agency before it obtained the CJF funds (April 1, 1998, to June 6, 2001). The "transition period" covers interventions carried out during the adjustment period the Agency went through after obtaining the additional funds, that is, implementation of the new "innovation and productivity" component of the IDEA-SME Program (June 7, 2001, to March 31, 2002). Finally the "post-CJF" period covers interventions carried out since April 1, 2002.

⁶These are jobs reported by the enterprises that responded, i.e., additional jobs that did not previously exist. There is no employment projection.

or exports or accelerated marketing of a product or service. In the 12 months preceding the survey, those enterprises recorded average additional sales of approximately \$700,000.

- While many enterprise services organizations are new, their short-term results are significant in terms of innovation support activities, research partnership agreements, and enterprise and job creation.

Impact on the emergence and development of regional innovation systems

- In terms of the Agency's contribution to the emergence and development of regional intelligence systems, that for enterprises in the Bas-Saint-Laurent is still being developed. However, the data on the innovation environment, that is, institutional research and training initiatives, are promising. The Bas-Saint-Laurent regional innovation system is still very new, but the level of development leads us to believe that the findings of public research will have a spinoff effect on the competitiveness of enterprises in the Bas-Saint-Laurent region in the medium and long terms.
- The Saguenay-Lac-Saint-Jean region currently has a young and promising innovation support infrastructure on which enterprises and economic stakeholders can rely to develop regional sectoral industries with high value-added. Although it will be a few years yet before the Saguenay-Lac-Saint-Jean regional innovation system hits cruising speed, many stakeholders have, over the past five years, seen accelerated growth and activity related to the system and growing interest among enterprises in activities related specifically to innovation.
- The results for the Montérégie region lie more in implementation of the regional innovation system and the progress that has been made. The Montérégie region has many assets to foster innovation in local enterprises. We can say that enterprises in the region are already very dynamic and possess the characteristics of innovative enterprises.

Unforeseen impact

For 2002-2003 client enterprises, the main obstacles to innovation were funding, the enterprise's internal capabilities and uncertainty as to the cost and benefits of innovation. The vast majority of CED's client enterprises (84%) said that CED had helped them overcome the obstacles they encountered in their efforts to be innovative.

INTERVENTION OUTLOOK

Innovation-based regional economic development interventions are always relevant. The experts all agree that government intervention is called for in order to:

- encourage enterprises to be innovative;
- reduce obstacles and regional impediments to innovation.

Where the experts differ is in their opinion on how this can be done. Some experts say that there should be a clearer distinction between:

- interventions aimed directly at individual enterprises and
- interventions aimed at changing the operating context and enterprise environment.

The experts have identified major trends affecting the tools used for intervention. They are:

- tie-in between science policy and innovation policy;
- increase in the complexity of technologies;
- need for a flexible policy approach;
- need for regional policies.

Consultation with the experts also showed:

- which tools are considered effective:
 - financial support managed by intermediary organizations;
 - measures aimed at developing interaction;
 - hiring of scientific and technical staff;
- which tools are considered ineffective:
 - grants to enterprises;
 - support for technology transfer;
 - application of “models”.

The experts feel strongly that the role of the government in promoting and supporting innovation is to act at the enterprise environment level, that is, focus on:

- customized sectoral intervention;
- intervention in skills networks;
- overall strategies for developing regional innovation systems.

1 INTRODUCTION

In June 2001, Treasury Board approved the transfer of \$177.2 million over four years from the Canada Jobs Fund (CJF) to Canada Economic Development (“the Agency”).⁷

One of Treasury Board’s requirements was that an evaluation showing the results of activities related to innovation and the knowledge-based economy and funded by the votes transferred from the CJF be conducted in 2004.

1.1 Objectives of the evaluation

The aim of the evaluation was to address two main types of concern: first, those of Treasury Board, and then the more corporate concerns related to renewal of the Agency’s programming. In the case of Treasury Board, one of the objectives was to show that the Agency has increased its innovation activities, particularly in regions having trouble adjusting to the transfer of the balance of CJF funds. In addition, the Agency is in the process of planning work related to the renewal of its strategic orientations, which is scheduled for 2005-2006. Another objective of the evaluation was to contribute to renewal of the Agency’s strategic orientation.

1.2 Evaluation strategy

The strategy used for the evaluation was based on the use of multiple information sources and methods of collecting quantitative data - telephone survey of client enterprises, intranet survey of Agency advisors, intervention status report (database analysis) - and qualitative data - interviews with directors and representatives of federal partners, consultation with international experts, comparative studies and case studies. The aim of the strategy was to triangulate or match the information gathered from different sources using different data collection methods. For example, observations regarding a question on whether needs are being met were gathered from the enterprise survey, interviews with directors and the intranet survey of advisors.

For the “region” case studies, we selected two outlying regions and one central region. Because the Agency had to increase its intervention in outlying regions, we wanted to see what it did in those regions in order to compile information on the different types of intervention beyond financial support. Our choice of regions was then approved by an evaluation committee.

For the “organization” case studies, we decided to select two organizations in each of the regions under study. After consulting with our committee, we also selected organizations in the regions of Île-de-Montréal and Laval.

⁷ In June 2000, the Minister of Human Resources Development Canada (HRDC) announced that the CJF was being eliminated and that the money allocated to the fund was being redirected to the federal regional economic development agencies.

Each of the reports in the technical documents describes in greater detailed the methodology used.

1.3 Scope and limits

To support the planning process, the scope of the evaluation was broadened to include projects approved in areas related to innovation since 1998.⁸ Broadening the reference period in that manner made it possible to determine the effects and impact of all Agency interventions - older projects - and measure the extent to which Agency intervention in innovation has been increased as required by Treasury Board.

The various data collection methods provide a solid information base for studying the validity, implementation and performance of CED activities in innovation and productivity. However, it is important to bear in mind the following limits:

- many of the effects this study aims to document occur over a long period; many of the enterprises that receive support may not see any significant impact in the months or years following their participation in CED interventions - this could lead to the real, but long-term effects of interventions being underestimated;
- the telephone survey of client enterprises excluded some 20 lower-performing enterprises that had ceased operations since the project was implemented - it is therefore slightly biased toward enterprises in a better financial situation;
- the telephone survey of enterprises included companies that had more than one project supported by the Agency in the reference period; in those cases, the survey covered the project which received the largest financial contribution;
- many of the effects measured in the survey of client enterprises use the judgment and perception of the people responsible rather than a meticulous comparison of client enterprises and similar enterprises that receive no support - given the available data, it was not possible to put together a sample of companies that were refused financial assistance for a project related to innovation or productivity;
- while they were critical of the implementation of their own interventions, the advisors and directors of CED business offices we interviewed might be interested, at least subconsciously, in favouring the *status quo*.

⁸ As part of the strategic positioning process in innovation, the Interregional Intervention and Partnership Branch initially created a database of innovation projects covering the period from April 1, 1998, to March 31, 2003. The Quality and Review Directorate then consolidated innovation and knowledge-based economy activities up to December 31, 2003. The database makes it possible to track interventions in innovation and the knowledge-based economy from April 1, 1998, to December 31, 2003. To measure the overall increase in the Agency's interventions in innovation and the knowledge-based economy, another database was used. That database simply indicates whether the project is related to innovation and the knowledge-based economy (yes/no); the increase in interventions, i.e., the proportion of projects in innovation and the knowledge-based economy among all Agency interventions under the IDEA-SME and RSI programs, can thus be measured.

1.4 Structure of the report

The summary report⁹ has five sections apart from this introduction. Section 2 describes the context of intervention. Sections 3 to 6 present the main findings and a summary of observations made during the evaluation of interventions in innovation and the knowledge-based economy. Those findings are presented on the basis of the four points covered by the evaluation:

- relevance;
- implementation;
- effects and repercussions;
- intervention outlook.

For each of the four points, the findings and observations are centred around evaluation. Depending on the case, the findings and observations may come from different information sources or data collection methods: telephone survey of enterprises that received a financial contribution from the Agency, interviews with directors of business offices and federal partners, intranet survey of advisors, status report on interventions, case studies, DELPHI consultation with international experts or calibration with input from organizations.

⁹ Owing to the magnitude of the evaluation process and the implementation schedule, a number of outside firms were used to carry out the various tasks. It was agreed that the QRD would summarize the main findings and observations presented in the various reports and technical documents.

2

NATURE OF ACTIVITIES

The aim of this section is to briefly describe the Agency's approach to intervention in the areas of innovation and the knowledge-based economy. We begin by looking at the evolution of intervention, then describe the target clientele, the type of projects or interventions supported by the Agency, and the nature of the financial assistance provided.

2.1 Changes in activities

The Agency's innovation activities really began with implementation of the "innovation, R&D and design" component of the IDEA-SME Program. That program was approved by the Treasury Board of Canada in March 1995. It provides funding for activities in the following areas:

- innovation, research and development, and design;
- market development;
- exports and entrepreneurship;
- enterprise climate development.

In February 1997, Treasury Board approved the implementation of the Regional Strategic Initiatives (RSI) Program. That program enabled the Agency to supplement its programming for small and medium-sized enterprises by fostering the emergence of initiatives geared to the specific needs of each region of Quebec, a process that required horizontal management. The strategic initiatives targeted by the program have to result from analysis of regional issues, a priority-setting exercise, mobilization of partners and a co-ordinated action plan for the various intervention tools.

Under the program, the Agency has focussed on a novel, co-ordinated approach to regional economic development centred on four areas of intervention:

- development of regional technological capability;
- tourism development;
- support for the attraction and international outreach capacity of the regions of Quebec;
- support for the ability of the regions to adjust.

In short, the Agency was involved in innovation even before the CJF funds were transferred. In November 2001, the Secretary of State responsible for the Agency announced that the "innovation" component of the IDEA-SME Program would be expanded to include a productivity component. The purpose of that change was to improve the performance of SMEs, particularly in traditional sectors. Special emphasis was to be placed on regions located far from major urban centres, with economies based primarily on natural resources, by supporting testing of and experimentation with technologies and processes. That is the only entirely new component in the Agency's intervention. Obtaining the balance of the CJF funds has meant that it will be possible to track changes in the Agency's innovation activities from 1998 to today and since April 2002.

The funds transferred from the CJF were added to the IDEA-SME and RSI program budgets in order to increase the Agency's interventions in innovation and the knowledge-based economy in all regions

of Quebec, with special emphasis - in keeping with its mandate - on regions with adjustment problems.¹⁰

Other programs also address innovation, but to a lesser degree:

- approved on August 22, 2000, the Canada Support Program for the Economy of Gaspé and the Magdalen Islands;
- the Special Fund for the Economic Development and Adjustment of Quebec Fishing Communities (Coastal Quebec);
- finally, since April 1, 2003, the Agency has been implementing the Canadian Apparel and Textile Industries Program (CATIP) for the Quebec region.¹¹

2.2 Target clientele

The Agency intervenes in innovation and productivity directly with small and medium-sized enterprises and through intermediary groups and organizations that assist them. Those groups and organizations include:

- enterprise groups and industrial associations;
- organizations and institutions dedicated to the promotion and dissemination of knowledge (teaching establishments, research centres, etc.);
- not-for-profit organizations.

2.3 Type of activity

The scope of the innovation and knowledge-based economy projects covers a wide range of activities:

- projects related to productivity (diagnosis, acquisition of equipment);
- innovation marketing projects;
- studies, research and plans;
- projects related to product or process development;
- awareness, information or knowledge acquisition projects;
- capital projects (construction of research centres);
- testing and experimentation;
- projects in support of organizations (operating costs);

¹⁰The Agency planned to add \$110 M to the IDEA-SME Program and \$40 M to the RSI Program to fund initiatives that would increase activities related to innovation and the new economy in every region of Quebec with - in keeping with its mandate - specific emphasis on regions located far from major urban centres.

¹¹For example, as at December 31, 2003, 24 projects had been approved under the Coastal Quebec (n=13), CATIP (n=7) and CSPEGMI (n=4) programs.

- pre-start and start-up (incubator) projects.

2.4 Nature of assistance

The Agency's support for local and regional enterprises and economic development stakeholders primarily takes the form of financial assistance under the IDEA-SME and RSI programs. The Agency also supports projects put forward by enterprises and not-for-profit organizations that provide services for enterprises. For not-for-profit organizations, the contributions are non repayable provided the activities are not commercial. The Agency's assistance also takes the form of "non-financial support". That element is covered in the case studies.

3

FINDINGS RELATED TO THE RELEVANCE OF INTERVENTION

Relevance covers a number of issues related to two themes:

- appropriate response to clients' needs;
- consistency in the approach to intervention.

The section primarily contains the findings and observations based on the intranet survey of advisors, interviews with business office directors and federal partners, the telephone survey of client enterprises, case studies and the comparative study with organizations that work in innovation.

3.1 Appropriate response to needs

3.1.1 *Was the Agency's approach (objectives, intervention targets, clients and eligible activities) relevant, and did it meet the needs of clients?*

Findings

The data collected tend to confirm that CED's innovation and productivity activities meet the needs of the target enterprises:

- **marketing activities, studies and activities related to productivity are considered priorities by advisors;**
 - **the scope of interventions available to DEC ensures that the Agency's efforts are relevant according to directors and partners;**
 - **almost all (98%) enterprises said that the Agency's assistance had fully or partly met their needs.**
-

Advisors' perspective

According to the CED advisors who took part in the survey on innovation/productivity projects, the activities that are currently eligible are considered to be priorities and are viewed as well targeted. They represent the areas that have the most impact on the regional economy and job creation and preservation for SMEs. Those activities are often carried out in succession in developing a new product or starting up a enterprise. According to the advisors, the activities directly meet the needs of clients. Almost all enterprises said that the following activities meet the needs of their clients:

- marketing of innovation;
- productivity;
- studies, research and plans.

A smaller number said that the following activities met the needs of enterprises:

- development of products and processes;

- awareness, information and acquisition of knowledge;
- capital initiatives;
- pre-startup and startup;
- testing and experimentation;
- operating costs.

Directors' perspective

CED directors also feel that the activities supported by innovation/productivity interventions meet the needs of clients. For some, the comprehensive nature of the Agency's intervention tools means that there is almost always a way to help enterprises interested in being innovative and increasing productivity.

Client enterprises' perspective

Overall in 2002-2003, half (54%) of CED's client enterprises said that the agency had "fully" met their needs; 44% said the Agency had "partly" meet their needs.

For more information on this section, refer to section 2.1 of the detailed report: Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) [evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)].

3.1.2 What are the primary needs of client enterprises?

Findings

The information gathered made it possible to identify the following needs:

- **Generally, client enterprises are particularly appreciative of financial assistance and access to consultants.**
- **Looking at the needs of enterprises in outlying regions more specifically, we find that those enterprises put more emphasis on:**
 - **access to consultants;**
 - **access to a network of innovative enterprises;**
 - **co-operation between enterprises and universities.**

Clients' perspective

What enterprises most welcome is financial assistance for their projects; financial assistance is considered "very important" by more than 85% of client enterprises (see Table 1). Access to consultants ranks second; it clearly ranks behind financial assistance, but is still ranked "fairly important". The other types of support ranked quite far down the scale described by enterprises, even though each type of support has a group of proponents who consider it to be very important.

Enterprises in outlying regions attach greater importance than enterprises in other regions of Quebec to the following types of support:

- access to consultants;
- access to a network of innovative enterprises;
- co-operation between enterprises and universities.

Advisors' perspective

CED advisors have essentially the same perception of the needs of client enterprises as the enterprises themselves, except with regard to co-operation between enterprises and educational institutions, which they rank higher among the needs of SMEs.

According to the advisors, priority should be given first to marketing of innovation, followed by development of products and services. Other activities rank lower on the priority scale for advisors, especially awareness, information and acquisition of knowledge as well as operating costs.

Advisors based in outlying regions **put more emphasis on:**

- development of products and processes;
- testing and experimentation, as well as studies, research and plans.

Their colleagues in other regions give more priority to:

- marketing of innovation;
- improvement of productivity.

The advisors also identified needs that are not covered by current activities.

- **Support**

Professional support in approaches to innovation, "light" joint initiatives like networking.

- **Needs related to capital initiatives**

Acquisition of used or retooled equipment, purchases over the allowable limit.

- **Operating costs**

Non-repayable contributions for productivity analyses, operating costs during development work, the cost of leasing space in an incubator, the cost of purchasing basic equipment for enterprises in the pre-startup phase.

Directors' perspective

Agency directors describe project funding as "the sinews of war" and say its importance is unquestionable. They point out that financial support is better suited to small enterprises than large enterprises, which have more internal resources. Second on their list is co-operation between enterprises and educational institutions because it can improve the integration of innovative ideas into production systems. Ultimately, clients want to be heard. They want their needs to be clarified. They want useful references, funding and contact with partners and sources of capital. Clients also want quick, practical answers.

For more information on this section, refer to section 2.1 of the detailed report: Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) [evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)].

3.1.3 Did Agency activities adequately meet the needs of the regions?

Findings

The Canada Economic Development business offices played a determining role in implementing regional innovation systems in the three regions studied. The business offices interventions in innovation helped regional enterprises with their technological development and fostered the establishment of facilities related to the knowledge-based economy.

Case study: Bas-Saint-Laurent region

Implementation of a regional innovation system began with a strategic analysis in the Bas-Saint-Laurent region several years ago. Strategic analysis of ways to restructure the Bas-Saint-Laurent economy dates back to the 1960s. More recently, the Bas-Saint-Laurent regional co-ordination and development council (CRCD) developed the last *2000-2005 strategic plan* for the region; one of the concerns in that plan dealt specifically with innovation.

The CED's Bas-Saint-Laurent business office has acknowledged that the CRCD's plan was a valid regional consensus:

[TRANSLATION] ... We believe that the 2000-2015 vision of the Bas-Saint-Laurent region developed by the CRCD best represents local economic development priorities and has unanimous support in the region.

The *2000-2005 strategic plan* drew a consensus among regional economic development players.

To support implementation of its regional innovation system, the Bas-Saint-Laurent business office acted in two ways. First, it mobilized and co-ordinated the various economic development players in order to create synergy and thus foster the development of the economic environment. It then supported organizations in order to fill gaps in the regional innovation system.

For more information, refer to the following case study:

Source: Luc Desaulniers, Khalid El-Mellahi, Étude de cas, Région du Bas-Saint-Laurent, April 2004, 27 p.

Case study: Saguenay-Lac-St-Jean region

The activities of the Saguenay-Lac-Saint-Jean business office enabled it to act and invest across the entire continuum of innovation, from strategic planning to the allocation of financial assistance to enterprises for projects to market or integrate new technologies or processes resulting from innovation activities. The Saguenay-Lac-Saint-Jean business office has taken action upstream and downstream of innovation on a strategic and/or financial level with partners in the region over the past several years.

Based on the guidelines for intervention, and in conjunction with local participants, the regional office support the following projects, which were significant in terms of the emergence and development of the new regional innovation system.

- Production of the technological roadmap of the Canadian aluminum industry made it possible to identify the strategic R&D needs of the aluminum sector in Canada and recommend the creation of the National Research Council's Aluminum Technology Centre (ATC).
- A study of innovation in by manufacturers in Saguenay-Lac-Saint-Jean conducted in 2001-2002 produced a number of findings related to innovation in manufacturing companies in the Saguenay-Lac-Saint-Jean region and several recommendations on priority actions to improve the situation.
- The mandate of the Saguenay-Lac-Saint-Jean high-technology centre (CHT) was adjusted based on the recommendations in the study of innovation in enterprises. The purpose of the CHT is to carry out awareness and training activities in support of innovation and provide professional assistance for enterprises in the area of technology transfer.

All of the stakeholders interviewed feel that the activities of the Saguenay-Lac-Saint-Jean business office with regard to the regional innovation system have by and large proven to be powerful levers, both strategically and financially. Moreover, the stakeholders appreciate and confirm the vital importance of flexibility and adaptability in a program like the RSI (Regional Strategic Initiatives) Program as a tool for promoting regional industry. For example, that flexibility has enabled the Saguenay-Lac-Saint-Jean business office to intervene where it was hard for any other regional stakeholders to do so, much to the benefit of development of the regional innovation system in Saguenay-Lac-Saint-Jean.

For more information, refer to the following case study : E&B Data, Le système régional d'innovation, Région du Saguenay-Lac-Saint-Jean, June 7, 2004, 13 pages.

Case study: Montérégie region

The intervention of the Montérégie business office has focussed on the mobilization of players in economic development. The interviews conducted as part of the case study showed that the scope of the problems encountered by enterprises in the Montérégie region goes beyond the mandate of any one organization, making it necessary to concentrate on interaction between organizations in the regional innovation system. It is generally acknowledged that intervention by public authorities related to networking among regional players contributes to the success of the regional innovation system insofar as that process stems from local initiatives.

The Montérégie business office worked through Valotech to foster a network of regional players. Valotech played a key role in establishing a network of regional players in Montérégie. Interestingly, the financial assistance Valotech received from the Montérégie business office helped strengthen the initiatives of the various regional players: the Quebec Department of Economic and Regional Development and Research (MDERR), the South Shore chamber of commerce and various enterprises in the South Shore high-technology club.

For more information, refer to the following case study: TECSULT, Étude de cas d'innovation et de transfert technologique en Montérégie [a case study of innovation and technology transfer in Montérégie], March 31, 2004, 21 pages.

3.1.4 Did Agency activities adequately meet the needs of enterprise services organizations?

Findings

- **The organizations play different roles in order to encourage SMEs to adopt innovative behaviour. The Agency funds several types of organization in order to foster the emergence and preservation of an environment conducive to innovation by enterprises.**
 - **CED's activities are not limited to making financial contributions. The Agency also helps clarify the objectives pursued by the organizations in their projects.**
-

The organizations play different roles in order to encourage SMEs to adopt innovative behaviour. The Agency funds several types of organization in order to foster the emergence and preservation of an environment conducive to innovation by enterprises. There are some organizations that do basic scientific or applied research, such as the marine biotechnologies research centre (CRBM), Innovation maritime and the Aluminum Technology Centre (CTA). There are some organizations that offer a full range of services to help SMEs integrate innovation into their operations (Saguenay-Lac-Saint-Jean high-technology centre (CHT), Valotech). The Agency also works, but in a specific way, with educational and training institutions (university entrepreneurship centres (CEU), which are pre-incubators). To complement the assistance to enterprises, the Agency also supports enterprise incubators (Quebec centre for innovation in biotechnology (CQIB)) and organizations that promote entrepreneurship and offer various SME awareness and information services, such as Bioagral.¹²

- The head of the CHT says, *“CED's specific assistance to the Centre is very much in line with its mission; the amount of funding has always been important in covering our needs, and CED's image in innovation and small enterprise development helps us reach enterprises.”* He adds, *“CED's non-financial assistance is just as important. Their leadership in enterprise development and the regional innovation system provides solid support for stakeholders.”*

For more information, refer to the following case study: Johnson & Roy, Centre de haute technologie du Saguenay-Lac-Saint-Jean, April 13, 2004, 13 pages

- All of the people interviewed agreed when asked about the relevance of the activities. In their view, the creation of Innovation maritime came at just the right time and filled an important need in the region, namely applied research. *“In the past,”* says a member of Innovation maritime's board of directors, *“it was hard to make a direct link between basic research and industry. There was definitely a link missing to ensure effective technology transfer.”*

For more information, refer to the following case study: ÉVALUATION, Le cas d'Innovation maritime, March 2004, 12 pages.

¹² A case study of the organizations referred to in this paragraph was done for this evaluation of CED innovation and productivity activities. See list of case studies in appendix.

- A \$270,000 contribution from CED covered the full cost of producing the Technological Roadmap, which led to the establishment of the CTA in the Saguenay-Lac-Saint-Jean region. As the sole source of funding for the roadmap, the regional office was very involved at all stages within the roadmap steering committee. CED's \$25 million in off-budget funding was vital to completion of the NRC project. On both an operational and a corporate level, CED was able to work in real partnership and synergy with NRC staff, making it possible to obtain funding from other sources.

For more information, refer to the following case study: E&B Data, Aluminum Technology Centre (ATC), May 28, 2004, 11 pages.

CED's intervention was not limited to making financial contributions. The Agency also helps clarify the objectives pursued by the organizations in their projects. Introducing the E appendices certainly helped clarify the organizations' objectives. The atmosphere of trust between the Agency and the organizations fosters attainment of the objectives.

- The advisors in the Bas-Saint-Laurent business office provided Innovation maritime with a great deal of ongoing specialized support at all stages of the project (e.g., assistance in drawing up the enterprise plan, meetings, promotion of Innovation maritime, networking, organization of federal government lobbying, etc.). CED's contributions had a lever effect for Innovation maritime, enabling it to obtain funding from other sources.

For more information, refer to the following case study: ÉVALUATION, Le cas d'Innovation maritime, March 2004, 12 pages.

- As the main source of funding for Valotech, CED's Montérégie office has, since the beginning, played a major proactive role in the establishment and development of the organization. CED took an active role in developing Valotech's orientations and initiatives. Valotech's management team feels that the CED advisors have made a significant contribution in terms of direction, concepts, initiatives and ideas. CED also played an important role in the reorientation of Valotech when the agreement was renewed in 2003.

For more information, refer to the following case study: Étude de cas, Le Groupe Stragesult, Valotech inc., 17 pages.

- Upstream of BIOAGRAL's activities *per se* are the relevance, flexibility and quality of the interventions of CED's Montérégie office and its regional partners and the strategic leadership they have been shown since the early 1990s in order to transform the St Hyacinthe area into a technological centre with high added value based on an active, well-articulated innovation system.

For more information, refer to the following case study: Philippe Poitras, Un rôle structurant essentiel à l'innovation dans le secteur bio-agroalimentaire du Québec, March 25, 2004, 13 pages.

3.2 Consistency of approach

3.2.1 *Are Agency activities complementary, or do they overlap the activities of other Government of Canada departments or agencies?*

Findings

- **CED's actions are co-ordinated with other federal departments and agencies in each region through active interpersonal networks.**
 - **The observations made during this study suggest that CED is in a unique position that sets it apart from its federal partners. That position is the result of flexible, direct intervention, thorough knowledge of communities, action plans geared to each region and the ability to be a catalyst for local strengths.**
-

CED has developed formal partnerships with five federal departments and agencies to deliver its innovation programs:

- Environment Canada;
- National Research Council of Canada;
- Canada Customs and Revenue Agency;
- Agriculture and Agri-food Canada;
- Natural Resources Canada.

Advisors' perspective

Most CED advisors find that federal and provincial government interventions in the area of innovation and productivity are very complementary (28%) or moderately complementary (69%). Half of the advisors (47%) nevertheless find overlap that it would be better to avoid. Some suggestions:

- develop common intervention frameworks with federal and provincial partners on a regional basis;
- develop intergovernmental agreements to meet the needs of SMEs;
- negotiate agreements with the organizations concerned.

Directors' and partners' perspective

The formal partnerships are in addition to what the business office directors describe as frequent and productive interaction with many players in their respective fields.

The directors said that the absence of a regional representative of the federal partners is felt more in outlying regions. CED's strong presence in the field enables it to identify the needs of clients and co-ordinate resources.

Directors are less inclined than advisors to say there is inefficient overlap. Even where there appears to be overlap, field operations show that everyone agrees on their respective areas of intervention. The problem that remains is essentially related to the effort needed to ensure co-ordination of the stakeholders.

According to the advisors, directors and partners interviewed, it is clear that the Agency has a very specific role to play in the area of innovation and productivity in Quebec. The Agency is different from other federal organizations in the following ways:

- the flexibility of its programming and its generalist position;
- its direct assistance for SMEs and organizations;
- its knowledge of regional environments and its active involvement in the entire innovation system;
- the development of action plans specific to each region;
- funding that is seen as near-equity (equity or net worth) by other stakeholders;
- its direct action in support of the productivity of enterprises;
- the fact that its interventions in innovation occur downstream of the NRC's Industrial Research Assistance Program (IRAP);
- its role as a catalyst for local strengths.

*For more information on this section, refer to section 2.2 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

3.2.2 How do the Agency's interventions contribute to the priorities of Canada's Innovation Strategy?

Finding

- **Generally, CED's approach to innovation seems to be in line with the federal innovation strategy in terms of objectives, definition of the concept of innovation and target clientele.**
-

Advisors' perspective

Most of the Agency's advisors feel that CED's approach to innovation is in line with the federal strategy in terms of objectives, definition of the concept of innovation and target clientele. They have more reservations about the match between activities eligible for CED funding and activities eligible for funding under the federal strategy.

Directors' perspective

The Agency's directors are happy with the match between the objectives of CED's activities and the objectives of the federal strategy, but point out that those objectives are better suited to urban regions than resource-based regions. They realize that the definition of the concept of innovation used by CED is broader than the definition in the federal strategy, but they are more concerned about what actually takes place in the field than the definition of the concept. In the directors' view, the fact that CED's definition of innovation is broader than the definition in the federal strategy means sustained activities and a wider range of target clients.

For more information on this section, refer to section 2.3 of the detailed report Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)].

3.2.3 How does the Agency's approach to intervention in innovation and the knowledge-based economy compare with the approach of similar organizations, policies or programs?

Finding

Comparison of the different approaches to innovation shows that:

- **CED activities are part of its overall mission to foster regional economic development;**
 - **CED's Regional Strategic Initiatives (RSI) Program is a blend of the "industrial commissioner" and "network" approaches, since its aim is to support the development and implementation of action plans designed to strengthen the assets and competitive advantages of the administrative regions of Quebec so that the regions realize their full economic development potential. It does this by encouraging small enterprises to use and integrate new technologies and by providing funding for growth-generating industrial projects in specific sectors or regions.**
 - **CED's IDEA-SME Program, the objective of which is to facilitate and improve the development of SMEs and help these enterprises become more competitive on the world scene, is located at the high end of the "industrial commissioner" approach. Although it does have an "innovation and productivity" component designed to encourage innovative practices, aimed at SMEs and SME groups, industrial associations and intermediary organizations, the program operates on an ad hoc or case-by-case basis (a function of the demand from proponents) without any real integration component.**
-

Organizations

While it is rare for all of the components of a given organization's intervention to fall in a single quadrant, Figure 1 on page 18 endeavours to place the organizations in the quadrant that best characterizes their approach to innovation based on the documents consulted in the course of this project. This placement exercise produced many useful findings for CED, whose activities (Quadrant II), characterized by its practices of regional and sectoral partnership, are carried out as part of an overall mission to foster regional economic development.

- The Swedish Agency for Innovation System (VINNOVA) (Sweden) is the most systemic, the most specialized and the most organized approach in terms of supporting the development of innovation and, more specifically, regional or sectoral innovation systems. Its activities are placed in the middle of Quadrant IV. There is no similar organization in Canada.
- The Fraunhofer Gesellschaft approach (Germany) (Quadrant III) focusses on innovation, but is geared more to independent research or research carried out jointly with industry (individual companies or sectoral projects). However, it acts less directly on the more systemic foundation of the innovation process and its application in a context of regional development.

Description of quadrants

Quadrant I represents the “industrial commissioner” approach. With strong emphasis on direct or one-on-one relations in a generic approach that takes into account all aspects of economic development, it is the traditional approach to regional economic development. It covers innovation when the occasion arises, depending on the needs expressed by individual enterprises. This approach is reflected in many programs, where the sole “client” is the enterprise (with no requirement of or incentive for links with the environment) and where innovation is only one of several objectives (e.g., organization of trade missions, expansion of production).

Quadrant II represents the “network” approach and is aimed more specifically at the establishment of relations in a particular environment. The notions of “partnership” and “co-ordination” are often mentioned in connection with this approach. They specifically entail contact and common reflection and are intended to tighten the social capital and, ultimately, the economic fabric. The objectives are still general, and if innovation is mentioned, it is mentioned without recognizing that the key to optimizing innovation is to establish dedicated systems whose complex mechanisms require a co-ordinated, structured approach.

Quadrant III represents the “ST” approach, or the traditional approach to the development of science and technology, focussing on the technical aspects of innovation with no emphasis on the more organic aspects of the innovation process and its optimization in a regional development context.

Quadrant IV represents the “regional innovation system (RIS)” approach, which incorporates not only a high level of specialization in innovation, but also a great deal of systemic emphasis and a high level of integration of the notion of network as a catalyst for relations

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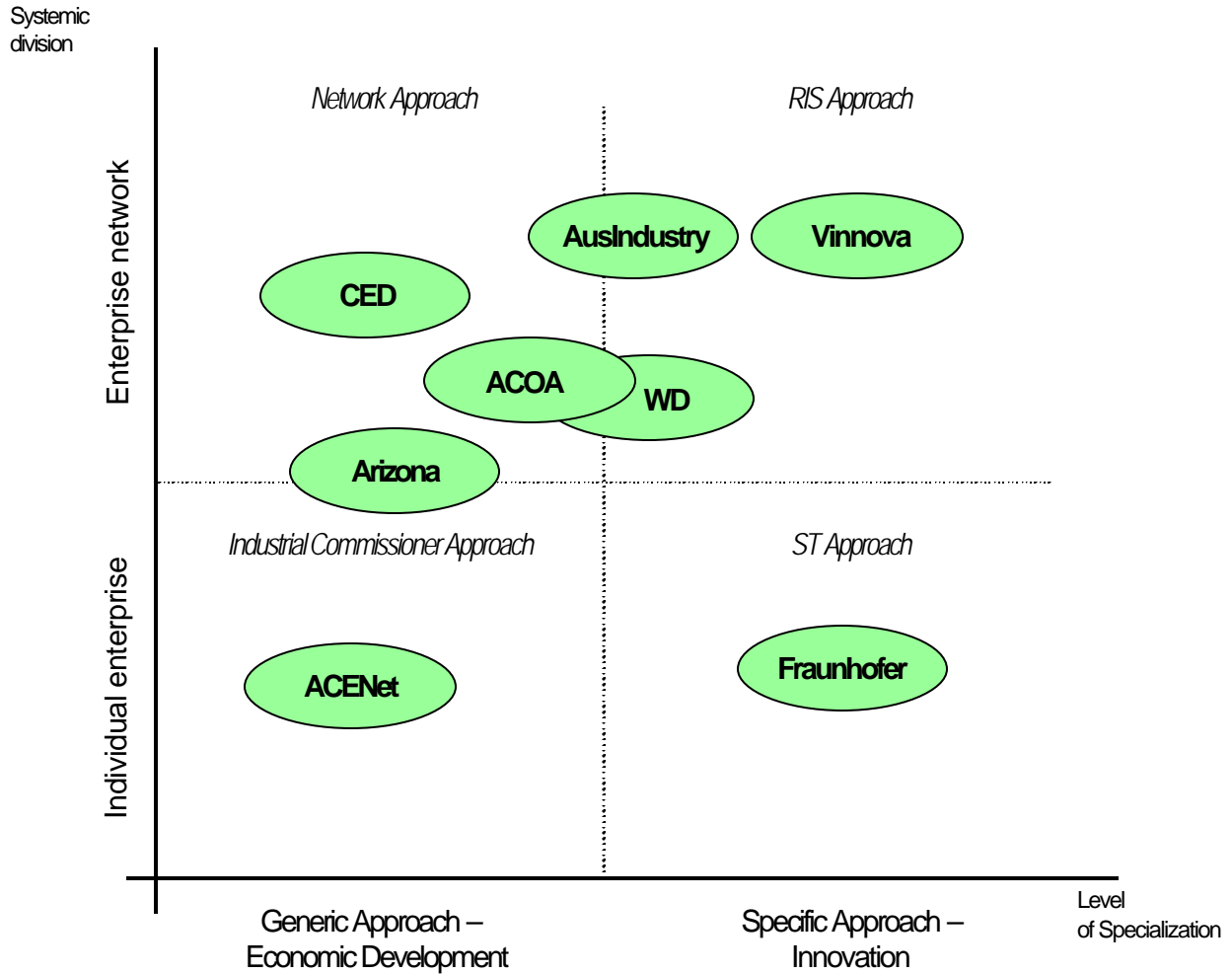
used by the National Research Council of Canada (NRC).

- AusIndustry(Australia) was placed at the intersection of quadrants II and IV because of its approach to economic development, which focusses on the networking of sectoral players and consistently recognizes unique features and because of its systemic nature, specific to the development of innovation.
- The Western Economic Diversification (WD) approach lies primarily in Quadrant IV (network approach) because its main programs are aimed specifically at systemic elements and the

elements of networking among players which underlie the development of innovation. This is less the case for the approach used by the Atlantic Canada Opportunities Agency (ACOA), which focusses more than WD on conventional direct support to enterprises.

- Even though it focusses on the creation of industrial clusters with high value-added, the Governor's Strategic Partnership for Economic Development (GSPED) (United States) is placed on the line between quadrants I and II because the tax incentives it uses as levers are usually part of an "industrial commissioner" approach. Finally, the incubator approach advocated by the Appalachian Center for Economic Networks (ACEnet) (United States), through which it guides the development of small rural enterprises in a sectoral context, is placed in the middle of Quadrant I.

Diagram 1: Originality of Agency Approaches



Programs

Figure 2 on the next page positions a number of typical programs in the same four quadrants illustrated above (a typical program that falls into one quadrant may sometimes be delivered by an organization whose overall approach actually falls into a different quadrant; rarely are approaches “pure”).

- VINNOVA’s Vinnvaxt program is placed in the middle of Quadrant IV because it is a program aimed at establishing regional innovation consortiums that include small and large enterprises, research institutes, and regional administrative and political authorities, so as to stimulate the development of regional innovation systems in specific industrial sectors. Consortiums are selected through competition, and financial assistance is then spread over a period of 10 years,

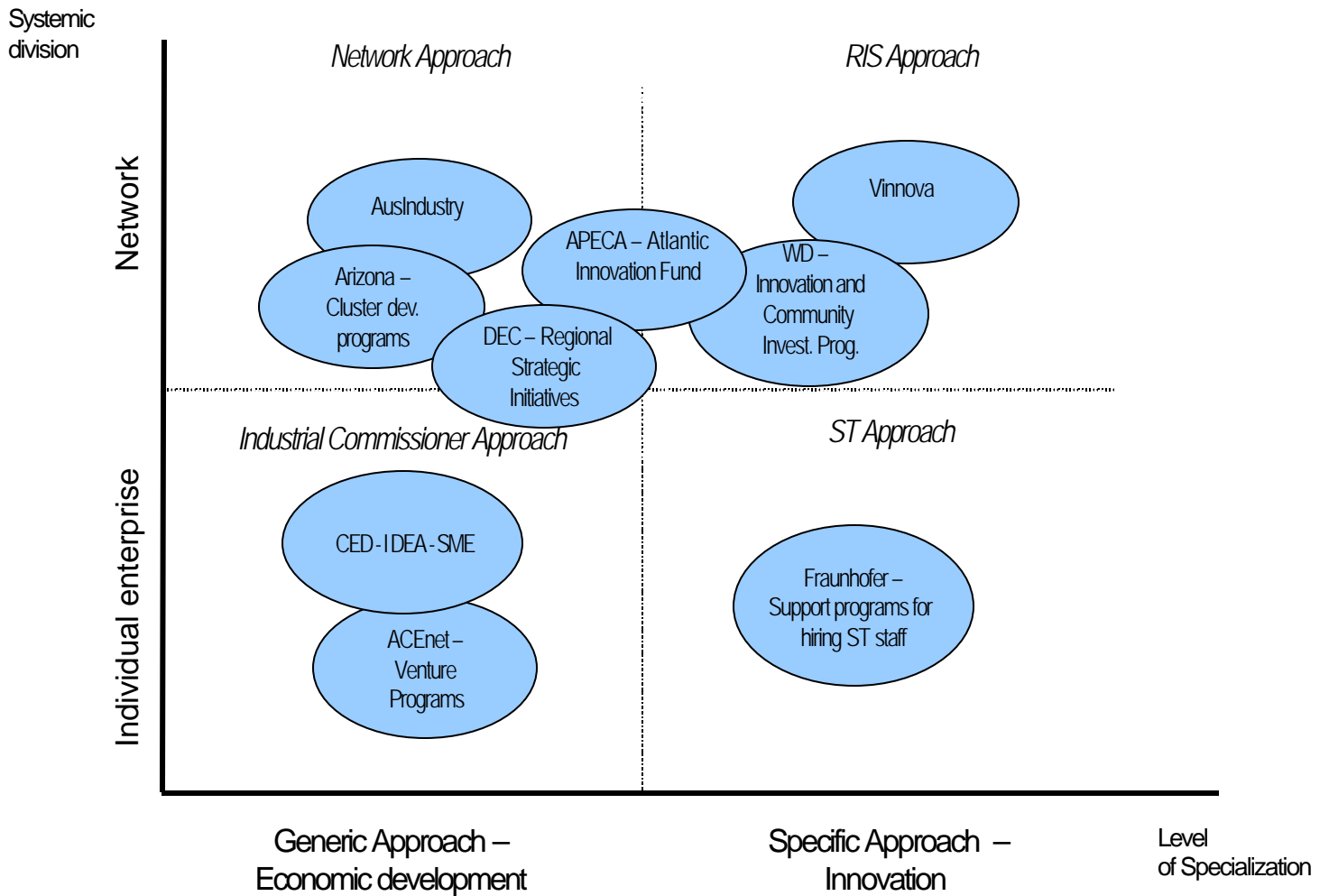
in keeping with the development speed of such systems. Moreover, VINNOVA specifically recognizes its own learning as one of the main objectives of the first five projects (pilot projects) accepted by the program.

- The aim of AusIndustry's IAccP program (Quadrant II) is to foster the development of innovative practices in SMEs through projects to introduce new technologies or production and management practices. What makes the program unique is that the enterprise it is supporting has to show that the project will contribute to the dissemination of innovative practices for all Australian industries. The systemic nature of innovation (ripple effect) is specifically recognized.

All designed and delivered in a context of regional economic development, the programs delivered by CED (Regional Strategic Initiatives (RSI)), WD (Innovation and Community Investment Program (ICIP)) and ACOA (Atlantic Innovation Fund (AIF)) are placed in different quadrants.

- WD's ICIP is in Quadrant IV because it is aimed specifically at bringing together all innovation players, including regional public institutions (e.g., hospitals) in order to facilitate the creation of regional innovation systems and the development of regional knowledge-based economies.
- ACOA's AIF is similar to the ICIP in that one of its goals is to strengthen the region's innovation capacity by supporting R&D and marketing partnerships and alliances between private enterprises, universities and research establishments. However, the focus is more on the creation of new technologies and/or products or services. Public entities like municipalities are not eligible; they are also not eligible under the ICIP. One noteworthy element is that projects are selected through competition, and submissions are evaluated by a panel of experts.
- CED's RSI Program straddles quadrants I and II because, by encouraging SMEs to use and integrate new technologies and funding structuring industrial projects on a sectoral or regional level, it is intended to support the implementation and execution of action plans to strengthen the assets and competitive advantages of the administrative regions of Quebec to that they can reach their economic development potential.
- Finally, ACEnet's growth-generating venture capital fund is placed in Quadrant I. The purpose of the fund is to provide capital for small rural enterprises in the food and technology sectors established by low-income entrepreneurs.

Diagram 2 Originality of Approaches - Illustration by Program Type



Areas for improvement related to relevance

Our observations indicate that CED's overall approach is appropriate given the needs and the economic context. Based on the comments received from client enterprises, advisors, business office directors and partners, we can conclude that there are still several areas where CED's innovation/productivity activities can be improved:

- ***The Agency could increase its support for enterprises in the form of access to consultants, networking of innovative enterprises, and co-operation between universities and enterprises, especially in outlying regions. CED's intervention in innovation/productivity has many facets, which raises issues of consistency.***
 - ***Based on the results of this study, it would be a good idea to clarify the definition of innovation to ensure consistency in the Agency decisions and activities.***
 - ***CED has federal partners, but they are largely unknown; the Agency should reactivate those agreements with an eye to better co-ordination with federal partners.***
-

4

FINDINGS RELATED TO IMPLEMENTATION

The evaluation questions specific to implementation are centred around three main themes:

- use of the CJF's human and financial resources (inputs) and planning the implementation of activities;
- description of the elements of the implementation and monitoring of activities;
- report on activities (outputs).

This section presents the findings and observations drawn from the intranet survey of advisors, interviews with business office directors, the telephone survey of client enterprises, case studies and analysis of the projects database.

4.1 Inputs and planning

4.1.1 *How were human and financial resources distributed under the CJF?*

Findings

- **According to the enterprises, advisors, directors and partner, the Agency successfully met the challenges of recruiting and training human resources, setting the boundaries of activities and ensuring co-ordination.**
 - **It was successful in recruiting the necessary staff, putting in place staff support measures, creating *ad hoc* committees and using its networks to facilitate the co-ordination of stakeholders.**
-

When the balance of the CJF was transferred, the Agency received an operating budget of \$27 million (offices, hiring, etc.). The administration of those funds represented a major increase in activity for the Agency. CED had to hire several more analysts and advisors to handle the task. The new human resources were allocated as described in Table 1 on the following page.

Table 1 **Distribution of human resources by status and employment group**

Number of full-time equivalents (FTEs)	56
By status	
• Term	21
• Indeterminate	34
• Secondment	1
By employment group	
• Advisors (CO-01, CO-02, CO-03 and CO-04)	50
• Other staff	6

Source: Financial Resources Directorate, March 31, 2003

Directors' perspective

Overall, the directors interviewed indicated that there were enough human resources to implement the activities related to the CJF and that many employees took the opportunity to acquire the necessary skills.

- A number of weaknesses in terms of experience were offset by solid skills and an appropriate training plan.
- According to some directors, the hiring exercise was difficult and poorly planned.

*For more information on this section, refer to section 3.1 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

4.1.2 How were employees trained and informed in order to implement activities the CJF? Were support mechanisms put in place? How did the advisors' rate the support and training they received?

Findings

- **CED offered several types of support for its employees in carrying out activities related to the CJF funds.**
- **According to the advisors, some training needs have still not been met.**

CED offered several types of support for its employees in carrying out activities related to the CJF funds, specifically:

- a course on productivity;
- weekly conference calls on innovation/productivity;

- information guides.

Advisors' perspective

The survey of advisors yielded the following results:

- 9 out of 10 advisors(89%) who participated in the survey conducted as part this study indicated that they took a course on productivity;
- the weekly conference calls on innovation/productivity involved a third (33%) of the advisors, according to our survey; half (48%) of the advisors who did not participate were informed of the results of the calls at least "sometimes", while 44% were never informed;
- three quarters (74%) of the advisors were aware that there were guides designed to facilitate innovation and productivity activities.

Table 2 shows the advisors' perception of the different types of support provided for implementing innovation and productivity activities.

Table 2 Advisors' perception of the different types of support provided for implementing innovation and productivity activities

	Course on productivity	Conference calls	Guides (Web tool)
Meet needs	75%	55%	73%
Ensure consistency in activities	-	54%	-
Useful in analysing projects	54%	51%	58%
Offered at the right time	65%	49%	53%

Source: Réseau Circum Survey

Asked to identify training needs that have not yet been met, the advisors gave the following examples:

- analysis of real cases;
- a more comprehensive explanation of the notion of innovation as was done with productivity during training;
- better understanding of the various methods of improving productivity;
- identification of mechanisms for implementing a continuous innovation process in small enterprise;
- study of the financial evaluation of SMEs in the new economy;
- harmonization of practices between business offices.

Directors' perspective

According to the directors contacted, staff received basic training in the programs and were given personalized instruction (twinning, mentoring). Some criticized the fact that the initial training was

aimed more at procedures than content. The directors mentioned other pertinent activities carried out in support of staff, namely:

- creating a mirror committee on innovation;
- joining the Canadian Technologies Network (CTN);
- **refresher training on productivity given by outside consultants.**

*For more information on this section, refer to section 3.1 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

4.2 Implementation of activities

4.2.1 Were any problems encountered in implementing activities? Were changes made?

General finding

Despite a great deal of work to plan and implement innovation and productivity activities, there are still a number of implementation problems.

They relate to the Agency's necessarily limited resources, ongoing issues with adjusting activities to situations in the field, effectiveness in processing applications and harmonization of the Agency's activities from one business office to another.

Directors' perspective

Agency directors confirmed that some problems were encountered in implementing the program. First, the program was slow getting off the ground: the Agency had inaccurately estimated how long it would take to implement this new area of activity; it took a while to grasp the issues. The directors also mentioned problems with the interpretation of guidelines, the mode of operation, clarification of the mandate, etc. Initially, it was feared that it would be impossible to meet the demand; the agency therefore restricted the program, and it took several months before these limits were removed

According to the directors, the Agency reacted constructively to these challenges. It organized conference calls with advisors, aimed primarily at helping them interpret the guidelines and understand the administrative aspects of the program. It also put in place a variety of training tools. According to the directors who were asked about this issue, there are a number of irritants in the implementation of CED programs. For example:

- CED has difficulty dealing with the marketing of services;
- activities are not tailored to industries with a long development cycle (eg, 8 to 10 years in biotechnology);
- there is no support for equipment renewal.

Advisors' perspective

More than half (56%) of the advisors concerned said that they had encountered problems while delivering the Agency's innovation and productivity activities since 2002; only one out of five advisors said that the problems were solved by the Agency.

Those problems included:

- delays, e.g., slow approval of files and lag between the decision by the Treasury Board of Canada and implementation of the program;
- constraints in program parameters, e.g., limitation of assistance to new strategic equipment and the requirement that a comprehensive outside analysis of productivity be conducted;
- a program sunset date of March 2005;
- constraints related to financial management, eg, the lack of funds at the end of the 2002-2003 fiscal year;
- inconsistent actions between business offices, eg, helping a enterprise in one region and in the process competing against a enterprise in another region that applies for assistance;
- a lack of local resources for conducting productivity analyses.

Client enterprises' perspective

Implementation problems are clear for enterprises when they have difficulty dealing with CED representatives. Only 8% of client enterprises said they had run into problems in their relations with CED while implementing their project. **Of those, one third (37%) saw the problems solved to their satisfaction.**

When asked, "If the Agency could improve only one thing in its support for innovation, what, in your opinion, would it be?", 40% of the respondents said that there was nothing specific that needed improvement. The other respondents identified the following areas for improvement in descending order of importance:

- amount and type of funding (13.1%);
- speed/bureaucracy (13.1%);
- support (9.9%);
- flexibility/eligibility criteria (7.4%);
- range of programs (6.4%).

For more information on this section, refer to section 3.2 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.

4.2.2 How was the project monitored? Were there any problems?

Findings

- **Half of the advisors concerned said they always monitor implementation of the projects under their responsibility and track the results.**
 - **According to the directors of the Agency's business offices, monitoring of projects from the CJF period is no different from what is done for other activities.**
 - **In 2002-2003, two thirds of representatives of client enterprises said that the Agency contacted them regularly. Monitoring was more intense during the CJF period than in the preceding period. It was also more intense in outlying regions than in other regions.**
-

Advisors' perspective

Half of the advisors concerned said they always monitor implementation of the projects under their responsibility and track the results. Roughly one quarter said they do both "most of the time" and one quarter "sometimes".

Directors' perspective

According to Agency directors, monitoring of projects from the CJF period is no different from what is done for other activities. It includes meetings with enterprises, financial tracking, analysis of claims, site visits, etc. Some directors say that ideally, monitoring should be better adapted to the pace of the project (eg, visits at the start, during implementation and at the end).

Client enterprises' perspective

Client enterprises corroborated the description given by the advisors and directors. Two thirds (63%) said that a CED representative contacted them regularly to track the project.

- This was more the case for enterprises that received assistance in 2002-2003 (70%) than for enterprises that were supported between 1998 and 2002 (59%).
- Another group of 30% said that they were in contact with CED once or twice during the project. Only 2% of client enterprises said they had no contact with the CED representative.
- There seems to be closer monitoring in outlying regions than in other regions: 74% of enterprises in outlying said that they had regular contact with CED, whereas the proportion was 59% in other regions.
- Monitoring is also more frequent in the case of enterprises which say they work in less competitive environments. It is the same, however, for smaller and larger projects and for different types of projects.
- NB: although the differences are not statistically significant, on a descriptive level, it seems that the more intensive the monitoring, the less likely the enterprise is to report problems in its relations with the Agency.

*For more information on this section, refer to section 3.2 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

4.2.3 How were projects implemented in the regions?

Findings

The case studies show that the Agency:

- has demonstrated its ability to play a co-ordinating and mobilizing role with economic stakeholders;
- has not taken the place of other stakeholders, but rather has endeavoured to fill any voids;
- has over the years become a major player in innovation projects.

Further, by basing its activities over the past 10 years on regional priorities identified through an ongoing strategic planning process, the Agency has been able to:

- become actively involved in sectoral or regional strategic co-ordination and/or planning activities;
- constantly refocus according to successes and feedback from the community and based on assets, research opportunities and competitive advantages;
- invest regularly, substantially and over a sustained period in areas where the market is unable or unwilling to invest (no market, medium- and long-term outlook and/or too much risk).

Case study of the Bas-Saint-Laurent region

The Bas-Saint-Laurent business office has fostered the construction, expansion or modernization of the production facilities of enterprises and organizations deemed strategic for the economic development of the Bas-Saint-Laurent region.

With the Agency's help, organizations have been established to fill voids in the regional innovation strategy. Good example are Innovation Maritime and the marine biotechnologies research centre (CRBM) in Bas-Saint-Laurent. The business office's innovation activities covered the following elements:

- support and facilitate the development of a marine science and technology cluster (infrastructure, labour, strategic enterprises);
- promote innovation and improvement of environmental performance in natural bioresource sectors (peat, wood, bio-food), at operating, processing and marketing phases;

- improve and diversify the critical mass of unique, growth-generating products and pursue international marketing opportunities;
- strengthen the competitiveness of the economic fabric by improving technological intensity (innovative practices, high technology, productivity, tests and experiments, innovation, exports) and fostering the emergence of a regional culture of innovation.

For more information, refer to the following case studies:

Luc Desaulniers, Khalid El-Mellahi, Case Study Lower St. Lawrence Region, April 2004, 27 pages.

Luc Desaulniers, Khalid El-Mellahi, Étude de cas, Centre de recherche sur les biotechnologies maritimes (CRBM), April 2004, 17 pages.

ÉVALUATION, Le cas d'Innovation maritime, March 2004, 12 pages.

Case study of the Saguenay-Lac-Saint-Jean region

The Saguenay-Lac-Saint-Jean business office targeted and supported co-ordinated strategic planning activities as well as:

- facilities and research centres;
- innovative enterprises projects;
- linkage, cross-pollination, partnership and information exchange activities, which are the three crucial, cumulative and interdependent elements of the dynamic continuum of innovation.

The activities took place both upstream and downstream of activities specific to innovation, which is a guarantee of success because it breeds a dynamic between the different elements of the innovation chain.

In some cases, the Agency's activities changed the organization's mandate so that it could offer a more elaborate range of services or provide services for a broader clientele. For example, the high technology centre (CHT), created in 1992, was initially a local project designed to meet the needs of Jonquièrre SMEs. In 2002, in the wake of a study which showed that enterprises in Saguenay-Lac-Saint-Jean were lagging behind technologically in terms of innovation, the CHT reviewed its mission to bring it more in line with the region's strategic orientations. The Jonquièrre CHT thus became the Saguenay-Lac-Saint-Jean CHT. Its new mission is to focus on innovation in order to support SMEs and make Saguenay-Lac-Saint-Jean an innovative region.

The foundation, scope and nature of the activities carried out by the Saguenay-Lac-Saint-Jean business office in support of development of the regional innovation system are the product of regional strategic planning processes in which the business office has been fully involved in recent years. Consequently, the activities are constantly modified and tailored to emerging needs that are considered priorities by regional players. Moreover, the process of planning and developing the business office's regional intervention strategy, carried out in conjunction with the community, strengthens that synergy in execution of the intervention and at the same time produces a true regional partnership

For more information, refer to the following case studies:

E&B Data, Le système régional d'innovation, Région du Saguenay-Lac-Saint-Jean, June 7, 2004, 13 pages.

E&B Data, Le Centre des technologies de l'aluminium (CTA), May 28, 2004, 11 pages.

Johnson & Roy, Centre de haute technologie du Saguenay-Lac-Saint-Jean, April 13, 2004, 13 pages.

Case study of the Montérégie region

The activities of the Montérégie business office are carried out through its partners and focussed on mobilization of local economic development players. For example, Bioagral and Valotech play an important role in Montérégie's regional innovation system.

CED's decision to support the creation of Valotech was the result of a strategic planning exercise that identified the need to promote technology transfer from the many research centres in the region to SMEs.

Valotech was therefore created for the purpose of providing enterprises with information, awareness and support services in the various fields related to innovation and facilitating the link between the needs of enterprises and the various organizations capable of meeting those needs.

Finally, after the region came to realize the importance of including biotechnology in the region's key sectors and following a joint regional strategic analysis process led by the Montérégie business office in 1996, BIOAGRAL was established in 1997 and mandated to foster and promote the technological development and marketing of products and services from Quebec's agri-food bio-industries sector.

For information, refer to the following case studies:

TECSULT, Étude de cas d'innovation et de transfert technologiques en Montérégie, March 2004, 21 pages.

Philippe Poitras, Étude de cas, Un rôle structurant essentiel à l'innovation dans le secteur bio-agroalimentaire du Québec, March 2004, 13 pages.

Le Groupe Stragesult, Étude de cas, Valotech inc., March 30, 2004, 17 pages.

4.2.4 Overall, what lessons can be drawn from the implementation of projects with organizations?

Findings

The Agency has worked in partnership with community players to support growth-generating investment:

- **in research facilities (producers of technical expertise);**
- **in transfer, networking and exchange activities (social aspect aimed at disseminating technical and scientific expertise);**
- **in enterprises, for projects aimed at marketing or integrating new technologies or processes.**

These experiences illustrate the importance of ensuring that activities can be tailored to the situation in communities and the resulting strategic changes in projects and organizations.

Centre de haute technologie du Saguenay-Lac-St-Jean (CHT)

The CHT, a local initiative taken to meet the needs of Jonquière SMEs, was made possible in part by the co-operation and support of the community. For its first 10 years of operation, the centre was an enterprise incubator. In 2002, in the wake of studies which showed that enterprises in Saguenay-Lac-Saint-Jean were lagging behind technologically, the CHT reviewed its mission to bring it more in line with the region's strategic orientations. The Jonquière CHT thus became the Saguenay-Lac-Saint-Jean CHT, an organization that now focusses exclusively on innovation in order to support SMEs in the region. The CHT thus became a fulcrum for making Saguenay-Lac-Saint-Jean an innovative region.

For more information, refer to the following case study: Johnson & Roy, Centre de haute technologie du Saguenay-Lac-Saint-Jean, April 13, 2004, 13 pages.

Aluminum Technology Centre (ATC)

Since it began operations in March 2002, only recently moved into its own premises and operates without its own laboratories and only a small team of researchers and technicians that it is still trying to build, it bears noting that the centre's achievements and tangible impact are already drawing interest from manufacturers in the aluminum industry, not only in Saguenay-Lac-Saint-Jean but elsewhere in the province and nationally as well.

For more information refer to the following case study: E&B Data, Aluminium Technology Centre (ATC), May 28, 2004, 11 pages.

Innovation Maritime

The implementation of Innovation Maritime did not create any specific problems. Innovation Maritime already had expertise, and its business plan was very well put together. Even so, it could be said that everything went better than normal: deadlines were met and some even anticipated! The only problem mentioned by the stakeholders interviewed was a lack of skilled workers. That is a problem that affects many regions and is not limited to the marine sector.

For more information, refer to the following case study: ÉVALUATION, Le cas d'Innovation maritime, March 2004, 12 pages.

Centre de recherche biotechnologies marines

The feasibility studies took almost four years to complete - from 1998 to the end of 2001 - because the orientation of the project had to be determined, needs had to be identified, the financial and operational framework had to be defined, and a business plan had to be developed. Not only were prospective regional partners involved from that early stage, but consultations were also held in Quebec, other parts of Canada and elsewhere around the world. The summer of 2004 marked the beginning of a five-year startup period. The CRBM has to launch its internal research programming (roughly 15% of resources) and weave itself into the industrial and institutional fabric of partners in Quebec and elsewhere (85% of resources). After 2008, the CRBM should be financially self-sufficient and should survive on the strength of research and services contracts. The user rate of research staff and leased space should be 50% by that time.

For more information, refer to the following case study: Luc Desaulniers, Khalid El-Mellahi, Étude de cas, Centre de recherche sur les biotechnologies marines (CRBM), April 2004, 17 pages.

Bioagral

The current phase of this project (2004 to 2007) is the result of a change in BIOAGRAL's mission, objectives and services. That change was initiated in February 2003 at the Agency's request in order to make its activities more complementary with those of BioQuébec, whose mandate affects the biotechnology sector in a broad sense and for which the Agency also provides funding. The new BIOAGRAL will be more like an industrial consortium and will work on the basis of the needs and priorities identified by its member enterprises.

For more information, refer to the following case study: Philippe Poitras, Un rôle structurant essentiel à l'innovation dans le secteur bio-agroalimentaire du Québec, March 2004, 13 pages.

Valotech

When the contribution agreement was renewed for three years in June 2003, CED felt the need to redefine the organization's objectives, review the range of services and their complementarity with the services provided by existing organizations, and the organization's methods of intervention. CED asked Valotech to undertake a strategic analysis in order to focus services more on the needs of clients and to draw up a business plan and a detailed action plan.

For more information, refer to the following case study: Le Groupe Stragesult, Étude de cas, Valotech inc., 17 pages.

4.3 Outputs

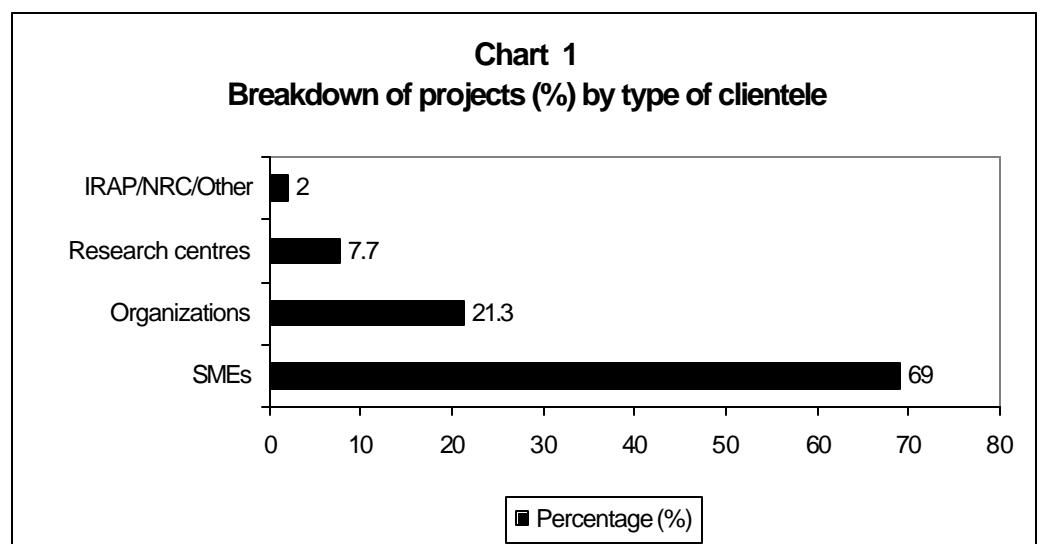
Findings

- **SMEs are the Agency's primary clientele in terms of number of projects.**
- **In terms of financial assistance, research centres/universities and SMEs receive roughly the same level of contribution.**

4.3.1 Who was reached? Who are main beneficiaries of the Agency's activities?

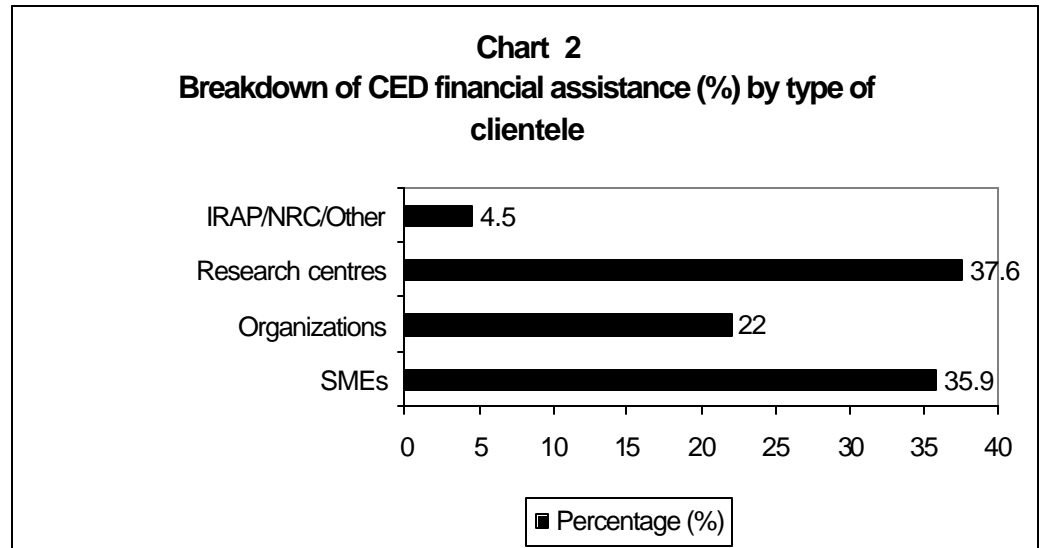
The Agency's activities primarily reached three main categories of clients: SMEs (69.0%), business services organizations (21.3%) and research centres (7.7%) (see Chart 1).

When we analyse the financial assistance provided by the Agency for these different categories of clients, the picture is somewhat different (see Chart 2 on the next page).



The Agency's financial contributions are split almost evenly between research centres/ universities (37.6%) and SMEs (35.9%). Business services organizations rank third (22%).

For more information on this section, refer to the detailed report "Bilan des interventions de l'agence" [report on CED interventions].



4.3.2 What types of project were supported?

During the reference period (April 1, 1998, to December 31, 2003), 1,681 contribution agreements were authorized by the Agency. In terms of financial assistance, that translates to \$479 million (see Table 3 on the next page).

Almost three quarters (73%) of the approved projects were in four areas of activity:

- marketing of innovation (31%);
- studies, research and plans (15%);
- productivity projects (15%);
- projects to develop products or processes (12%).

The profile of financial assistance is slightly different. Three quarters (75%) of the Agency's assistance was allocated to four areas of activity:

- capital projects (\$175M, or 36%);
- innovation marketing projects (\$66M, or 13%);
- projects to develop products or processes (\$66M, or 13%);
- organizations' operating costs (64%, or 13%).

Table 3 **Number of contribution agreements and CED financial assistance by area of activity**

Type of intervention	Contribution agreements		CED assistance	
	N	%	M\$	%
Marketing of innovation	525	31	66	13
Development of products or processes	207	12	66	13
Tests and experiments	61	3	10	2
Studies, research or plans	261	15	19	4
Operating costs	70	4	64	13
Capital projects	95	5	175	36
Pre-startup and startup	41	2	20	4
Productivity	256	15	29	6
Awareness, information and acquisition of knowledge	165	9	27	5
TOTAL	1681	100	479	100

For more information on this section, refer to the detailed report “Bilan des interventions de l’agence” [report on CED interventions].

Areas for improvement related to implementation

The main areas for improvement are related to:

- ***internal co-ordination of activities to avoid differences in interpretation from one business office to another;***
- ***external co-ordination of activities to ensure that federal, provincial and local resources are used wisely;***
- ***training for advisors in innovation (advisors have already been trained in industrial productivity) and intervention guidelines;***
- ***the distribution of information to clients to ensure equitable access to the Agency’s support;***
- ***an increase in the flexibility of activity parameters to tailor them better to all the innovation/productivity needs identified in some enterprises and at the same time ensure consistency in activities.***

5 FINDINGS RELATED TO THE IMPACT OF AGENCY ACTIVITIES

The specific evaluation questions pertaining to the impact of the Agency's activities centred on five themes:

- attainment of the objective of increasing the Agency's innovation activities;
- the immediate impact on enterprises;
- the intermediate impact on enterprises;
- unforeseen impact;
- impact on the technological capabilities of the regions.

This section presents the main findings and observations drawn from the intranet survey of advisors and interviews with business office directors. It is based primarily on the results of the telephone survey of client enterprises and the case studies. In order to meet Treasury Board's analysis requirements, the analysis of the telephone survey of client enterprises was aimed primarily at highlighting the results attained since the CJF was obtained (pre- and post-CJF analysis) and in regions having adjustment problems or outlying regions.

5.1 Attainment of objectives

5.1.1 *Have Agency activities increased since the CJF was obtained?*

Findings

- **Implementation of the new innovation and productivity component of the IDEA-SME Program changed the nature of activities with SMEs.**
 - **Overall, the Agency's activities have increased significantly since the CJF was obtained (June 2001) in terms of both the number of projects and the financial assistance provided by the Agency.**
-

Advisors' perspective

All of the advisors who were asked to make the comparison said that the Agency's activities have changed since the innovation/productivity component was implemented, making it possible to:

- broaden the Agency's area of activity in all business processes and at all stages of a enterprise's development - hence intervention involving culture and processes, not just products;
- better target activities in response to the needs of enterprises;
- provide support for analyses and expenditure related to capital initiatives;

- take action upstream of export.

Directors' perspective

The business office directors also identified many changes in CED activities:

- re-assessment of the relevance of support for equipment purchases;
- introduction of a diagnostic analysis for the productivity component;
- increase in the flexibility of CED activities with enterprises;
- expansion of the population of SMEs reached by the Agency;
- priority for the productivity component over marketing and exports.

*For more information on this section, refer to section 3.2 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

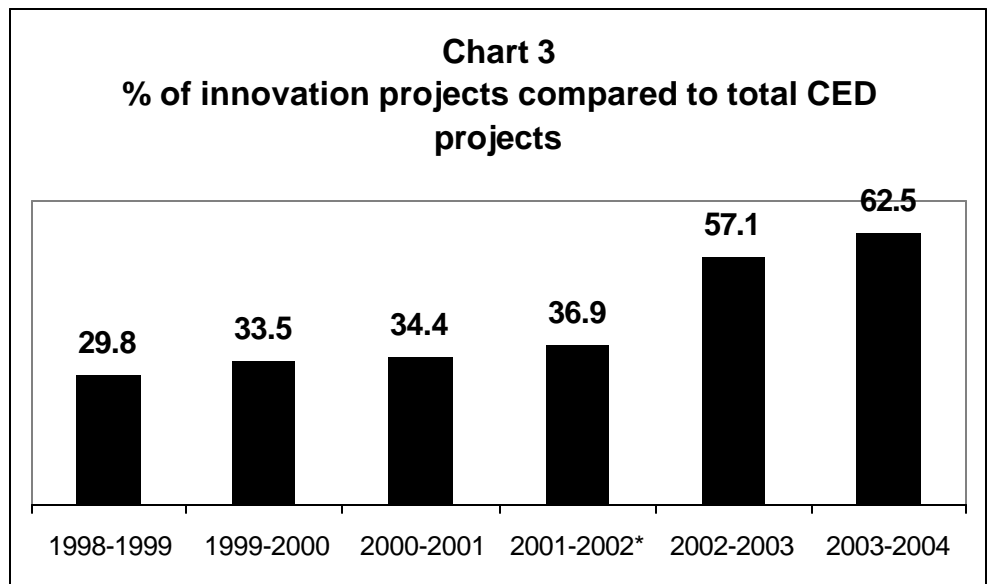
Report on activities

This section reports on the increase in Agency activities in innovation and the knowledge-based economy. **The increase is analysed from two standpoints::**

- The first is the proportion of innovation projects among the total number of projects approved annually by the Agency during the period from April 1, 1998, to March 31, 2004, for the IDEA-SME and RSI programs.
- The second is the change in activities during the period from April 1, 1998, to December 31, 2003, that is, before and after the balance of the CJF was transferred. This database covers only activities in innovation and the knowledge-based economy.

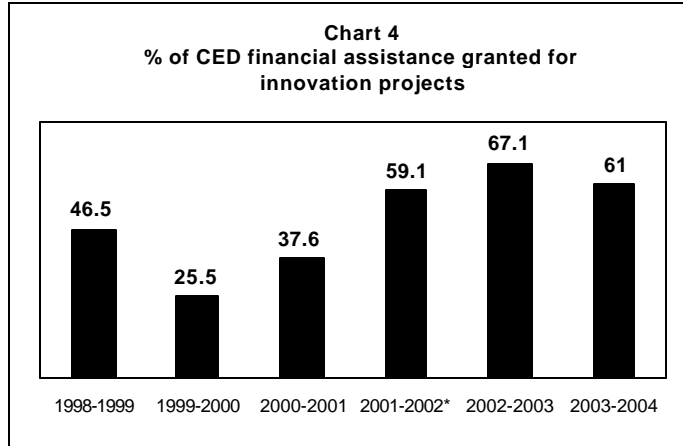
Overall increase in Agency innovation and the knowledge-based economy activities

Overall, Agency activities have has increased significantly since the CJF was obtained (June 2001) in terms of both the number of projects and the financial assistance provided by the Agency. Almost two thirds (62.5%) of the projects approved in 2003-2004 (584 out of 935) were related to innovation (see Chart 3). In 1998-1999, that proportion was 29.8%, or 192 out of 645 projects. (*the year the balance of the CJF was obtained)



The proportion of financial

assistance given to innovation projects (see Chart 4) was 46.5% (\$43.7M out of \$92.7M) in 1998-1999, then dropped to 25.5% in 1999-2000 (\$30.0M out of \$118M) before rebounding to 37.6% in 2000-2001 (\$89.9M out of \$239.3M), 59.1% in 2001-2002* (\$131M out of \$221.9M), 67.1% in 2002-2003 (\$113.9M out of \$169.8M) and then 61%¹³ in 2003-2004 (\$113.4M out of \$186M).

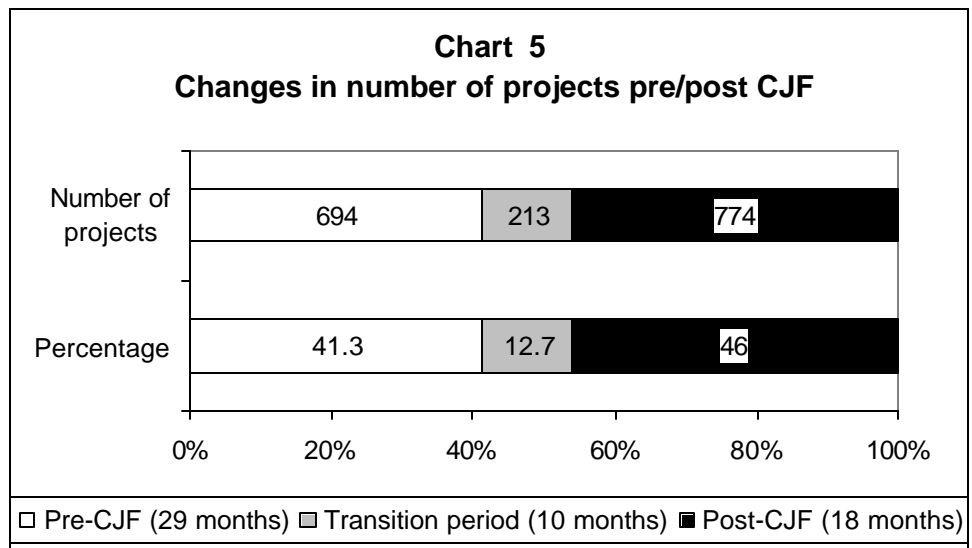


Change in the Agency’s activities in innovation and the knowledge-based economy pre- and post CFJ⁴

More projects were authorized during the “post-CJF” period (774 projects, or 46%) than during the “pre-CJF period (694 projects, or 41,3%), even though the post-CJF period was shorter (18 months as opposed to 29) (see Chart 5).

“Post-CJF” contributions were slightly lower (\$178.8M, or 36.9%) than those authorized during the “pre-CJF” period (\$181.7M, or 37.9%) (see Chart 6 on the next page). Because the post-CJF period was shorter, it can be assumed that there has been an increase in the Agency’s innovation and knowledge-based economy activities since the CJW was transferred.

Another element illustrated in Chart 6 is the magnitude of the commitments made during the transition period (\$121.1M). Closer examination shows that most of the projects approved during that period involved research centres or



¹³This downturn in 2003-2004 is attributable in part to the approval of two major projects (\$19M) unrelated to innovation.

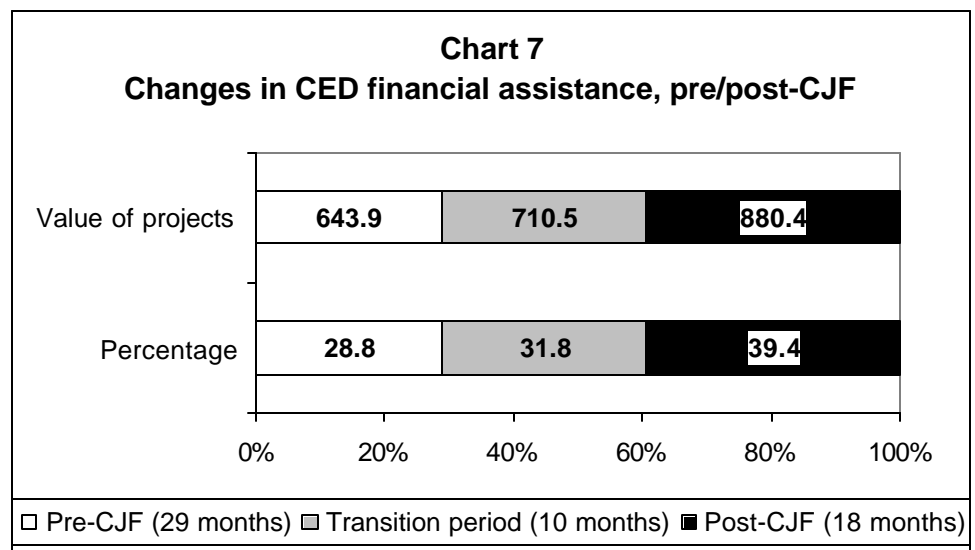
¹⁴The “pre-CJF” period runs from April 1, 1998, to June 6, 2001. The transition period runs from June 7, 2001, to March 31, 2002. The “post-CJF” period runs from April 1, 2002, to December 31, 2003. The transition period represents the burn-in period. Remember that the new “innovation and productivity” component was announced in November 2001.

universities. Five¹⁵ out of the 213 projects (2.3%) accounted for more than \$62M of the Agency's commitments, or 51% of the total commitments made during the period.

Was there an increase in local benefits? Although the Agency's financial assistance was down slightly during the post-CJF period, the lever effect was much greater than it was for projects in the "pre-CJF" period (see Chart 7). For every dollar invested by CED, another four dollars¹⁶ was invested in projects related to innovation and the knowledge-based economy.

During the transition period, the five projects discussed earlier accounted for almost two thirds (64.8%) of total project costs.

For more information on this section, refer to the detailed report "Bilan des interventions de l'agence en innovation et économie du savoir" [report on CED innovation and knowledge-based economy activities].



¹⁵ National Optics Institute (\$25M), University of Montreal (\$10M), Société de développement Angus (\$10M), Premier Tech (\$9.2M) and Institut royal pour l'avancement des sciences (\$8M)

¹⁶ The Agency's financial contribution was not included in total project costs.

5.1.2 What is the status of activities in regions with adjustment problems? Has the Agency been more active in those regions?

Finding

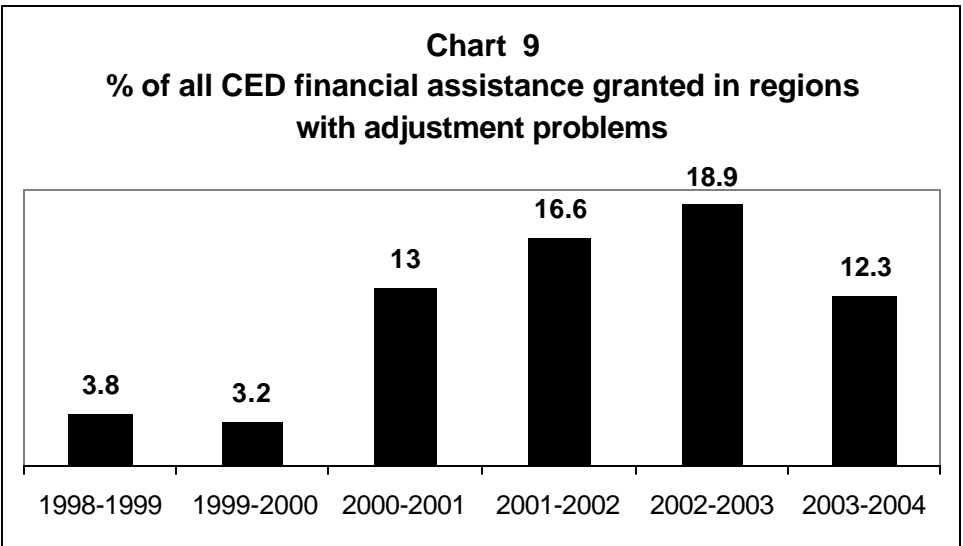
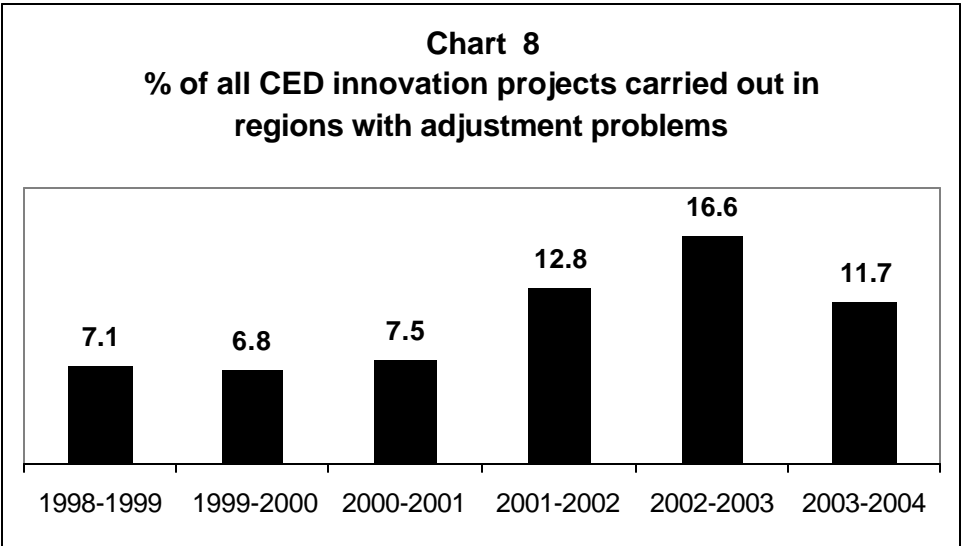
- **Agency activities increased in regions with adjustment problems during the period from 1998 to 2004 in terms of both the number of projects and the amount of assistance provided.**

As in the previous section, the analysis is done from two standpoints:

- first, the proportion of total Agency innovation activities carried out in regions with adjustment problems;
- second, change in Agency activities in regions with adjustment problems pre- and post-CJF.

Overall increase in Agency activities in innovation and the knowledge-based economy

Agency activities also increased in regions with adjustment problems. Beginning in the 2001-2002 fiscal year, the proportion of innovation projects approved in regions with adjustment problems increased significantly from 7.5% in 2000-2001 to 12.8% in 2001-2002 - the year in which the balance of the CJF was transferred to the Agency - then 16.6% in 2002-2003 and 11.7% in 2003-2004 (see Chart 8).



The same finding applies to the Agency's financial assistance. In 1998-1999 and 1999-2000, less than \$4M, or just over 3% of all Agency activities, went to innovation projects in regions with

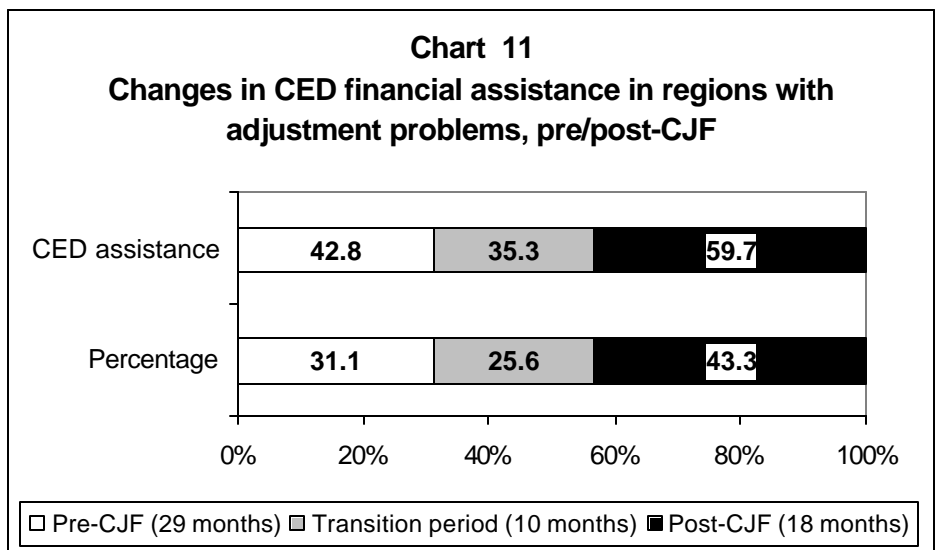
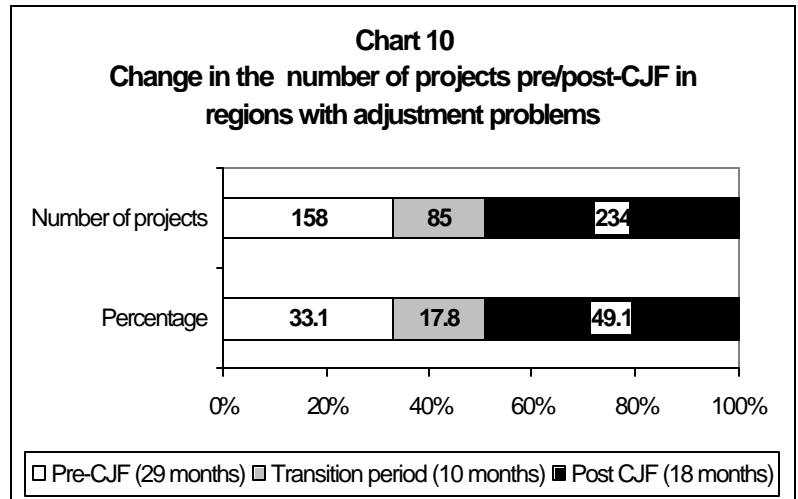
adjustment problems. Beginning in the 2000-2001 fiscal year, the value of innovation projects in those regions increased to more than \$30M or 13%¹⁷ of the Agency's financial assistance. The proportion rose again to 16.6% (\$36.9M) in 2001-2002 and then 18.9% (\$32.1) in 2002-2003. Finally, in 2003-2004, the proportion dropped to 12.3% (\$22.9M) (see Chart 9). It should be noted that regions with adjustment problems account for approximately 12% of the total population of Quebec.

Change in the Agency's activities in innovation and the knowledge-based economy pre- and post-CJF

The Agency's interventions increased in regions with adaptation problems in terms of number of projects and financial assistance provided by CED during the period from 1998 to December 31, 2003 (see charts 10 and 11).

The number of projects approved in regions with adjustment problems increased during the "post-CJF" period compared with the earlier period (234/158), even though the observation period was shorter (see Chart 10). In short, Agency activities have intensified in terms of the number of projects approved

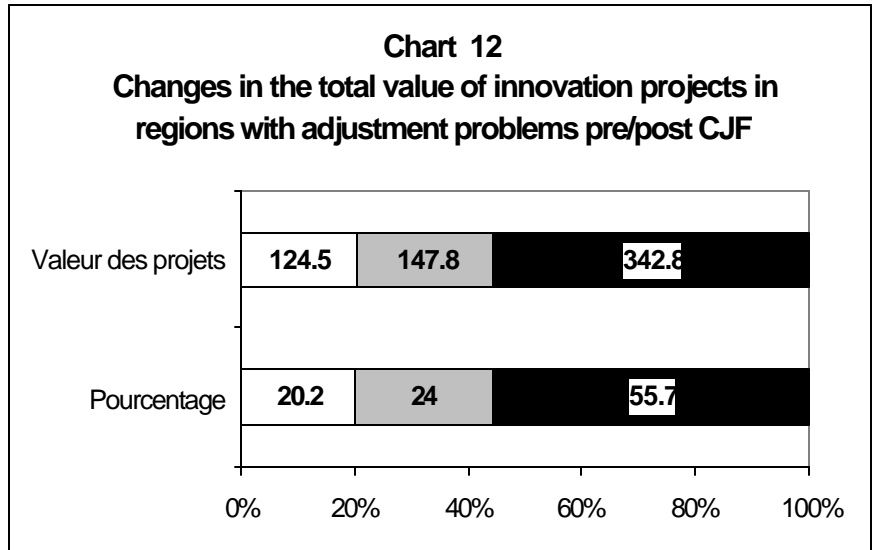
The same finding applies to the Agency's financial assistance (see Chart 11). For the same period, more than 40% of the Agency's total commitments in regions with adjustment problems were made during the post-CJF period.



¹⁷The proportion is calculated as follows: value of innovation projects in regions with adjustment problems in a given year over the value of all projects carried out by the Agency under the IDEA-SME and RSI programs.

The increase in Agency activities has a major impact on regions with adjustment problems. The total value of projects approved after the CJF was obtained is more than \$340M,¹⁸ compared with almost \$125M for the period before the balance of the CJF was transferred (see Chart 12).

For more information on this section, refer to the detailed report “Bilan des interventions de l’agence en innovation et économie du savoir ” [report on CED innovation and knowledge-based economy activities].



5.2 Immediate impact

5.2.1 How have Agency activities contributed to the implementation of projects?

Finding

- **Asked about a hypothetical situation where there was no support from CED, half (50%) of client enterprises in 2002-2003 said the project simply would not have been carried out.**
- **Further, between one fifth and one quarter of respondents said the project would have been delayed or extended without the Agency’s financial assistance.**

Asked about a hypothetical situation where there was no support from CED, half (50%) of client enterprises in 2002-2003 said the project simply would not have been carried out. (Table 4.5).

- Further, **between one fifth and one quarter of respondents said the project would have been delayed or extended without the Agency’s financial assistance.**
- The effects of activities on the incentive nature of CED’s financial assistance are also the same for central regions and outlying regions.

¹⁸One project with a total value of more than \$130M has had an upward impact on the total value of projects.

Table 4 Incentive nature of CED financial assistance

Overall, without th financial assistance provided by CED, would the project have been carried out or implemented?	1998-2002	2002-2003
... would not have been carried out	58%	50%
For enterprises that said the project would have been carried out. Would the project		
• have been launched considerably later?	42%	56%-
• have been carried out over a longer period?	41%	47%
• have been scaled down?	23%	33%-
• not have received the support of other financial partners?	6%	8%-
• not have met its objectives?	6%	4%-

*For more information on this section, refer to section 4.2 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)]* and Table Q16 in technical appendix 4.*

5.2.2 To what extent have Agency activities helped raise awareness of innovation?

Findings

Almost two thirds of client enterprises in the “post-CJF” period (2002-2003) had never undertaken this type of project before receiving support from CED.

The results presented earlier suggested that participation in 2002-2003 activities helped make enterprises more aware and better informed and supported them in a formal approach to innovation and increased productivity. The results also supported the conclusion that activities funded by the CJF were more effective in this respect than CED activities during the period from 1998 to 2002. In addition:

- two thirds of (65%) client enterprises in 2002-2003 had never undertaken this type of project before receiving support from CED;
- the proportion of client enterprises in 2002-2003 which had never undertaken this type of project before receiving support from CED and subsequently undertook another was 17% (possible ripple effect); the equivalent proportion was 32% among enterprises supported between 1998 and 2002, but the period following the CED-supported project during which the enterprise could have carried out another project was longer and therefore more conducive to observation of a repeat innovation/productivity project;

- in that regard, the results are similar for central regions and outlying regions.

For more information on this section, refer to section 4.2 of the detailed report Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)] and tables Q3 and Q4 in technical appendix 4.

5.3 Intermediate impact

5.3.1 To what extent have Agency activities helped facilitate the marketing of products/services and technologies resulting from R&D projects?

Findings

- **A significant number of projects have helped accelerate the marketing of a product or service.**
 - **Three quarters of client enterprises said that they experienced an increase in domestic sales or exports or accelerated marketing of a product or service. In the 12 months preceding the survey, those enterprises recorded average additional sales of approximately \$700,000.**
-

Commercial innovation includes marketing of new products and services and marketing in new markets. A significant number of projects have helped accelerate the marketing of a product or service (57% of projects during the CJF period; 68% of projects aimed at commercial innovation). Approximately 10% of projects led to the startup of a enterprise.

- Of the total number of projects whose objective was to market products in new markets, 70% involved a new or significantly improved technology, product or service, whereas the parameters of the “innovation and productivity” component indicate that eligible marketing activities are activities involving that type of product or service.

Overall, three quarters (75%) of client enterprises said that they experienced an increase in domestic sales or exports or accelerated marketing of a product or service. In the 12 months preceding the survey, those effects generated average additional sales of approximately \$700,000 for both “post-CJF” and “pre-CJF” clients.

More than half (55%) of the enterprises that reported an increase in sales in other Canadian provinces said that they had not sold anything in those markets prior to the CED-supported project. The same thing was observed in enterprises that increased their exports: half (52%) did not export prior to the CED-supported project. The impact on domestic and international sales appears to be more evident in enterprises located in less competitive and more predictable enterprise environments..

For more information on this section, refer to section 3.1 of the detailed report Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)].

5.3.2 To what extent have Agency activities helped increase innovation and productivity in enterprises?

Findings

- **89% of enterprises with technology-oriented projects identified effects related to technological innovation in th CED-supported project.**
 - **The results of activities following the CJF transfer in terms of technological innovations are very similar to those obtained by IRAP.**
-

Technological innovation is related to the development of a new product or service or significant improvement of an existing product or service. This includes prototype development and patenting.

Of all the projects supported in 2002-2003:

- 40% developed or significantly improved a product or service; in the group of projects with technological innovation objectives (according to question 2 on the questionnaire for enterprises);
- 73% said they developed or improved a product;
- In that group, half (51%) developed a prototype or adopted a new or improved manufacturing process (46%), while one third used the project to obtain a patent (32%).

Overall, 89% of enterprises with technology-oriented projects identified effects related to technological innovation in th CED-supported project.

Co-ordinators of projects from the pre-CJF period are as likely as co-ordinators of projects from the CJF period to say that their project had a technological innovation effect.

Where the aim of the project was to develop or improve a product or service, enterprises reported that the product or service was a world first in 27% of cases during the recent 2002-2003 period and a first for the enterprise half of the time (52%). This represents a significant decrease in world firsts, as the proportion identified as world firsts dropped from 45% between 1998 and 2002.

When we look at the data specific to the group of innovators (as defined by IRAP) among CED's clientele and compare them with IRAP's data for its innovative enterprises, the results are surprisingly similar; for example, 37% of IRAP's innovative enterprises claim their innovation to be a world first, compared with 41% of innovative enterprises supported by CED.

*For more information on this section, refer to section 4.4 of the detailed report *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emploi (FCCE) evaluation of innovation and productivity projects including the Canada Jobs Fund (CJF)*.*

5.3.3 What are the primary effects of Agency activities on the competitiveness of enterprises?

Finding

- The vast majority of “post-CJF” client enterprises credited the CED-supported project with an improvement in their competitive position, while more than half also credited the project with an increase in profitability, faster marketing of a product, and higher domestic and international sales.**
-

The vast majority (79%) of “post-CJF” client enterprises in 2002-2003 credited the CED-supported project with an improvement in their competitive position, while more than half (59%) also credited the project with an increase in profitability, faster marketing of a product (44%), and higher domestic (44%) and international (45%) sales.

Enterprises that received support in 2002-2003 are significantly more likely than enterprises that received support between 1998 and 2002 to report the following effects of that support:

- reduction in operating costs (42% vs. 16%);
- reduction in environmental impact (19% vs. 9%).

Overall, three quarters (75%) of client enterprises in both the “post-CJF” and “pre-CJF” period said that they experienced an increase in domestic sales or exports or accelerated marketing of a product or service. In the 12 months preceding the survey, those effects generated average additional sales of approximately \$700,000 for both 2002-2003 and 1998-2002 clients.

More than half (55%) of the enterprises that reported an increase in sales in other Canadian provinces said that they had not sold anything in those markets prior to the CED-supported project.

5.3.4 What are the primary effects of Agency activities on employment in enterprises?

Findings

- **Projects in the “post-CJF” period were an opportunity to create jobs in half the cases, transform jobs in 4 out of 10 cases, and preserve jobs in three quarters of cases.**
 - **Enterprises that would not have been able to carry out their projects without the Agency’s financial assistance are more likely to report that their project helped create jobs and less likely to report no effect on employment.**
-

Job creation is not an immediate result of an innovation project, but the survey showed that the Agency’s most recent activities helped create new jobs or transform or preserve existing jobs.¹⁹ According to the information provided by representatives of client enterprises in the survey, “post-CJF” projects were an opportunity to create jobs in half the cases (53%), transform jobs in 41% of cases, and preserve jobs in three quarters of cases (75%).

5.3.5 What are the primary results obtained by business services organizations?

Findings

- **Organizations that provide services for enterprises seem to offer pertinent services, as their clients seem happy with what they get.**
 - **While many business services organizations are new, their short-term results are significant in terms of innovation support activities, research partnership agreements, and enterprise and job creation.**
-

Among the tangible results obtained by business services organizations:

- Between 1999 and 2001, the CHT was involved in a variety of activities with 557 clients: support for secondary processing of wood, management support, R&D tax credits, in-house incubation, technical/R&D support, laboratories/equipment, administrative support, human resources support, consulting, etc. Since 2002, the “new” CHT has focussed on activities designed to promote and support innovation. More than 900 people have taken part in one or more of the activities organized by the CHT to support innovation.

For more information, refer to the following case study: Johnson & Roy, Centre de haute technologie du Saguenay-Lac-Saint-Jean, April 13, 2004, 13 pages.

- One of the early tangible results of the successful establishment of the ATC is a rare close, synergetic and well-orchestrated initiative involving two federal organizations (CED and the NRC) in support of innovation. The ATC is already producing visible, tangible results: three

¹⁹These are jobs reported by the enterprises that responded, i.e., additional jobs that did not previously exist. There is no employment projection.

formal R&D agreements have been signed, two of them with Saguenay-Lac-Saint-Jean enterprises in the secondary and tertiary processing sectors. With the ongoing support of NRC's Industrial Materials Institute (IMI) in Boucherville, through which the experience of the NRC's entire network and its program and tools lends support to the Centre québécois de recherche et de développement de l'aluminium (CQRDA), the University of Quebec at Chicoutimi (UQAC) and other partners in the regional innovation system with whom the ATC works in partnership every day and also to CED, which maximizes the impact through its own enterprise support programs, the ATC's contribution is sure to grow. In that sense, the ATC has definitely taken on an active role in stimulating the development and growth of an aluminum processing industry with high value-added in Saguenay-Lac-Saint-Jean, Quebec and Canada. The September 2003 announcement by Alcan of the creation of an aluminum automotive parts manufacturing plant at a cost of almost \$28 million that will create 35 jobs is certainly a very good sign.

For more information, refer to the following case study: E&B Data, Aluminum Technology Centre (ATC), May 28, 2004, 11 pages.

- Innovation Maritime cannot be credited with creating any new enterprises in the region, but the organization has certainly enabled many existing companies to move ahead on the technological front. Innovation Maritime already numbers among its main clients more than 30 organizations in the public, parapublic and private sectors. As far as the impact on and repercussions for enterprise development are concerned, it is still too soon to say. In the long run, Innovation Maritime plans to gain other contracts, including international contracts, which will give the organization significant reach.

For more information, refer to the following case study: ÉVALUATION, Le cas d'Innovation maritime, March 2004, 12 pages.

- Valotech submitted a performance report for the first year of its new agreement, that is, April 1, 2003, to March 31, 2004. The data indicate that most of the short-term results are close to or already surpass the objectives of the three-year agreement, with the exception of support and coaching activities. However, the number of enterprises that are reached by monthly meetings or that have received support and pre-diagnostic services is still short of the targets.

For more information, refer to the following case study: Le Groupe Stragesult, Étude de cas, Valotech inc., 17 pages.

- The active start-up phase has not yet begun, but the CRBM continues to develop according to its original plan. The centre's investment plan is now 90% complete, and the building was delivered on March 31, 2004. All the initially planned equipment has been ordered and will be delivered by April 30, 2004. The business plan called for three agreements to be signed with regional and outside partners. To date, two formal alliances have been made with research centres in Gaspé and on the North Shore, while four letters of agreement have been signed with centres in Quebec City and Montreal. The CRBM has also been in contact with the Institut français de recherche pour l'exploitation de la mer (IFREMER) in France.

For more information, refer to the following case study: Luc Desaulniers, Khalid El-Mellahi, Étude de cas, Centre de recherche sur les biotechnologies marines (CRBM), April 2004, 17 pages.

- To date, the Centres d'entrepreneurship universitaires (CEU)²⁰ studied have pre-incubated 312 enterprises that have created 743 jobs. The average cost of a enterprise incubated in a CEU is \$9,814 compared with \$127,510 for an incubator, because an incubator offers a wider range of services. In addition, incubators provide support for a longer period than pre-incubators.

For more information, refer to the following case study: TECSULT, Centre d'entrepreneurship universitaire, mars 2004, 14 pages.

- At December 31, 2002, the Centre québécois d'innovation bioalimentaire (CQIB) in Laval had helped start up 16 enterprises, nine of which "graduated". The resident and "graduate" enterprises had 575 full-time employees, including 87 researchers, 244 other professionals and 244 technicians. The total value of the enterprises' assets was \$117,943,000, including \$8,755,000 in R&D spending.

For more information, refer to the following case study: SOGEMAP, Portrait d'entreprises graduées du Centre québécois d'innovation en biotechnologie (CQIB), March 2004, 20 pages.

5.3.6 Have Agency activities contributed to the implementation/development of regional innovation systems?

Findings

The results of the Bas-Saint-Laurent regional innovation system are constantly changing. However, the data on the innovation environment, that is, institutional research and training initiatives, are promising. The Bas-Saint-Laurent regional innovation system is still very new, but the level of development leads us to believe that the findings of public research will have a spinoff effect on the competitiveness of enterprises in the Bas-Saint-Laurent region in the medium and long terms.

²⁰ The CEUs in question are: HEC-Poly-UdeM; CENTECH; and Entrepreneuriat Laval.

The Saguenay-Lac-Saint-Jean region currently has a young and promising innovation support infrastructure on which enterprises and economic stakeholders can rely to develop regional sectoral industries with high value-added. Although it will be a few years yet before the Saguenay-Lac-Saint-Jean regional innovation system hits cruising speed, many stakeholders have, over the past five years, seen accelerated growth and activity related to the system and growing interest among enterprises in activities related specifically to innovation.

The results for the Montérégie region lie more in implementation of the regional innovation system and the progress that has been made. The Montérégie region has many assets to foster innovation in local enterprises. We can say that enterprises in the region are already very dynamic and possess the characteristics of innovative enterprises.

Case study of the Bas-Saint-Laurent region

It will be recalled that regional innovation systems are intended to foster innovation in enterprises (see diagram on next page). On that level, the results of the Bas-Saint-Laurent regional enterprise innovation system are constantly changing. Quebec enterprises invest a per-capita average of \$538 in R&D, but the figure drops to \$40 in Bas-Saint-Laurent (2001 data). The central regions of Montreal and Quebec City are well above the Quebec average, while outlying regions lag far behind in terms of investment in innovation.

However, the data on the innovation *environment*, that is, institutional research and training initiatives, are promising. The Bas-Saint-Laurent region ranks fairly high in that regard, usually between sixth and eighth place; in comparison it ranks thirteenth in terms of population. For example, Bas-Saint-Laurent tops most intermediary regions when it comes to the number of scientific publications per 1,000 residents. That strong performance can be attributed to the fact that the region has a marine science and technology cluster. Five organizations were created between 1999 and 2003 to support the development of the marine cluster. Three of the five serve a dual function: research and knowledge transfer: *Innovation Maritime*, CIDCO (*Centre interdisciplinaire de développement en cartographie des océans*) and the CRBM (*Centre de recherche sur les biotechnologies marines*). The St. Lawrence Observatory (SLO) was created by Fisheries and Oceans Canada to gather and disseminate information about the St. Lawrence

Model of a regional innovation system: Bas-Saint-Laurent (see diagram on next page)

At the core of the model are the enterprise and the resources it allocates to innovation in terms of R&D, technology acquisition and integration, and scientific and technical resources.

The components surrounding the enterprise include collaborative activities and interaction between innovative enterprises and producers of scientific and technical expertise, such as teaching and training institutions, public research centres, specialized intermediary organizations, financing and venture capital companies or even competing companies or suppliers (large or small) in or around their immediate environment. This dynamic interplay, sometimes continuous, sometimes not, breeds all kinds of innovation, from marginal innovation in processes to technological breakthroughs. And to cap it all off, the model encompasses the overall environment in which the various players in innovation operate.

River. Finally, the *Technopole maritime du Québec* is a Regional Strategic Initiative (RSI) located in the Bas-Saint-Laurent region whose purpose is to foster the development of the entire marine cluster and promote the cluster internationally.

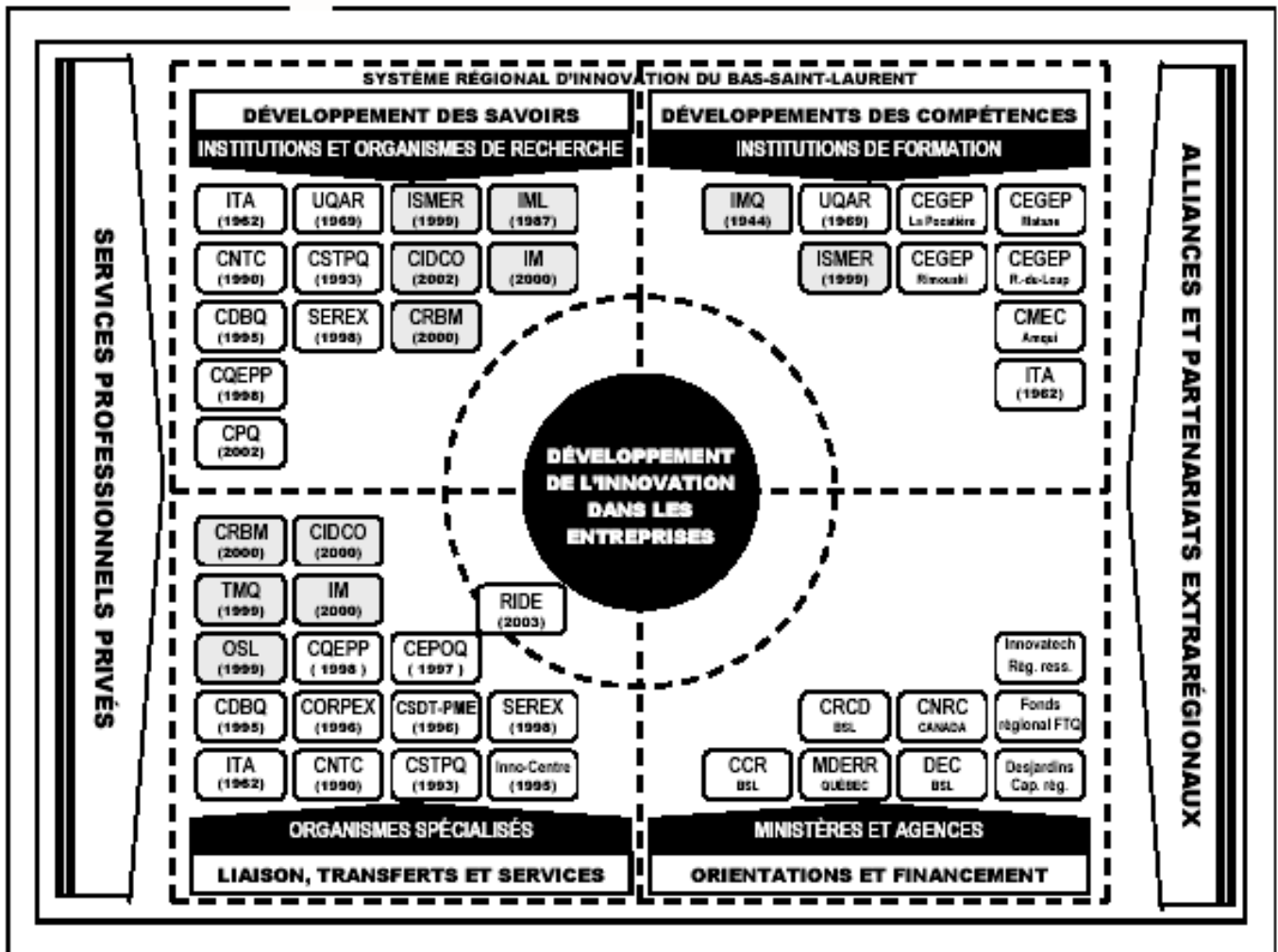
As far as results for enterprises are concerned, we believe that all the ingredients are in place to enable enterprises in the Bas-Saint-Laurent region to integrate innovation into their operations in the next few years. The Bas-Saint-Laurent regional innovation system is still very new, but the level of development leads us to believe that the findings of public research will have a spinoff effect on the competitiveness of enterprises in the Bas-Saint-Laurent region in the medium and long terms.

As we have just seen, a regional innovation system can foster the development of innovation in enterprises. The system promotes a conducive environment that enables enterprises to be innovative and remain competitive. An innovation system also has to convince entrepreneurs of the importance of innovation to their enterprises, because innovation does not end when an innovation project ends. Innovation has to be a continuous process. If the entrepreneur is not made to believe that, the enterprise will not be innovative.

The model used in the two regions studied is identical to the Bas-Saint-Laurent model.

For more information, refer to the following case study: Luc Desaulniers, Khalid El-Mellahi, Étude de cas, Région du Bas-Saint-Laurent, April 2004, 27 pages.

Système régional d'innovation du Bas-Saint-Laurent



Case study of the Saguenay-Lac-Saint-Jean region

After two decades of work by regional stakeholders, Saguenay-Lac-Saint-Jean now has a young and promising innovation support infrastructure on which enterprises and economic stakeholders can rely to develop regional industries with high value-added.

Economic change on the scale that Saguenay-Lac-Saint-Jean has begun takes a decade or two - perhaps even more - to complete. Many crucial steps have to be completed after the region first recognizes the need, among them planning, building and implementing a regional innovation system around which sectoral clusters with high value-added can be constructed. The various players in Saguenay-Lac-Saint-Jean, including the Saguenay-Lac-Saint-Jean business office, have completed several key steps in the process. Given that the small geographic area in which they operate is a major determining factor in their ability to be innovative, Saguenay-Lac-Saint-Jean enterprises will continue to surprise in the decades ahead if they capitalize fully on their regional innovation system.

The 20 years of planning and investment in the regional innovation system are starting to snowball. In the aluminum industry, for example, the key ingredients have been assembled, and great benefits are already in sight as we saw in section 5.3.5. This real, visible outcome, which will interlink with many others (virtuous circle), shows that it is possible for a resource-based region, if it acquires the means, to succeed in making the transition to a specialized regional economy based on knowledge and innovation.

However, the degree of advancement and development of the sectoral components of the regional innovation system in Saguenay-Lac-Saint-Jean is very uneven. The priority component - aluminum - is well developed and integrated, yet the forestry component is far less advanced and recently began a major strategic analysis, the first stage of which is a study aimed at establishing an overall development strategy. In agri-food, things are just getting off the ground, but the players in the sector are mobilizing.

Although it will be a few years yet before the Saguenay-Lac-Saint-Jean regional innovation system hits cruising speed, many stakeholders have, over the past five years, seen accelerated growth and activity related to the system and growing interest among enterprises in activities related specifically to innovation.

For more information, refer to the following case study: E&B Data, Le système régional d'innovation, Région du Saguenay-Lac-Saint-Jean, June 7, 2004, 13 pages.

Case study of the Montérégie region

The results obtained in the Montérégie are on a different level. They lie more in implementation of the regional innovation system and the progress that has been made. The Montérégie region has many assets to foster innovation in local enterprises. We can say that enterprises in the region are already very dynamic and possess the characteristics of innovative enterprises.

The main technological sectors in Montérégie are aerospace with Pratt & Whitney, Cœrlikon Aerospace, General Electric, the Canadian Space Agency and the École nationale d'aérotechnique; agri-food, which comprises more than a dozen research and teaching establishments in and around St Hyacinthe; and energy sciences, the leading sector in the Varennes area.

The Montérégie region holds an enviable position in Quebec. Its unemployment rate is among the lowest of the province's administrative regions, its industries are very diversified, and the technological level of enterprises and the export rate are high.

For more information, refer to the following case study: Source : TECSULT, Étude de cas d'innovation et de transfert technologiques en Montérégie, March 31, 2004, 21 pages.

5.3.7 What are the unexpected effects of Agency activities?

Findings

- **For “post-CJF” client enterprises, the main obstacles to innovation were funding, the enterprise’s internal capabilities and uncertainty as to the costs and benefits of innovation.**
 - **The vast majority of CED’s client enterprises (84%) said that CED had helped them overcome the obstacles they encountered in their efforts to become innovative.**
-

Clients’ perspective

Enterprises run into all sorts of obstacles as they try to be innovative. Funding is the main obstacle for three quarters (75%) of “post-CJF” client enterprises; it bears noting that “pre-CJF” client enterprises present the same statistical profile. The enterprise’s internal capabilities come second with 36%, followed by uncertainty as to the costs and benefits of innovation (33%). Next comes lack of information (on markets, technologies, etc.), which was mentioned by 31% of enterprises. Only 8% of client enterprises said they encountered none of the obstacles listed, and not many identified specialized resources (16%) or governments (17%) as obstacles to innovation.

Less innovative enterprises feel more limited by the internal capabilities of their organization than innovative companies. Uncertainty as to costs and benefits was lower among enterprises operating in a more predictable environment. Enterprises in very competitive environments have to deal with more shortages of specialized staff.

In comparison with these results for CED client enterprises, at least three quarters of IRAP client organizations perceived each of these factors as an obstacle to innovation.

In 2002-2003, 84% of innovative client enterprises said that CED had helped them overcome obstacles they encountered in their innovation efforts. The CED’s main contributions were to help find funding (42%), reduce the cost of developing a new product (30%), provide enterprises with information on available sources of funding (26%) and support enterprises in marketing their product (25%).

6

INTERVENTION OUTLOOK

This section is a unique prospective approach inspired by the Delphi technique. It comprises the results of consultation with world-renowned experts in public policy on innovation. The approach aims to document the validity of public intervention and identify trends and future issues in

government intervention in such areas as development of regional or sectoral innovation systems, implementation and deployment of innovation support policies and tools, and improvement of the competitiveness and productivity of enterprises through innovation-oriented activities.

This section basically presents the main findings and observations drawn from consultation²¹ with 14 world experts in innovation policy.

6.1 Maintaining the relevance of the approach to approach

Findings

Innovation-based regional economic development activities are always relevant. The experts all agree that government intervention is valid in order to:

- **encourage enterprises to be innovative; and**
- **reduce regional obstacles and impediments to innovation.**

Where the experts differ is in their opinion on how this can be done. Some experts say that there should be a clearer distinction between:

- **activities aimed directly at individual enterprises and**
 - **activities aimed at changing the operating context and enterprise environment.**
-

The experts recognize innovation as a driving force for the creation of wealth and economic growth. Innovation normally materializes in enterprise at a community level, and stimulation of innovation is a lever for the creation of value-added that fosters the stability and vitality of regional economies.

6.1.1 Does the government have a major role to play in stimulating innovation in SMEs?

The experts all agree on the importance of making enterprises more aware of innovation and encouraging them to become innovative. Government intervention is a legitimate way of supporting innovation systems inasmuch as it fills the void left by the market and the private sector and puts money where enterprises are reluctant or unable to invest enough, that is, in fundamentals and mechanisms upstream of innovation. The experts agree that SMEs are an ultimate target for efforts to stimulate innovation; however, they disagree on the subject of taking SMEs as clients (recipients)

²¹A panel of internationally renowned experts in innovation policy representing most trends and schools of thought (university researchers, practitioners from public economic development agencies and consultants) was consulted and asked to give their opinion and share their experience. Based on those interviews, a summary of trends in policy in this area was produced. That document was then circulated within the group so that the content could be validated and feedback obtained. Most of the experts clarified a few details, but there were no significant changes. The list of experts and the interview guide are attached to the technical report, which is entitled *Regard prospectif sur les politiques de développement économique régional en soutien à l'innovation*.

unless they are combined in groups (joint projects that transcend small individual projects) and the project is an incentive for innovation (“Trojan Horse” strategy) or part of a specific regional dynamic. Government intervention is also considered to be important in enabling SMEs to get over major hurdles they encounter in order to overcome weaknesses in the marketplace.

One of the experts specifically mentioned the importance of intervention at all stages in the application of inventions and/or their effective integration into the production system. He even described that stage as a “valley of death” because so many enterprises fail at that critical point.

Further, the combined phenomena of globalization of world R&D capabilities and increased international competition centred on reducing production costs, both of which encourage enterprises to scale back their R&D activities (some enterprises even shut down their research laboratory) and amortize their earlier investment over the longest possible period, are additional arguments in favour of government intervention.

They may view it as legitimate, but the experts feel that government intervention in innovation is often poorly planned, largely unintegrated, lacking in harmonization within and outside the different levels of government, and, most importantly, not particularly well executed in terms of:

- supporting research facilities;
- contributing to the development of human capital;
- facilitating exchanges and dissemination of knowledge and technology transfers between players in innovation;
- creating a enterprise environment conducive to innovation, knowledge exchange and exports.

6.1.2 *Is the primary role of (government) economic development agencies to fund SMEs directly in order to support their innovation activities?*

Several experts said that the emphasis on direct funding for enterprises is disproportionate to funding for policy tools aimed primarily at stimulating the creation of an environment conducive to innovation, an area where the marketplace has left a void. For some experts, direct assistance to enterprises is completely off the mark because the problem enterprises have with innovation is not so much financial (issue: liquidity) as it is due to the fact that enterprises are largely unaware of the potential benefits of innovation (issue: aversion to risk), have little or no knowledge of the available expertise and do not know how to integrate that expertise (issue: proximity of expertise and technology). Some of those experts also think that funding enterprises individually is completely ineffective and can produce unexpected effects of habit and clientelism. They admit, however, that this public policy tool can be useful in specific contexts (disadvantaged regions, single-industry regions, significant financial contribution from the enterprise, funding complemented upstream and downstream by other innovation support measures). Many countries are doing away with direct assistance to individual enterprises and focussing instead on other means of stimulating innovation (for example, measures to support enterprise consortiums), bearing in mind the need to comply with major international agreements such as the World Trade Organization (WTO).

The experts feel that substantial financial resources must be invested upstream of SMEs, such as in intermediary facilities, organizations and activities designed to encourage the creation of knowledge and its transmission among the various players in the innovation system.

However, since direct funding is still used, the following clarifications must be made:

- The application of financial assistance measures has to vary depending on the sector and the enterprise's degree of advancement in terms of innovation and must also be accompanied by a significant financial commitment from the enterprise.
- Funding measures absolutely must avoid discriminating among SMEs, and care must be taken not to favour one group of enterprises over the majority. Further, these financial measures can produce an undesired effect: recipient enterprises becoming accustomed to assistance. The experts note in that regard that public agencies are often ill equipped to select enterprises on which the assistance will have a significant impact.

6.1.3 *Is the primary role of (government) economic development agencies to stimulate regional innovation, exports and technology transfer?*

The rationale for regional economic development agencies, according to the experts consulted, is rooted in the fact that the structure of the industrial dynamic in some regions is underperforming. There is a strong consensus on the importance to be attached to innovation in regional policy, taking into consideration the unique characteristics and specific situations of regions and communities. The experts are somewhat divided, however, on the importance given to innovation relative to other objectives, such as job creation and labour market improvement.

A majority of experts feel that the innovation policy should become the regional development policy and the first and basic tool for economic development, far ahead of fiscal or labour market policies. Others feel that innovation is not an end in itself, but rather one of the key elements of an overall economic development policy. In that sense, the experts find that innovation policy should tie in with policies aimed at growth and employment and should target the human aspects of the

innovation process (such as the development of skills and skilled workers, changes in thinking and networking).

Two experts said that the structure of the domestic market in Canada is, in his view, a specific obstacle to innovation. The small size of the domestic market means that enterprises that want to be innovative quickly come face to face with the realities of market globalization. That situation, according to the experts, causes innovation intervention objectives to be linked to export objectives.

Many experts consider technology transfer to be a necessary but insufficient measure for innovation that must be coupled with other significant measures affecting changes in attitude toward innovation, development of the skills needed to manage innovation, support for the integration of knowledge into enterprise and access to funding. Technology transfer is often encouraged in isolation from other measures.

- If they are to be effective, policies targeting technology transfer should be applied simultaneously alongside the provision of knowledge and demand (SMEs) and should be incorporated with other measures that target the problems underlying innovation.
- Some experts believe that public policy on technology transfer often implies a linear process; this shows their lack of understanding of the complexity of the process and its many implications, such as elements promoting the dissemination and integration of knowledge. Others say that these policies should not simply consider transfers between universities and enterprises, but also transfer that may occur between SMEs and large enterprises (automotive, aerospace, biotechnology, etc.)

Table 5 on the next page shows the experts' rating of the relevance of public intervention in public policy and innovation.

6.2 Major trends in innovation

6.2.1 *What are the major trends affecting government intervention in innovation?*

Findings

The major trends identified by the experts are:

- **tie-in between science policy and innovation policy;**
- **increase in the complexity of technologies;**
- **need for a flexible policy approach;**
- **need for regional policies.**

Consultation with the experts also showed:

- **which tools are considered effective:**
 - **financial support managed by intermediary organizations;**
 - **measures aimed at developing interaction;**
 - **hiring of scientific and technical staff;**
 - **which tools are considered ineffective:**
 - **grants to enterprises;**
 - **support for technology transfer;**
 - **application of “models”.**
-

The following are the main findings of the consultation with experts.

Tie-in between science policy and innovation

The experts told us that separating science policy from industrial policy is now obsolete given that most technological opportunities and developments lie on the border of multidisciplinary knowledge. Government assistance should foster the emergence of knowledge and facilitate the dissemination and acceptance of emerging and enabling technologies (such as biotechnology and nanotechnology). Many of the experts also predicted that health could have the same potential for economic growth as the defence sector did in the 1950s and 1960s.

In the new global environment characterized by co-operation and networks, it is clear that issues related to the protection and management of intellectual property create market weaknesses or flaws (eg, when enterprises do not protect their knowledge through economic choices) that can ultimately cause harm to public interest in economic and social development that is much greater than mere private loss.

Increase in the complexity of technologies

It is now impossible for any one enterprise to fully master within its own organization the breadth of knowledge needed to operate. Enterprises have to rely on an increasingly wide network of organizations in order to stay on top of changes in knowledge and seize opportunities (consulting services, universities, clients, collaborator, etc.).

The cycle of innovation is getting shorter and shorter, and technology is getting more and more complex. For that reason, government intervention has to clearly adapt to these structural changes. According to the experts, government intervention should encourage enterprises and other players to adopt reflexes and behaviours that generate innovation and not intervene directly in their internal or corporate processes.

Need for a flexible policy approach

The effect of this finding is to motivate the government to develop policies that can address different implementation and deployment contexts rather than develop homogeneous general public policy that is often unadaptable and therefore unadapted.

Need for regional policies

If the growing complexity of innovation processes demands that policies be tailored to each sector of the economy or each technology, the diversity of geographic realities, even regional specialization, demands that there be regional innovation policies geared to the regionalized environment of the innovative firm.

For more information about this section, refer to sections 1 and 2 of the detailed report Regard prospectif sur les politiques de développement économique régional en soutien à l'innovation.

6.2.2 What are some emerging intervention tools?

During the interviews, the experts mentioned the emergence of the following intervention tools:

... for developing interaction between players

- Foster the creation of links and interaction among the various players in the innovation system, in particular between enterprises and public research facilities and between SMEs and large enterprises;
- Take concrete measures to encourage public research facilities to work in a cohesive and co-ordinated manner;
- Actively support the creation of enterprise networks, clusters and regional development systems;
- Provide funding for the establishment of joint research facilities and joint training;
- Provide funding for the deployment of centres of expertise capable of providing specialized innovation support services for enterprises and knowledge-producing organizations;
- Develop policies and incentives to encourage regions or sectors to take charge of their own strategic planning of innovation.

... for funding

- Help make venture capital more accessible to enterprises;
- Ensure adequate long-term funding for universities;
- Help fund the marketing activities of underfunded emerging enterprises.

... for management of intellectual property

- Develop measures to enable enterprises and knowledge producers to manage intellectual property more effectively, such as:
 - development of expertise within innovation players;
 - creation of intermediary organization specialized in the management, promotion and marketing of intellectual property;
 - financial assistance linked to specific actions involving the management and protection of intellectual property.

... for social capital

- Develop incentives to encourage enterprise founders and/or senior executives to get involved in the innovation process;
- Cover part of the salary of master's and doctoral graduates hired by enterprises and at the same time maintain a special link with mentor professors affiliated with research institutes;
- Develop financial incentives for SMEs to enable them to hire researchers and PhDs.

... for other tools

- Make increasingly frequent use of public tender calls to set high standards for quality and productivity and foster enterprises, innovative organizations and the creation of innovation consortiums.
 - Similarly, allocate public research funds competitively using allocation methods that foster research organizations which develop tangible links, interaction and co-operation with enterprises.
- Develop more sophisticated technological and commercial information and monitoring products that truly meet the needs of enterprises and other players in innovation.

6.2.3 What tools do the experts rate as effective or ineffective?

Table 6 on the next page identifies the tools rated as effective or ineffective by the experts consulted.

Tools considered effective by the experts

- Financial support managed by intermediary organizations was rated as more effective specifically because it means the innovation system is better structured.

- Inasmuch as they have a structuring effect on the innovation system, government funding for incubators is considered by the experts to be very effective. One way to foster the structuring nature of sectoral incubators is to have them ensure interaction between enterprises in traditional sectors and producers of new technologies.
- By the same token, measures aimed at developing interaction within the innovation system are considered by the experts to be very effective. It should be noted, however, that while the creation of co-operation networks is vital, it must not be viewed as an end in itself.
- Funding for the marketing of innovations was rated fairly highly by the experts consulted, provided, once again, it is complemented by other structuring measures involving processes and innovation systems.

Tools considered ineffective by the experts

- Generally, the experts consider direct grants to enterprises to be a rather ineffective way of stimulating innovation, in any event less effective than repayable contributions.
- Funding for small projects (a cap of US\$15,000 was given as a guideline) is not an issue for the experts. The success of a project must be determined not by the cost, but by the value in terms of potential increase in productivity and competitiveness.
- The experts also expressed reservations about the regional application of approaches or “models” without considering their specific criteria for success and their transferability to other regions or identifying weak links in the regional innovation system.
- The experts do not favour buying equipment to support technology transfer. They feel that that measure can be unproductive. Measures adapted to each context are recommended more (providing research laboratories - for a fee - to develop test benches, for example, might be more effective), always bearing in mind that innovative behaviour has to come from the enterprise itself.

6.3 Approach to increase regional capabilities and the ability of enterprises to innovate

Findings

The experts feel strongly that the role of the government in promoting and supporting innovation is to act at the enterprise environment level, that is:

- **adapted sectoral intervention;**
 - **intervention in competency networks; and**
 - **general regional innovation system development strategies.**
-

There is consensus among the experts regarding the trend toward greater regionalization (regional specialization) of innovation policies. Agencies will increasingly have to work in co-operation with the communities in which they want to act and promote strategic planning exercises. If they are to be effective, these repeated priority-setting exercises will have to permit the development of a long-term vision centred around the region's strengths and weaknesses and win the support of regional players.

More specifically, there are three elements:

... adapted sectoral intervention

The experts take the view that policies have to focus on the dynamics of innovation and be adaptable and versatile so that they can accommodate the realities of each economic sector and region. Moreover, for every sector of the economy and its network of suppliers and sub-contractors (value chains), government agencies have to be able to identify the unique characteristics of enterprises and their varied needs according to their degree of innovation (to ensure a level playing field for all regions and sub-regions).

... intervention in competency networks

The experts spoke about the importance of supporting interaction between enterprises (knowledge users) and knowledge producers, the objective being to increase the level of competency among enterprises' employees. Incentives to hire skilled scientific and technical staff and financial assistance to cover the salaries of science and engineering graduates are good examples. Support for the acquisition of skills in enterprises is a key factor in the absorption of knowledge.

... general regional innovation system development strategies

The experts feel there is a need to intervene in all innovation networks, whether on the basis of clusters, value chain structures or regional innovation systems. Intervention by government agencies must be clearly directed toward structuring initiatives that foster interaction between the players in innovation. Specifically, it is important to stimulate interaction between knowledge producers and knowledge users and aim to enrich enterprises' human capital and expertise.

It is important to remember that the government cannot develop a regional innovation strategy, but it can facilitate its emergence and growth. There are a number of prerequisites for developing a regional innovation system. For example, a region has to have a geographic area with human capital, knowledge-producing resources and enterprises likely to capture that knowledge. The presence of universities or technical schools is crucial to the strategy. It should be noted that electronic or virtual access to university or technical resources can make up for the absence of such resources in the region. It is essential that the local players be mobilized around a common project. The regional innovation system emerges from a strategy that takes into consideration the region's assets, structures and conditions and uses them as a foundation. Underlying the strategy there has to be a common long-term (15-25 years) vision (support of the players) based on identification of the region's strengths and weaknesses and the priority measures to be put in place, as well as a repeated and continuous process of strategic renewal. The experts also said that it is important to avoid the emergence of introspective (closed) regional systems. It is therefore vital that regional innovation systems be viewed as complementing and strengthening one another.

Some experts said that the knowledge-based economy is often located in major urban centres - close to and interacting with knowledge institutions. Interventions in innovation tend to consolidate the vitality of communities centred around knowledge-based institutions. Unfortunately, that can lead to a form of regional disparity that is magnified by initiatives related to the knowledge-based economy.

Further, some experts expressed a sense of fatalism regarding the ability of all regions, especially "underperforming regions that are lagging behind economically or structurally" to use strategies built on the knowledge-based economy to foster economic growth. One expert even referred to the "regional paradox of innovation" in describing the situation where the regions that need the most support are the ones that have the most difficulty using the funds allocated specifically to them to foster the development of their regional innovation system. Those regions, according to the experts consulted, should also consider relying on other strategies designed to build and diversify industrial infrastructure, social capital or agriculture and tourism before thinking more specifically about innovation.

Policies need to respect the roots of the social and economy environment, that is, the region's assets, structures, traditions and conditions, and use them as a foundation. Attempts to reinvent the region based on its economic identity usually fail. On the other hand, focussing regional action on technical improvement and increased productivity within existing regional production activities can be an excellent first step toward the development of a regional innovation system. For example, building a strategy around the presence of well-established innovative enterprises can be a wise move for a local community.

For more information about this section, refer to sections 1, 2 and 3 of the detailed report Regard prospectif sur les politiques de développement économique régional en soutien à l'innovation.

6.4 Potential areas of intervention

Based on their consultation with the experts, the consulting firm identified a number of areas of potential intervention in order to optimize government intervention in innovation. They believe there is a need to develop a framework of understanding and action that recognizes the systemic nature

of innovation and to approach regional intervention in a way that targets the weak links in the elements that underlie innovation.

6.4.1 Intervention framework

The Agency's master framework has to be capable of allowing activities to be tailored to regional and sectoral contexts. It is also very important to ensure that intervention is long term in order to send a clear message to the marketplace.

- The Agency's action has to be growth-generating for the regional economy and the sectoral economy alike. This has to be done as part of a strategy for developing productivity and competitiveness for which innovation is a necessary requirement, but not the only one.
- It is vital to ensure that there is no duplication in the actions of the various stakeholders. Because, in the end, the primary aim of government intervention must be to bring the players in the innovation system into contact, the government has to be diligent in selecting targets and must always strive to improve the links between them.
- Finally, the Agency's role has to be confined to the phases in support of the innovation process (actions taken regarding the environment and inputs); special attention must be paid to the acquisition of skills within the enterprise through, for example, up-front financial support to specifically encourage the hiring of specialized graduates, teachers or scientific and technical staff.

6.4.2 Intervention tools and strategies

Generally, if the recommended approach is applied across the board, government intervention should be directed toward relations among the players in the innovation system and not directly to the players themselves. The recommended tools must therefore aim to encourage activities geared to innovation in the system.¹ The following tools have been identified as having potential and should be given priority:

- promotion of innovative behaviour among managers through communication activities; some experts point to the lack of innovative behaviour in enterprise as an obstacle that government intervention should not address, but that lack of behaviour can be perceived as a flaw in the market that warrants government intervention;
- funding for SMEs to hire engineering, science and technology graduates; one of the big challenges enterprises have to meet in order to increase their productivity and competitiveness is based on improvement of the quality of the labour force; in the end, this enables the organization to adopt innovative behaviour and consolidate its relations with knowledge producers in the innovation system;
- foster networking between SMEs and large enterprises, particularly in the development of new products and processes for large enterprises' sub-contractors and suppliers; large enterprises can be a leading force in regional economic development in Quebec with a structuring effect on regional production systems; moreover, a special link with large enterprise can encourage SMEs to be innovative by making them part of the worldwide move toward innovation;

¹ This creates problems with the evaluation of efficiency and criteria for success.

- promote relations between CEGEPs, universities, R&D centres and enterprises; on a regional level, the strength that CEGEPs can bring to the environment of the innovation system and the synergy that can be developed by educators, students and graduates in stimulating innovation within SMEs is too often neglected;
- involve the entire regional community in a mobilizing innovation strategy for all players in the regional innovation system; specifically, foster the establishment of research and training organizations in the region by implementing, for example, satellites of high-knowledge institutions (departments or institutes, research centres, laboratories) directly in line with the dynamic and characteristics of the region's industrial structure;
- foster co-operation among regions, particularly with regard to the transfer of knowledge and in order to develop mentoring initiatives;
- provide regions that lack them with tools for measuring success in innovation by producing performance indicators adapted to their specific characteristics and problems.

For more information about this section, refer to section 3 of the detailed report Regard prospectif sur les politiques de développement économique régional en soutien à l'innovation.

Potential areas of intervention

The Agency has to develop a framework of understanding and action that recognizes the systemic nature of innovation and to approach regional intervention in a way that targets the weak links in the elements that underlie innovation.

- The Agency's master framework has to be capable of allowing activities to tailored to regional and sectoral contexts. It is also very important to ensure that intervention is long term in order to send a clear message to the marketplace.**
 - Generally, if the recommended approach is applied across the board, government intervention should be directed toward relations between the players in the innovation system and not directly to the players themselves. The recommended tools must therefore aim to encourage activities geared to innovation in the system.**
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APPENDIX

Technical reports

- Réseau Circum, *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emplois (FCCE)*, November 2004, 65 pages.
- Réseau Circum, *Évaluation des projets d'innovation et de productivité incluant le Fonds du Canada pour la création d'emplois (FCCE)*, annexes techniques, November 2004, 286 pages.
- E&B Data, *Regard prospectif sur les politiques de développement économique régional en soutien à l'innovation*, November 2004.
- E&B Data, *Étude comparative de huit organisations et initiatives gouvernementales en matière d'innovation*, November 2004.
- Luc Desaulniers, Khalid El-Mellahi, *Étude de cas, Région du Bas-Saint-Laurent*, April 2004, 27 pages.
- Luc Desaulniers, Khalid El-Mellahi, *Étude de cas, Centre de recherche sur les biotechnologies marines (CRBM)*, April 2004, 17 pages.
- ÉVALUATION, *Le cas d'Innovation maritime*, March 2004, 12 pages.
- E&B Data, *Le système régional d'innovation, Région du Saguenay-Lac-Saint-Jean*, June 7, 2004, 13 pages.
- E&B Data, *Le Centre des technologies de l'aluminium (CTA)*, May 28, 2004, 11 pages.
- Johnson & Roy, *Centre de haute technologie du Saguenay-Lac-Saint-Jean*, April 13, 2004, 13 pages.
- TECSULT, *Étude de cas d'innovation et de transfert technologiques en Montérégie*, March 31, 2004, 21 pages.
- E&B Data, *Un rôle structurant essentiel à l'innovation dans le secteur bio-agroalimentaire du Québec*, March 25, 2004, 13 pages.
- Le Groupe Stragesult, *Étude de cas, Valotech inc.*, March 2004, 17 pages.
- TECSULT, *Centre d'entrepreneurship universitaire*, March 2004, 14 pages.
- SOGEMAP, *Portrait d'entreprises graduées du Centre québécois d'innovation en biotechnologie (CQIB)*, March 2004, 20 pages.
- Direction Qualité et examens, *Bilan des interventions de l'agence en innovation et économie du savoir*, November 2004

Summary table of data collection methods and data sources by evaluation item

Data collection method and data sources	Relevance	Implementation	Effects and repercussions	Areas of potential intervention	Source of report
Telephone survey of client enterprises that received financial assistance from the Agency	x	x	x		Réseau Circum
Interviews with directors of business offices and federal partners	x	x			Réseau Circum
Survey of Agency advisors	x	x			Réseau Circum
Consultation with international experts	x			x	E&B Data
Comparative study	x			x	E&B Data
Case study - regions and enterprise services organizations	x	x	x		Luc Desaulniers, Khalid El-Mellahi ÉVALUATION Johnson & Roy TECSULT Le Groupe Stragesult SOGEMAP E&B Data
Database of innovation projects (1998-2004)		x	x		Quality and Review Directorate