

Business Clusters

Vital Strategy For Canadian Business In The Emerging Global Economy

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There are many countries with strong business clusters, but one is deserving of special recognition, and that is Italy, which was a pioneer in forming industrial districts, which gave rise to business clusters and business networks, both nourished by favourable tax policies for small and medium-sized enterprises, and greatly aided by regional economic development commissioners who facilitated diverse and innovative forms of interfirm collaboration. Northern Italy has enjoyed decades of uninterrupted economic growth and prosperity as a result, and has become a benchmark for many other countries to study. Other European countries and the USA have since developed very successful business clusters with the experience of the Italians as a model. Still other countries are forging ahead with business cluster initiatives as part of a national business strategy.

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Executive Summary

The global economy is now firmly upon all nations. Many leading nations are creating dynamic new forms of industrial organization for international competitiveness known as business clusters. These business clusters operate as a dynamic input-output model at four levels. At the first level, synergies of multiple factors create a virtual cycle of building blocks of input activities, which we recognize as knowledge, research and development, innovation, technology, and increasingly, convergence. At level two, these building blocks drive the operational processes of production (including quality management systems), commercialization, marketing, and international trade. At level three, intermediate processes lead to the operational outputs of competitiveness and productivity, enterprise profitability and enterprise growth. Finally, at level four, these intermediate processes and operational outputs drive longer terms outcomes of corporate capital re-investment and direct foreign investment, new employment creation, generational knowledge increase, dynamic synergy increase, entrepreneurial wealth and social prosperity increase.

Business clusters include large firms known as economic drivers, a myriad of small and medium size enterprises (SMEs), which are technical and professional supplier firms and customers, institutional and social infrastructure, and physical infrastructure. Successful business clusters generally have a series of stakeholder foundations or tables to encourage internal cross-fertilization on critically important issues to all members of the greater community. Each business cluster is different, formed locally, regionally, or sectorally, based on particular business characteristics and needs, and available infrastructure. Any economic sector can become part of a business cluster. Firms in business clusters can engage in a variety of dynamic business relationships such as business networks, strategic alliances, joint ventures. Some high technology clusters, with rich science-intensive assets, can evolve to become technopoles. There can be a variety of scales of business clusters from standard business clusters, to sectoral business clusters, to smaller mini-clusters, to larger business constellations (dense, multiple clusters, co-located and interactive, spinning continual new innovation and enterprises).

SMEs are critically important to business clusters, and account for 90-95% of all firms in business clusters. However, SMEs face major challenges in acquiring and effectively using essential business management skills, and therefore business clusters need to develop comprehensive strategies to focus on essential business management skills for SMEs. Developing a business cluster is a real challenge; however, there are well-established steps to do so over time. Competitive benchmarking and differential strategizing are critically important activities for business clusters. There are also well-known general conditions to help facilitate formation of business clusters. Business clusters will be fundamentally important to the development of local and regional economies in the global economy in this new millennium.

Business clusters are *concentrators, synergizers, accelerators* of business activity, competition and collaboration. Business clusters create a dynamic virtual cycle of knowledge, innovation, technology, and increasingly, convergence, as building blocks for productivity, competitiveness, international trade, profitability and growth. Business clusters lead to increased corporate capital re-investment, increased direct foreign investment, new employment creation, generational knowledge increase, dynamic synergy increase in multiple forms of interfirm, as well as firm and infrastructure collaboration, and increase in wealth to entrepreneurs and society at large in the immediate areas.

In the future, local and regional business clusters will give rise to highly competitive city states which in turn will become linked and interactive, and eventually become significant political entities nationally and internationally. Canada currently has a number of cities with beginning efforts in the field of business clusters. However, there appears to be a significant lack of comprehensive awareness of all of the major critical components and of the means to enhance dynamic strategies all of which would greatly accelerate innovation and technology creation, and productivity and competitiveness results for Canada as a player in the global economy. **Business clusters economic development needs to be made Canada's number one economic priority in its industrial policy and international competitiveness framework.**

Canada needs to create a national business centre to undertake comprehensive research and to provide expert business advice on the formation of business clusters and on related economic and statistical information to support efforts of economic development commissions and local and regional business leaders to form business clusters. Such a national business centre strategy is critically important overcoming significant decreases in productivity and competitiveness relative to that of Canada's trading partners including the USA over the past thirty years, and to increasing Canada's overall competitiveness in the global economy in this new millennium. This strategy is also critically important to increasing and maintaining a high standard of living and general prosperity of all Canadians in this new millennium.

**“Whether local hunter or global entrepreneur,
knowledge, innovation, technology, synergy,
productivity and competitiveness
determine health, wealth and survival,
the relative ranking of individuals, firms and
nations, and the fate of laggards”**

Philippe Roy, CMC,
Presentation at First International Conference on
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1.0 Introduction

Canada has entered the era of the global economy, and more particularly the era of enhanced competitiveness based on entrepreneurship, business management skills, knowledge management, innovation, technology, commercialization and trade. Around the world, businesses and governments are examining means to compete more effectively for a share of global markets, to earn foreign exchange, to bring wealth back home, to enhance domestic standards of living. A major focus is now being made on building critical economic mass of firms and supporting infrastructure to accelerate growth and profitability. **This is occurring through the creation of business clusters, which are concentrators, synergizers and accelerators, and which stimulate the virtual cycle of entrepreneurship, business management skills, knowledge management, innovation, technology, commercialization, marketing and trade, and thus promote productivity and competitiveness in the global market place, and bring home the gold!**

While business clusters are invariably business led, they also require essential infrastructure support, which is normally provided by governments, and must have supportive political, economic, business environments, which are also very significantly influenced by governments. Since business and governments must co-operate and collaborate to create successful local / regional business clusters, a common approach is to form a private-public sector partnership at the local / regional economic development agency level, or sector or provincial level. In order for a whole country to have a larger scale impact in the global economy, countries must recognize the importance of business clusters as a national business strategy, and create a national business clusters initiative.

International research indicates that firms in business clusters experience accelerated business growth, knowledge workers in such firms earn higher salaries, firms experience greater revenues, there is a greater spin-off of new enterprises, and there is a tremendous multiplier effect surrounding each particular business cluster generally. For governments, which must first create desirable political, economic and business climates to encourage business cluster formation, there is a return in greater volume of tax revenues at lower general tax rates, which enables social investments to support a high standard of living. This is a win-win situation for business and for governments.

Business clusters are already evolving into complex and dynamic, critical economic masses, energizing existing urban and regional environments, and are beginning to express their essential requirements and business interests in making investments to locate into an area, to expand in the same area, and to consolidate some aspect of international business operations in the same area. We are already beginning to see signs that certain leading business clusters will evolve into sophisticated city states of the third millennium, and Canada will certainly see several such city states within the current decade. Such city states will be highly developed global competitiveness centers, linked by electronic highway and value-added commercial interests, and will in all likelihood evolve as political entities which will eventually constitute a different type of country which produces 80% or more of Canada's overall economic output. Major city states with successful business clusters will be linked globally for trade and will prosper.

2.0 Nature of Business Clusters

Business clusters are concentrations of large and small and medium sized enterprises (SMEs) in particular economic sectors, supported by various other enterprises including other SMEs providing specialized technical and professional goods and services, and also supported by critical social, institutional and physical infrastructure, to form a cohesive critical economic mass in a particular geographic area.

Business clusters typically have strong forward and backward linkages among firms, products and services. This is done by beginning at the central point of value added production in a business cluster, then factoring in all upstream supplier chains and related inputs of all types, and finally factoring in all downstream commercialization and diversification. These forward and backward linkages can be very revealing in the extent of their business implications, capital investment, and employment. This central dynamic can have multiplier effects leading to additional start-up firms, suppliers, competitors, and cross linkages to other adjacent business clusters.

Business clusters are complex, multi-faceted systems of innovation and production. There is a high rate of innovation and technology application in such business clusters, and a strong and vibrant sequencing of S-curves. S-curves are the defining graphic of applied innovation and commercialization, the contemporary new economy vertical cousin of the more labile neo-classical production function. The radically different characteristics of S-curves in high technology new economy firms distinguishes these firms from traditional economy firms. These S-curves represent the potential that interests venture capitalists to finance high technology new economy firms.

Business management skills and technical work skills are essential for the success of all enterprises in business clusters. A very well educated, constantly renewing, high quality work force is absolutely essential. Business management skills and technical work skills evolve rapidly and enterprises that want to trade globally must hire the best of the best, and have developmental, motivational and retention strategies.

Business clusters quite naturally foster high levels of competition, unique forms of interfirm collaboration, and unique forms of firm and infrastructure collaboration. There is a very strong sense of interdependence among multiple players.

There is a high density of knowledge creation, sharing, leveraging, and the clear focus on the use of knowledge-based competitive advantages. Knowledge management becomes absolutely crucial to all aspects of enterprise development and growth in business clusters.

Business clusters have high growth firms, multiple generations of spin-off firms over time, and understandably some business failures as well, which are viewed as valuable learning experiences. Some clusters proudly map the evolution of constituent firms over time and display sequential networks of business growth.

Leading countries are now supporting the creation and development of business clusters as a principal national economic strategy for growth and prosperity in the rapidly emerging global economy.

A business cluster has four principal components:

- First, a group of large, medium and small sized firms interlinked in their business affairs and all working in the same or allied economic sectors, including some flagship firms, which are the economic drivers of the business cluster;
- Second, supporting firms, usually SMEs, acting as supplier firms, technical specialty firms, professional services firms, direct and indirect clients, frequently interlinked with principal firms in the key economic sectors or economic drivers;
- Third, local / regional institutional and business support infrastructure such as government agencies, research and development laboratories, science and technology commercialization networks, subcontractor and procurement data banks, economic development commissions, business incubator programs, development banks, angel investors, venture capitalists, centers of excellence, innovation and design centers, manufacturing centers, technology transfer centers, quality management centers, productivity and growth centers, educational institutions such as universities, polytechnic institutes, and community colleges to provide high quality skilled labour and professionals, etc.
- Fourth, local physical and social infrastructure including electronic highway, rapid transit systems, roads systems, airports, harbors, multi-modal container transshipping facilities, freight forwarders, customs brokers, weather forecasting services, water and hydro systems, garbage disposal systems, toxic waste disposal systems, environmental standards and management systems, hospitals and health care services, parks and recreational facilities, cultural facilities and services, high quality public and private educational systems, high quality pro-active police services, etc.

Firms in business clusters are generally located in close geographic proximity to one another, generally within a one hour driving radius, have common business interests and activities, demonstrate high connectivity among components, focus on strategy, knowledge, innovation, technology, dynamic value added processes, commercialization, leveraged competitive advantages, accelerated growth. Firms in business clusters compete and collaborate with great enthusiasm. Entrepreneurial initiative and risk taking are highly respected, business failure is considered a right of passage to success, and so business clusters have a very discernible churn rate. Viable support infrastructure is essential to the development and sustainability of business clusters.

All of this requires focused public-private sector partnerships in planning, investment, development, co-ordination, review and assessment, strategic adjustments at frequent intervals. Cluster development is frequently an imperfect model, encompassing opportunities, issues, challenges, constraints, stellar successes, frustrating blockages, and a great sense of urgency to resolve unresolved matters and get on with success. Great, broad understanding is required; great patience and foresight is required; great flexibility and accommodation is required. Cluster development can become a very complex challenge, encompassing multiple external issues in the global economy, multiple local stakeholder interests, scarcity of resources including time, land, energy, transportation, infrastructure, and capacity to identify and group and focus on critical issues quickly and competently. Business clusters whose development is anchored in a solid and continuing private-public sector partnership generally have a more solid foundation to meet complex challenges and to move forward successfully.

3.0 Stakeholder Foundations or Tables Can Help To Cross-Fertilize Business Clusters Internally

In addition to the principal components, most highly successful business clusters have a group of stakeholder foundations or tables, which encourage all stakeholders with common interests to participate, advocate for, and advance their interests in collaboration with other interested persons.

Typically there are eight or more stakeholder foundations or tables which will address such issues as business environment, research and development, knowledge development, human resources, business management skills, financing, innovation, technology, quality management, commercialization, trade and exporting, government relations, institutional infrastructure, physical infrastructure, quality of life, etc.

Individual foundations or tables may meet monthly or quarterly with on-going initiatives, and there may be a periodic gathering of all tables in plenary session semi-annually or annually with a report to all concerned stakeholders on current issues, priorities, progress, leadership, participation, barriers to progress, action drives, etc.

These numerous and varied stakeholder tables are essential for dealing with issues that interest many parties and which cannot be adequately explored and resolved in vertical silos. This internal cross-fertilization within the business cluster is essential democratic sharing of critical information and harmonization of interests.

Successful business clusters which operate stakeholder foundations or tables keep good detailed records of all responsibilities, agendas, meetings, processes, results achieved --- a working corporate memory of the many diverse and interrelated elements of the local community moving forward co-operatively.

4.0 Flagship Initiatives in Business Clusters

Some business clusters which are truly dynamic are characterized by a variety of flagship initiatives, setting them apart from other cities' and regions' business clusters initiatives. These flagship initiatives frequently parallel and complement the efforts of foundations or tables that cross-fertilize stakeholder interests in business clusters. These flagship initiatives are bold, framework shaking, empowering, strategic ideas, that go on to change enterprises, unleash opportunities, reward human effort in unexpected ways. These flagship initiatives can include the following ten dynamic, strategic ideas:

Building a local telecommunications infrastructure through a local communications network, to link all firms and all infrastructure in real time information sharing, idea creation, synergy building.

Creating technological listening posts to serve as forward command and intelligence outreaches to form strategic alliances with other global partners and develop technology intelligence.

Establishing local business cluster brand, a distinctive overarching business mark that communicates the leading edge value added of the business cluster, with sub-brands for each particular business cluster, with the whole to promote and attract business, people, ideas, capital, interested visitors.

Creating a major national or even global learning centre linking cluster firms with educational institutions to produce a tsunami of leading ideas, leading graduates, and continually attracting new leading global ideas.

Recognizing and emphasizing the importance of small and medium size enterprises (SMEs) in business clusters, most significantly that these SMEs account for 90-95% of all enterprises in most business clusters, and then their particular needs and evolution as businesses by stage of business development, the challenges they encounter, and how cluster infrastructure can respond.

Establishing a culture of innovation, with supportive mentoring, supporting business skills development, supporting financing, all brought to focus through a dynamic business incubator system, incorporating the best international practices in business incubators.

Focusing on essential infrastructure development and updating, to provide all essential soft / institutional infrastructure and all essential hard / physical infrastructure components, and the dynamic interactions with large and small firms in the local business clusters.

Developing a unique focus on essential knowledge, technical skills, and essential business management skills for enterprises by stage of business development, to equip enterprises and workers with the critical elements of knowledge-based enterprises, and knowledge-based workers in the global economy.

Creating the all important linkages with the outside world, through telecommunications linkages that incorporate leading edge, high technology, knowledge-rich, ever-green portals, to interface with potential global stakeholders.

Developing a forever renewal and growth attitude to encourage continual renewal of the city or regional cluster group by encouraging new industry sector development, synergy and cross-fertilization that introduces emerging and converging sciences, technologies and humanities to each other, with the dream of potentiality and purpose, creating new emerging business clusters.

Taken together, these flagship initiatives, or strategic ideas, have a powerful potential to move a city or regional business cluster group forward.

5.0 Various Models For Business Clusters

Successful business clusters can be highly individualistic, the result of natural entrepreneurship initiative and risk taking, dynamic market forces, and complementary public sector investments in critically important social capital or infrastructure. There are a variety of business models for clusters used globally:

- the diamond model (Porter);
- the six-way synergy model;
- the geographic concentration model;
- the hub-based radiating model;
- the systems flow / value-added processes model, demonstrating forward and backwards linkages; and
- the mini-cluster model.

Some models pay attention to supporting institutional / social / physical infrastructure while others do not do so. Some models are more complex in terms of dealing with intangible economic business environment / regulatory / market place issues. Some are simple practical initiatives created in economically modest local business environments. Most significantly, business clusters evolve quite uniquely as a function of local / regional business, resource, government, political circumstances, with a thread

of past success and future opportunity. Big or small, complex or simple, there is something to be learned from each business cluster model.

The business cluster is the market place of the twenty-first century, as the weekly agricultural market was the market place in centuries past and currently in some economies. The business cluster and the weekly farmers' market both are essential cross roads for value added economic transactions that nourish our daily lives and enhance our standard of living.

These multiple business models of clusters should be considered as theoretical models and proxies for reality since they are dependent by definition on the existence of particular components and variables, and on economic and social information for analysis and comparative referencing. In some cases such components and variables may exist as a priori conditions, and such models can become viable cases available for inter-cluster comparisons. It is much more likely to find many varied regional economic development models, some with creative parameters, and others with limited resources, centered on numerous local business investments, complemented by available local infrastructure, which have been undertaken consciously or unconsciously to resemble clusters, have come into working life and are at various stages of evolution, and are reasonably successful as community market places on a one-off basis.

The learning process for development of clusters can thus be *deductive*, i.e. from first principles to serve as guidelines, or an existing business cluster model to serve as a template; OR the learning process for development of business clusters can be *inductive*, i.e. from local experimentation with realistically available resources, adjusting through trial and error, and perhaps some occasional lateral referencing. These two principal processes for cluster development afford good learning opportunities: to document and analyze business cases and lessons learned; to confirm first principles; to recognize new principles; to provide for gap modeling to enhance developing clusters; to identify problems and constraints and to resolve these issues; to lead to better local economic development frameworks involving multiple stakeholders; to lead ultimately to better national policy frameworks of economic and industrial competitiveness globally.

We are at this stage globally, learning from early stage experiences in business clusters, comparing international best practices, benchmarking where possible. The global economy is evolving rapidly into a single market economy and will demand that all participants muster the most cogent and competitive strategies possible, and the very best of these strategies will incorporate business cluster development and enhancement. Therefore, it would be very wise for Canada to undertake a national initiative to study various international undertakings in business clusters, and to compare international best practices in business clusters, to be able to have a breadth and depth of knowledge of various business models for forming, developing, and enhancing business clusters, and how to make them ultra-competitive for the global economy.

6.0 Great Diversity of Economic Sectors in Business Clusters

Business clusters occur in a wide range of economic sectors including. Perhaps those that attract the most attention from economic development experts are business clusters in the **ICT** field, including information management software, computers, telecommunications, photonics; **BIOTECHNOLOGY** field, including all applications in genetics, agriculture, agribusiness, fisheries, agriculture, pharmaceuticals, etc.; and **HEALTH SCIENCES** field, including medical devices, biomedical technologies, diagnostics, professional services.

However, business clusters can occur in ANY individual industrial sector: aerospace, automotive, microelectronics, instrumentation, computers, software, telecommunications, photonics, biotechnology, pharmaceuticals, health sciences, medical devices, standard manufacturing, intelligent manufacturing, robotics, new industrial materials, construction, professional services, financial services, business services, technical services, agriculture and agrifoods, fisheries, forestry, mining, oil and gas, alternative energy, environmental services, electrical and mechanical equipment, shipping, rapid transit, transportation equipment and services, complex construction projects, tourism and hospitality, film and media, arts and culture, etc.

Several contiguous business clusters can frequently be found to exist in one geographic region, and there may be significant interconnectedness between different clusters and their components; hybrid synergies create unique emerging fields, referred to as emerging and converging sciences and technologies. This single factor builds and deepens the warp and weft of this emerging economic fabric called business clusters.

7.0 Dynamic Relationships Within Business Clusters

Business clusters have dynamic sub-sets of business relationships or synergies among components, which fall in the general domain of interfirm collaboration, and known more particularly as business networks, strategic alliances, joint ventures.

Generally speaking, smaller firms gravitate towards forming flexible business networks, and larger firms gravitate towards forming strategic alliances and joint ventures, and this divide is for reasons of timing, costs, scale, complexity, legal issues, financing, etc. Business networks allow smaller firms to build scale, scope and speed, and can be self-financed through several stages: (1) group reduction of input costs, (2) group marketing to increase access, both of which lead to increased operating margin, (3) then group investment in innovation and technology in process, product, service, and finally (4) group exporting to international markets. Business networks divide into soft and hard networks with several distinctive forms. Soft networks can have more general purposes with greater numbers of members who pay an annual fee to belong to the network, and these are often the staging ground for formation of hard business networks. Hard business networks have fewer members and a specific business purpose: horizontal, vertical, cross-sectoral, emerging and converging sciences and technologies, public / private sector networks. Medium and large size firms seek to form strategic

alliances or joint ventures in order to combine strategic complementarities in innovative value added processes.

Synergies can produce many varieties of collaboration, which help the firms to create and use relative competitive advantages more effectively, frequently leveraging these advantages for scale, scope and speed of business activities. More diversified synergies can occur between large firms and supplier chains, between numerous firms with common export interests, between firms at the leading edge of scientific and technical research and development, between firms and support infrastructure such as universities or scientific research institutes. There really is great potential for multiple innovative and beneficial combinations of firms in synergies.

The concentration of business clusters accelerates the potential for such synergies, and these synergies in turn drive innovation and technological advances, increase commercialization and marketing activities, and in the process increase the knowledge platform within the business cluster. Knowledge becomes the de facto currency of the business cluster, and particularly so for new economy clusters. Participating firms develop knowledge, share knowledge, leverage knowledge, and this has the effect of increasing the intangible wealth of knowledge awareness and utilization in the general business environment, manifested in accelerated and sophisticated families of S-curves, and highly skilled knowledge workers, and forms a generally highly positive competitiveness-enhancing business environment.

The most significant reason for new firms wanting to join a business cluster is to gain access to valuable knowledge base that exists there. This knowledge base exists in people, processes, assets, products, services, relationships, etc. It is people who are the most valuable of all knowledge factoring components of a business cluster, and that is why they are in such high demand as knowledge workers.

8.0 Evolution of Science and Technology Clusters Towards Technopoles

Sophisticated business clusters with high concentrations of advanced science and technology firms, high quality universities and polytechnic institutes, government and private research laboratories, specialized centers of excellence, very high quality skilled work force, capital investment strategies, angel and venture capital pools, etc., can evolve to become leading-edge specialized technopoles.

This has been the case of Ottawa, Canada which began with an investment in scientific research and development infrastructure by the National Research Council post World War Two, after the discovery of radar applications in war time, rapidly evolving to a forecasted need for telecommunications in peace time, the arrival of Bell Northern Research in the west end, followed by Computing Devices of Canada with computer research and development, followed by the creation of telephone and computer software development firms. This was followed by the subsequent development of multiple generations of spin-offs, and the later addition of other advanced science and technology firms in bio-medical technology and medical devices, photonics, geomatics, professional

and business services, tourism and hospitality, and arts, culture and media. This has been a slow natural evolution over the past half-century, and a more accelerated growth within the last ten years, and an amazing dynamic growth and diversification with the last two years.

In the future, much more attention will be paid in national economic policy towards creating plans to help business clusters evolve towards technopoles.

9.0 Different Scales of Business Clusters in Different Urban, Rural and Northern Environments

Business clusters and business networks were significantly observed in northern Italy's Industrial district in the 1970s, and were instrumental in helping traditional economy enterprises to interrelate and to collaborate in order to compete successfully for lucrative export markets in Europe and elsewhere. As a result, northern Italy has enjoyed three decades of unparalleled competitiveness, growth and prosperity.

Clusters typically exist in larger urban concentrations where suitable smaller supplier firms, technical services firms, professional resources, critical resources, and essential infrastructure are available; actual requirements may vary with particular economic sectors. Metropolitan areas with populations of 1,000,000 or more will have concentrations of multiple clusters, e.g. Toronto (GTA population 4,500,000) with ten clusters, Montreal (metropolitan population 3,500,000) with ten clusters, and Ottawa (population about 850,000) with seven clusters. As stated previously, Ottawa is evolving rapidly to become a technopole, Canada's first technopole, thanks to early strategic efforts of the National Research Council with headquarters in Ottawa.

In some other countries, with large economic masses, and therefore the potential for large-scale business clusters and contiguous and interlinked multiple business clusters, the term business constellation has been coined.

Clusters can quite easily exist in smaller concentrations in cities with populations of 100,000 up to 1,000,000 e.g. Canada's Technology Triangle of Cambridge, Kitchener, Waterloo with computers, software, and environmental services, AND Guelph with agriculture, agrifoods, and biotechnology. Halifax and Vancouver have clusters related to land-based and ocean-based environments, supported by rapidly emerging ICT-based and other specialized technologies. Calgary is emerging from an energy and agribusiness centre towards a more high technology centre with several clusters building. Edmonton is developing a diverse clusters initiative. Saskatoon has a specialized biotechnology cluster. Thunder Bay and Sudbury have emerging radiating forestry and mining clusters, which have potential to develop further. The greater Niagara region has very successful clusters in wine making, greenhouses, bakeries, tourism, and light manufacturing. Quebec City has a very successful and growing high technology cluster with numerous sectors represented, including software, computers, biotechnology, food production, waste management, etc. St. John's Newfoundland has a growing natural resource / oil

and gas cluster, and a burgeoning cluster of high technology SMEs in software, computers, and special applications.

Mini-clusters can exist in numerous smaller communities of 10,000 to 100,000 such as Truro, Nova Scotia with a dairy sector, and Canmore and Banff, Alberta with a tourism and recreation sector. There are many other similar examples of mini-clusters.

Rural and northern areas may well have local cities or towns which anchor more dispersed business clusters or mini-clusters in agriculture and agrifoods, fisheries, forestry, mining, transportation systems, hunting and fishing tourism, eco-tourism and cultural-tourism with aboriginal peoples, fine arts with Inuit peoples, etc.

The concept of local or regional hubs to anchor a cluster is vitally important to understand. These hubs contain the essential supplier firms, technical services firms, professional services firms, institutional and soft infrastructure, and critical resources, which permit, clustered enterprises to carry on daily business operations and which nourish their valuable employees. It is at these hubs that critically important private-public sector collaboration is formed. Regional economic development agencies play a major role in creating such hubs.

The advent of electronic highway, the Internet, etc., has created the possibility to link more dispersed components of clusters together in real time, to share information, knowledge and ideas to accelerate business development. This will support integrated supplier chains and value added processes, as well as B2B, B2C, and E2E electronic commerce, and B2E applications to link employees in diverse aspects of defined business clusters. These dimensions of cluster linkages and electronic commerce have only just begun and will evolve in multiple different ways. These should be seen as accelerating factors.

10.0 Critical Importance of SMEs to Successful Business Clusters

Other important issues arise within business clusters, particularly with regard to SMEs, which can account for 90-95% of all firms in business clusters. SMEs have a rather high discontinuity rate internationally and Canada is no exception. Canada loses approximately 65% of all new firms with 1-4 employees within five years from start-up, and 48% of all new firms with 5-99 employees within five years of start-up. The principal identified cause of this massive discontinuity is the lack of adequate business management skills at the essential stages of business development. The need for a national business strategy regarding business management skills for SMEs is fundamental to the continued growth of business clusters.

This complex issue should be seen as having demand side and supply side components. The demand side is represented by the nature and needs of SMEs for essential business management skills, what they know about what they need to know, how they go about accessing and utilizing this body of essential business management skills, why they have difficulties of different kinds. The supply side is represented by the

various sources of professional support and services in essential business management skills for SMEs, including governments, economic development commissions, entrepreneurship centres, financial institutions, educational institutions, business professionals (accountants, consultants, lawyers, engineers, etc.), mentors, etc. The complexity of the issue is exacerbated by an imperfect market place between the demand and the supply sides, and which is tending towards market failure.

Individual business clusters will thrive or fail with the nature of SME success or discontinuity and so essential business management skills are critically important, particularly by stage of business development: start-up and early stage, growth stage, expansion stage, internationalization stage. Business management skills are a sine qua non for successful business clusters. There are several fundamental requirements to facilitate essential business skills development for SMEs:

- **First, establish a national standard of essential business management skills required at each stage of business development: start-up, growth, expansion, internationalization.** This national standard must be carefully researched and maintained by a national body, with a strategically well-mixed board of directors representing many diverse interests. It is critically important that ALL stakeholders which interact with business use the same uniform national standard of business management skills, including: management functions identified, management processes identified, decision making tools defined, essential information defined. The hierarchy and dimension of these last four elements is critically important to defining the scope and substance of business clusters.
- **Second, establish a business start-up registration at local economic development commissions and entrepreneurship centers,** to offer a full range of training seminars in feasibility analysis, business planning, financial planning, operations management and control, financial control, organization and human resources management, marketing, informatics, e-commerce, business diagnostics and problem solving, etc., for start-up and early stage enterprises. For this to work, all new businesses must register for a local business license, and at that time, must be offered counseling in essential business management skills through group seminars at low costs. This approach has worked well at numerous pilot sites in Ontario, including Ottawa's Entrepreneurship Centre.
- **Third, establish a national business mentoring program, similar to the highly successful American SCORE Program for established SMEs, particularly for SMEs wishing to begin to grow, then to expand business operations, which are two distinct and sequential developmental phases.** The success of the American SCORE Program is due to accurate matching of senior / retired successful entrepreneurs / professionals from the same sector as the target entrepreneur who requires mentoring currently. This may require some government support and oversight to get started, and could be administered by a national professional body composed of consultants, accountants, business school professors, retired entrepreneurs.

- **Fourth, establish local business incubator programs for new ventures in new and emerging advanced science and technology fields, to help coach new enterprises through the challenging start-up, survival and growth stages.** Such business incubator initiatives tend to work well when there is significant group work and group learning ably facilitated by local business school professors or business professionals, with in-depth knowledge and experience in particular sectors. Critical areas are developing and applying a full range of essential business management skills at each crucial stage of business development. This can be best done using a simple grid approach as the basis for diagnosis of needs and then mentoring over time. There has been excellent work by Dr. Laurence Hewick in this field.
- **Fifth, establish supplier chain development programs** to help the mainly SMEs that constitute supply chains at levels one, two, three, to develop a comprehensive range of essential business management skills to be able to qualify and to participate effectively as supply chain firms, with intelligent manufacturing skills, with computer skills, with quality management skills, with complex problem solving skills, etc., to be applied in supplying traditional and new economy OEMs / MNEs.
- **Sixth, document the successful business management skills of high growth firms known as gazelles with the assistance of business school professors and experienced business professionals,** and feed back these success stories in business school curricula, through economic development commission and entrepreneurship centre offices' information kits, through business incubators, and through business mentors to emerging firms with high growth potential.
- **Seventh, establish a national productivity and growth centre for SMEs which want to be substantively competitive in the global market place,** which wish to move from exporting in the relatively safe business environment of North America, to global exporting, to internationalization of business operations. This strategy has worked amazingly well for the Four Tigers of Asia, particularly Singapore. Sound productivity management underlies all competitiveness and growth strategies: small firms can become medium firms, and medium firms can become large firms; strategies for growth can be learned and successfully applied.
- **Eighth, establish a national and international support infrastructure to assist and sustain SMEs in diversified international trade development.** SMEs need solid support to be able to reach beyond the safe American market place where Canadian firms export 88% of all exports; reaching global markets is far more challenging. Essential knowledge is required about exporting, and is currently available from the Forum For International Trade Training (FITT) through university extension programs across Canada. See also the models of German commercial banks assisting German firms to export; British Columbia Trade Development Corporation; New Zealand Trade Board (TRADENZ); Finnish Trade Agency; and others.

- **Ninth, understand that business clusters, business networks, and technopoles develop such a dynamic of competition and collaboration amongst participating firms, the majority of which are SMEs, that intensive learning about essential business management skills takes place implicitly and vigorously,** and consequently accelerates individual firm knowledge, innovation, technology, commercialization, competitiveness, growth, export activity, and ultimately internationalization of business operations.

It is worth noting that international research has established that firms in business networks can achieve up to 50% greater annual turnover than non-networked firms, AND that firms in business clusters can grow and export at rates of four (4) to seven (7) times greater than non-clustered firms over five to ten years. More studies are needed to document the great growth benefits of business clusters and business networks. Business clusters and business networks have tremendous concentrator, synergy, and accelerator properties. In particular, these business clusters develop a dynamic virtual cycle of knowledge, innovation, technology, commercialization, trade. As such these business clusters are the foundation for competitiveness and growth in the new economy. There has been excellent work by Steve Mostardi and also by Dr. Bob Breault in this regard.

- **Tenth, create and maintain a national competitiveness research program with a special focus on the development and application of a national standard of business management skills, using all of the critically important elements in points one to nine above.** Excellent work has already been begun in the field of analysis of business management skills by Dr. John Baldwin of Statistics Canada, and should continue and be expanded to more fully address the emerging scope of the critically important area of business clusters.

In summary, essential business management skills are critically important for SMEs, and the above ten (10) fundamental strategies will work well if undertaken as part of a **strategic framework** rather than if simply left to the market place to evolve.

11.0 Stages of Business Cluster Development

Some attention should be given to the stages of business cluster development. A general pre-condition is the establishment of a public-private sector partnership, a supporting team, and some core funding, to help direct and guide the cluster development initiative. This works best where a solid private-public sector partnership is formed ab initio, to provide strong and enthusiastic leadership which will bring together all interests and supporting organizations in a great collaborative team:

- The first stage is **general national and international research into business clusters, awareness building, AND a team building collaboration amongst multiple stakeholders and potential partners,** including business and government, large firms and SMEs, various forms of support infrastructure, which are present and others which will be needed.

An essential preliminary research initiative is the mapping or stock taking of the current business environment, cluster base and associated soft and hard infrastructure, noting all dimensions, constraints, strengths and weaknesses, threats and opportunities.

- The second stage is **development of a range of alternative cluster development strategies, followed by discussion and selection of a preferred strategy and budget**, which should involve more targeted national and international research of innovative ideas and best practices in developing and sustaining business clusters. This should include on-site visitation, interviews with key players, collection of studies, noting critical success factors and lessons learned, etc.
- The third stage is **development of a multi-stage business plan**, with objectives, major projects, potential constraints to be overcome, performance criteria, financial funding and in-kind contributions, confirmation of participating stakeholders, public-private sector partnership governance structure, etc.
- The fourth stage is **getting approval of the business plan and budget**, from the participating stakeholders, the public-private sector partnership, which generally requires some initial level of public sector financial contribution to get the business cluster initiative underway, and in-kind business sector contributions to work actively on the project to advance it and bring it to fruition.
- The fifth stage is **implementation of the business plan**, stage by stage, with regular accountability and performance reporting to the general community, by the public-private sector partnership team, and on-going strategic adjustments.

Implementation will involve numerous specific projects undertaken as part of the multi-year business plan. These individual projects will have specific objectives, resources, processes, and targeted outcomes. The range of projects will have to be integrated by a unifying mechanism.

- The sixth stage is to **create an on-going learning organization** for all participants in the business cluster, with specific training initiatives, knowledge management initiatives, and the high awareness building of total continual learning and sharing of knowledge as the foundation for collaboration, innovation, technology, productivity, quality, competitiveness, growth, wealth building.
- The seventh stage is **continual monitoring of international best practices** in business clusters, networks, business incubators, technopoles, business management skills, investment, innovation, technology, S-curves, commercialization, exports, high growth firms, spin-off firms, IPOs, knowledge workers, productivity, competitiveness, etc., and making strategic adjustments as required. This critically important matter requires international visits and comparisons of leading business clusters.

- The eighth stage is **competitive benchmarking of the business cluster**, its firms, its infrastructure, its outputs, its successes, its challenges and how these are resolved, against a range of other business clusters, nationally and internationally.

NB. While benchmarking has many supporters, it only serves a limited comparator function; business clusters that really want to grow should focus on strategy to differentiate, leverage and accelerate their relative competitive differences.

- The ninth stage, and which may begin earlier and run in parallel with other stages, is the **creation of the stakeholder foundations or tables**, which will serve to cross-fertilize essential issues, and ensure that all stakeholders large and small, public and private sectors, will have a way of participating, raising concern, advancing issues of common interest, and being informed. This process will serve as the forum of democracy, a network of dialogue and sharing, a values system, a learning organization. It is vitally important.
- A tenth stage can be **reflection, renewal, re-invention of the business cluster**, which can occur when a business cluster achieves a degree of maturity, a plateau, and may seem to be standing still, and this requires a significant review of where the cluster is, what has been achieved, what challenges exist, what opportunities or threats exist, what constraints exist, and what can be done to re-kindle interest and competitiveness in the business cluster.

The stages of research through to implementation generally addresses the issues of identifying the various components of a cluster, big and small firms, institutional and physical infrastructure, any gaps to be addressed, any constraints to be addressed, performance indicators, stakeholder tables, constant monitoring of international best practices, and the process of regular consultations. Timing can be variable for development of business clusters, but in principle, stages one to four can take from one to two years of careful collaborative work. Stage five, implementation, begins the work in earnest, accompanied by stages six to nine, which will take several more years of on-going work. It will take five to ten years to observe significant results, and will require continual adroit management by the private-public sector partnership. Stage ten, reflection, renewal, re-invention, is reserved for when it may be needed, and it will be needed eventually. These timing indicators are simply general parameters, and may vary under local application.

Successful development and implementation of a business clusters strategy is a decade-long process....the foundations must be laid properly, the superstructure must be erected carefully....the internal systems must be carefully installed....and ongoing maintenance becomes a necessary part of the living architecture of the business cluster.

Sometimes cluster initiatives get seriously stuck and this may require pause and reflection, benchmarking against other successful clusters, or even major re-engineering.

This is healthy evolution. Frequently, community planning, infrastructure, housing and transportation can become lagging factors as business development surges ahead, and strategic action is required to resolve such matters. It is important for any business cluster to have a good reference base of other business clusters, which have encountered challenges and significant problems, and how these were addressed and resolved.

12.0 Critically Important Issues In the Development of Business Clusters

Early stage planning for development of a business cluster strategy will determine what important issues should be addressed. These include documentation and analysis of the following critically important factors:

- Existing business clusters, including large firms (economic drivers), small firms, institutional and social infrastructure, and physical infrastructure, characteristics, dimensions, strengths and weaknesses, threats and opportunities.
- Distinctiveness and unique competitive advantages of current business clusters, which are often business-based.
- Competitiveness and productivity of current business clusters, which is composed of relative productivity of individual firms, and total factor productivity.
- Backward and forward linkages within current business clusters, generally accomplished by systemic mapping of linkages, and value-added processes.
- Nature of current business, economic, legal, regulatory environments, including interprovincial and international trade agreements, taxation, sector regulatory conditions, etc.
- Nature of stakeholder foundations or tables within the general business cluster environment and used to cross-fertilize key issues among stakeholders.
- Challenges, problems, impediments within current business clusters.
- Spin-offs and high growth firms, a.k.a. “gazelles”, number, variety, performance, and is there a pattern in particular sectors, and if so what are the critical success factors.
- Quality of work force, levels of professional, managerial, technical education; general work force literacy, numeracy, technical capacities, entrepreneurial capacities, hard and soft business management skills.
- Essential business management skills for SMEs by stage of business development, and related competitiveness strategies.

- Learning organization principles applied and working within current business clusters.
- Major corporate capital investment, and direct foreign investment, noting patterns over time.
- Enterprise development capital, including angels, early stage, and venture capital, noting patterns over time.
- Business procurement practices within current business cluster, and noting if there is a supplier and sub-contractor data bank locally.
- Innovation, technology, knowledge management levels, and noting the existence of any virtual cycle that leads these three building elements to produce a state of knowledge-based competitive advantages.
- Awareness and use of S-curves in high technology sectors to drive innovation and competitiveness.
- Effective supplier chains, tier one, two, three, and with good technical and business management skills at each tier.
- Degree of quality management standards, such as ISO 9000 series, and particular product standards for particular sectors, used in all organizations possible.
- Types and volumes of exports and to which markets, noting goods, services, exports to interprovincial markets, to USA, to Mexico, to other American and Caribbean markets, to Europe, to Pacific Rim, to Arabian-Muslim countries, to Africa, etc.
- Nascent and potential sectors for future business clusters, clearly identifying emerging sectors however, noting potential for growth in such areas as tourism and recreation; arts and culture; film and media; diversity of manufacturing and processing; micro-manufacturing; business and professional services; technological services; knowledge industries; enabling technologies that cross sectors; emerging and converging technologies; etc.

It is critically important to document and to analyze these twenty (20) factors that will tell a powerful story about the current economic and business dimensions, and future potential of nascent, micro, mini and potential business clusters.

13.0 Conditions For Success In Business Clusters

There are many well-known conditions for success in undertaking cluster development. It is important to reflect that the different cultures of business, government and academia may have to be considered, and that among business interests, successful entrepreneurs, and particularly those who have become wealthy and well-known, may have rather large egos. Tender egos can be the Achilles Heel of such initiatives. It will take a lot of consideration and smooth handling to bring many diverse interests and personalities together. These are worth considering:

- First, visionary leadership that embraces great potential and innovative ideas that can help achieve this great potential.
- Second, a strong public-private sector team representing the diverse stakeholders in the community, to bring together critical perspectives and resources, and to share the workload.
- Third, a reasonable budget contributed from public and private sector sources, and generous in-kind support from the various stakeholders.
- Fourth, goodwill, collaboration, patience and flexibility among all potential stakeholders to be able to achieve a grand vision, a great potential outcome for all concerned.
- Fifth, considering the process as a learning environment for all concerned, where even the best-informed and most dedicated stakeholders also are willing to learn.
- Sixth, creation of win-win expectations for all participants, and the frequent referral to these expectations.
- Seventh, keen awareness of the demanding competitiveness of the global economy; there are no longer any protected home markets. All firms must compete everywhere, all the time.
- Eighth, continually monitoring performance of all business cluster activities and relative competitiveness of practices and results achieved.
- Ninth, continual searching for and comparison with innovative and high achieving international best practices in firm productivity / cluster competitiveness.
- Tenth, carefully noting impediments and drag effects on progress, and carefully diagnosing causes and options for corrective action.
- Eleventh, making strategic adjustments when warranted, with consensus, learning in the process.

- Twelfth, celebrating failures and successes as learning processes.
- Thirteenth, continually re-investing capital and human effort in new cluster competitiveness endeavors.
- Fourteenth, balancing prosperity and wealth creation with care for the environment, particularly water supply, sewage, garbage, industrial waste, air emissions, energy usage, timely site remediation.
- Fifteenth, managing inclusion of all members of society, and involving and sharing with less fortunate so that they may partake and contribute also, including First Nations people, handicapped people, and many others who risk being marginalized.

Individual clusters may differ in their experience in success factors, and may add other factors, change order of priority, or delete factors; this is a learning process.

14.0 Importance of Business Clusters in the Global Economy

Why are business clusters emerging as such an important element in the global economy? It is really quite simple. Business clusters dynamically embody three defining elements:

- Business clusters are marketplace **concentrators** of economic mass, specialized resources, knowledge and enterprise.
- Business clusters have multiple interrelated and interdependent components which are vital **synergizers** of essential knowledge and relationships through competition and collaboration.
- Business clusters combine knowledge, innovation, technology, capital, and entrepreneurship as dynamic **accelerators** of growth, profits, employment, wealth, prosperity and quality of life, and new knowledge for subsequent cycles.

These three essential elements: **marketplace concentrators, vital synergizers, and dynamic accelerators** together define the core strategies for economic growth and prosperity in the new economy. These are much more evident in business clusters.

Business clusters contribute to the establishment of a **dynamic virtual cycle**, which combines **knowledge management, innovation, technology**, to produce an entirely unique set of circumstances called **knowledge-based competitive advantages**. This complex integral is the product of the multiple synergies of interfirm collaboration, and the synergies between firms and infrastructure in business clusters, which raises the general platform of enriched competitiveness-enabling knowledge. **This dynamic virtual cycle is the pure gold of high performing business clusters.** Not all business clusters have this dynamic virtual cycle.

Cities with business clusters strategies tend to grow much faster than non-clustered cities. This is because the enterprises that are the economic drivers of the business clusters, interacting with the smaller enterprises and the local institutional and physical infrastructure lead, according to Rosabeth Moss Kanter of Harvard Business School, to a flourishing and continual renewal of **the “three Cs”**:

- **Concepts**, meaning knowledge, innovation, technologies.
- **Competence**, meaning knowledge, education, technical skills, business management skills.
- **Connections**, meaning knowledge, collaboration, synergy.

Kanter, who spoke very eloquently at The Conference Board of Canada’s Technopolis 97, is also talking inherently about the synergies of tangible and intangible resources which create the dynamic virtual cycle. To have this dynamic virtual cycle in operation requires more than accidental juxtaposition; it requires very perceptive and dynamic strategic planning of the elements, process management, appropriate harvesting, re-investment, celebration of doing it right.

To this list of critical factors David Crane, one of Canada’s leading business writers, author of “The Next Canadian Century: Building A Competitive Economy”, and economics editor, adds that, **“Cities and towns must take the future in their own hands: knowledge investments are essential for growth”**. Crane refers, of course, to the real currency of the new economy, knowledge, which permeates all competitive enterprises and business clusters. Knowledge investments can be highly tangible via educational institutions, or the human resources of firms, or research institutes, or innovation methods, or value added processes, or embedded in new products, etc. Cities must encourage such investments in knowledge development, application, sharing, leveraging, etc. It is such knowledge investments that will invariably establish which country will excel in the global economy a quarter century later, and in the new economy, such knowledge investments must be made and increased continually. Such knowledge investments are absolutely essential for successful business cluster development.

Jane Jacobs, Canadian icon in urban planning and economics, and author of *Cities and the Wealth of Nations* (1984) has said that, **“Cities will become city states in the competitive global economy”**. Jacobs has written many books and refers to cities as living organisms with principal systems and subsystems, which are integrated and interdependent; cities are living economic organisms with knowledge-informed transactions characterizing their dynamic lives and leading to prosperity. Jacobs’ definition is closely allied to the concept of business clusters; with subset relationships in business incubators, business networks, strategic alliances, joint ventures; with linkages between business and various social, institutional and physical infrastructure components; with forward and backward market place linkages in supplier chains and clients. This is vital information for the new economy, for dynamic business cluster growth within cities.

American and Dutch professors, Len Karot and George Tovstiga, have developed a model of **knowledge management** for traditional and new economy firms which encompasses **explicit and tacit knowledge** which resides within organizations, in people, in value added processes, in intellectual property, physical assets, in data banks, in minutes of meetings, in interpersonal transactions, in elusive e-mail. Knowledge harvesting can lead to valuable increases in innovation, competitiveness, and growth. This process is a high value-added activity within firms in business clusters.

The above noted knowledge factors lead to the development of the most valuable commodity in business clusters: **the knowledge worker**. Critical masses of these knowledge workers create highly competitive **knowledge-based enterprises (KBEs)** which are increasingly composing the mass of business clusters. These two factors lead firms in business clusters to identify, deploy, multiply and leverage what is known as **knowledge-based competitive advantages**. These firms may have whole or partial knowledge-based competitive advantages and may collaborate with other firms to mass up these competitive advantages to undertake new and greater business opportunities. In addition, knowledge workers may frequently change employers within a business cluster, thus causing a general spreading of increased knowledge and raising the general platform of knowledge within the business cluster. This is a critically important factor for all business clusters, and leads to accelerated innovation, technologies, growth and profits. **Business clusters factor knowledge as the new currency of the global economy.**

To reflect for a moment, this knowledge factor permeates this author's foundation concepts of business clusters: **concentrators, synergizers, accelerators**. This knowledge factor permeates Kanter's Three Cs: concepts, competence, connections. Crane talks about the essential institutional investment to create the basis for such knowledge. Jacobs talks about the dynamic ecology of cities as core and multivariate economic systems, with knowledge as nourishment. Tovstiga and Karot talk about identifying, managing, harvesting valuable knowledge to re-invest in innovation, technology, commercialization.

These are all very dynamic concepts, which characterize the economic activity of the economic drivers and the infrastructure of business clusters. Thus, business clusters are the foundation for international competitiveness in the emerging knowledge-based global economy. Business clusters create, integrate and leverage knowledge; create a fecundity of innovation in product, process, service; give birth to dynamic S-curves of technologies that are commercialized, marketed, traded globally; and reinforce the dynamic virtual cycle. These are prophetic, insightful concepts, the real gold of business clusters and the new economy.

15.0 The Future of Business Clusters in the Global Economy

Eventually business clusters could evolve to become quite successful and competitive globally, and Jane Jacobs' prophetic words regarding the rapid evolution to competitive city states could come to pass.

These competitive city states could become linked nationally by electronic highway into a new and different concept of country, and the resultant national network of city states could require a vastly different form of government and far less of it. Business interests would demand low cost, low complexity, business friendly environments, and would relocate to ensure such favorable conditions. This would also give rise very visibly to ethical and socially responsible businesses, based on congruence of harmonious business and social values.

Such evolved Canadian business clusters cum city states could naturally join a global network of similar city states, with international electronic highway linkages, international entrepreneurship, international competitiveness. There would be no protected home market places. All businesses would compete everywhere at all times. This would be the true global economy. Canada must become ready quickly for this rapidly emerging global economy, and getting fully immersed in business clusters is the best way to do so. If Canada, i.e. Canadian businesses and Canadian cities / regions can compete at this high standard of global competitiveness, then Canadian citizens can reasonably expect to share in prosperity of the global market place. If Canadian governments and businesses prevaricate, fail to engage fully and boldly, then Canadian citizens will slowly but surely slip in competitiveness, in productivity, in prosperity, and will enjoy fewer of the currently institutionalized social benefits they have become accustomed to... cheap and accessible education, cheap and accessible medicare, cheap and accessible government services, cheap and accessible food and products from the global market place.

Clearly Canadians, Canadian governments, Canadian businesses, Canadian workers have a challenging choice to make. Many other leading nations have already made the right choice. This means unequivocal commitment to stimulate and support business clusters, with business led initiatives, with government led investments in essential institutional and physical infrastructure, with harmonious national framework policies to facilitate productivity, competitiveness, growth, trade, prosperity.

16.0 Need For a National Centre of Expertise in Business Clusters

The time has come for Canada to establish a national professional centre in business clusters, to conduct international research into best practices, to advise Canadian businesses, governments, economic development agencies, universities, and other important players on how to form successful business clusters.

This would evolve into a respected **national business centre** offering a comprehensive range of professional business services related to business clusters,

including research into international best practices of cluster development and management, strategies and expertise; essential competitiveness economic and statistical information; and regional and national conferences with leading experts from Canada and the global market place.

This national business centre could begin with private-public sector collaboration to bring key stakeholders together, and could then evolve to help business to serve business interests in business clusters more comprehensively, on a fee for service basis or profit making basis. Regional and national round tables with national and international invited experts would be an essential service offering of such a national business centre. A well-conceived and well-structured national template for business cluster development would have to be developed and shared with cities, regions, sectors, provinces, and national business and government agencies. A series of progressive short seminars would have to be developed and promulgated to train and inform key players in cities, regions, sectors, provinces, and national business and government agencies “how to” develop business clusters. These services would have to be complemented by economic and statistical information services, which would be scaleable to the needs of cities, regions, sectors, provinces, and national business and government agencies. Benchmarking and differential strategizing would be essential services. There would have to be constant monitoring of international best practices in all aspects / the full spectrum of business clusters presented in this paper, and the constant introduction of these valuable competitive practices to the Canadian business cluster environment.

In the rapidly emerging age of electronic highways and the Internet, this concept for a national business centre should include network-based information products, automated business surveys, chat rooms on particular business topics, teleconferencing, all in support of better and more competitive business clusters in Canada.

The ultimate benefit of a national uptake in forming business clusters would be to significantly increase business mass in the country, to build a vital new economic base for the global economy, to create many new high technology jobs, to create national wealth, and enable governments to reduce taxes and to pay public debts.

Cities, regions, sectors, provinces, that undertake a business clusters economic development strategy can look forward to increased and sustained business and economic growth of from 2-3-4% to 4-5-6% annually over a sustained period of time as they build a solid new economy locally to compete in the global economy. In the aggregate this will lead to continuous national GDP growth in the range of 3-6% over a longer time period.

Business clusters are perhaps one of the strongest potential strategies to enhancing total factor productivity across multiple economic sectors, due to the significantly greater increases in innovation and technology applications, and commercialization of these applications in sequential dynamic S-curves, that take place in business clusters. Competitiveness gains through innovation, technology, and knowledge gains, all of which generate significant productivity gains, have a natural economic tendency to wash out undesirable inflation impacts in economic factors. This is called new economy

factoring and will be increasingly studied as a relatively inflation-free platform for growth.

These huge potential growth and competitiveness benefits should certainly interest federal and provincial ministers of finance, industry, economic development, as well as local mayors, councils, economic development commissions and entrepreneurship centres across Canada. The banking and finance sector, the increasingly broadening science and technology sectors, and university business schools should also be keenly interested in business clusters. Members of Parliament and members of provincial assemblies / legislatures should understand the great economic benefits that can accrue to their individual constituencies from business clusters.

Canadian entrepreneurs and business leaders in all economic sectors, and Canadian business associations representing all economic sectors, should be keenly interested in business clusters as a vital strategy for growing Canadian business and expanding into the emerging global economy. Local and regional economic development commissions should find the growth potential of business clusters highly motivating, and should want to consider making business clusters a primary business strategy for economic development.

Ultimately a national economic strategy to support business clusters will lead to greatly enhanced standard of living for all Canadians in this third millennium. **The first essential step is to create a national business centre specializing in business clusters.**

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