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**BUILDING THE TOOLBOX**  
**Ontario, Canada**

The following report provides the information note for Ontario, Canada for the Forum session on "Building an Operational Toolbox for Innovation, Forward-thinking and School System Change". It describes the initial "toolbox" dialogues and studies in two areas: "Vision 2020 - French Language Education in Tomorrow's Ontario" and the "Teaching as a Profession Project". An appendix describes the scenarios that have been generated as part of the Teaching as a Profession Project.

## **I. Context**

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### **History & Profile of French-language Education in Ontario**

Of the one million French-Canadians who live outside Quebec, half of them call Ontario their home. These represent about 4.5% of Ontario's general population, and students enrolled in French-language schools represent about 4.5% of Ontario's 2 million primary and secondary students.

Education in Canada is a provincial responsibility, and so it is the Government of Ontario that has primary jurisdiction for schooling within that province. Through a number of federal-provincial agreements, the federal government supports minority language education in each province, and funds are provided to Ontario to meet the special needs of the French minority language groups.

Administratively, Ontario schools are grouped into school boards, which act as the core service organizations that operate the education system. School boards vary in size from serving just a few hundred students clustered in a handful of small schools, to serving hundreds of thousands of students distributed over hundreds of schools. All school boards are governed by a board of locally elected citizens.

Ontario has traditionally operated a parallel system of school boards; with most counties and districts served by *two* school boards: a Catholic one, and a "public" (non-denominational) one. Both the Catholic and "public" boards are in fact public institutions, in the sense that both systems are supported by public funds, accessible to all Ontarians regardless of faith, and have the status of semi-autonomous public service agencies that can be created, abolished, or amalgamated by the provincial government. The Ontario system's division into Catholic and public is guaranteed by Canada's constitution, dating back to the country's founding in 1867.

The Canadian Charter of Rights and Freedoms (a 1982 extension of the Constitutional framework) has further shaped the education system, entitling the citizens of each official language (French and English) to elementary and secondary education in their own language and to govern their own school boards. Ontario's school board system was re-organized in 1998 partly in response to this Charter recognition.

Prior to 1998, French-language schools were typically clustered into French-language sections within predominantly English-language school boards (Catholic and public). The relatively small size of these sections meant that their needs and aspirations were usually not high priorities in school board decision-making, resulting in friction and resentment, and the creation of a standing government commission to mitigate such frictions as they arose.

The 1998 reforms created separate French-language school boards, resulting in today's four-way parallel system in Ontario: there are now four types of school boards: English Catholic, English public, French Catholic, and French public. Of Ontario's 72 school boards, 12 are French-language (8 Catholic and 4 public).

### **Challenges**

While Ontario's French-language communities now govern their own school boards, they face a set of difficult circumstances and challenges. The threat of assimilation is the common theme behind these challenges. The challenges faced by francophones living in a minority context in Ontario are similar to those faced globally by the world's minority communities: marginalization and erosion of cultural and linguistic space. Low francophone birth rates, predominantly English-speaking immigration, rising rates of exogamous marriage, a small francophone population spread over a wide English-speaking population basin, and English-language media saturation all contribute to considerable uncertainty over the long-term continuity of Ontario's French-language communities.

The small scale of French-language school boards is another challenge. The average size of French-language school boards is 7,107 students compared to 31,842 students for English-language school boards. The smallest French-language school board has only 554 students and the largest has only 15,176 students, which is smaller than half the size of the average English-language school board. On average, French-language school boards oversee 26 elementary schools and 7 secondary schools, while English-language school boards oversee an average of 62 elementary schools and 13 secondary schools. Average enrollment in French-language schools is also significantly smaller than with English-language schools.

Despite their low enrollment, French-language school boards are spread over vast territories. The average territory of a French-language school board is 33,742 km<sup>2</sup> with the largest French-language board covering a territory of 68,140 km<sup>2</sup>, an area twice the size of Belgium. In contrast, the average territory covered by an English-language school board is approximately 6,630 km<sup>2</sup>.

The small size and large territory of French-language school boards raises questions about the critical mass needed for the long-term sustainability of French-language education in Ontario. French-language schools often lack the economies of scale needed for administrative staff, for physical facilities such as cafeterias and gymnasiums, for wide course offerings, and for diverse extra-curricular clubs and activities. This reduces their attraction with students. This is compounded by the longer bussing times needed to travel to and from French-language schools.

These low population density challenges are further compounded by institutional arrangements whereby an already sparse French-language student population is divided into Catholic and public school systems. French-language education in Ontario is increasingly a niche market, and friction between Catholic school boards and public school boards has been intensifying as competition for students increases. Public school boards, for instance, have increased their share of the province's low-growth French-language student enrollment from 20% to 25% in the last five years. In light of their small scale, French-language school boards need to collaborate on key areas of operations (transportation, and the sharing of resources) in order to survive.

### **The Need for Forward Thinking**

The advisability of using forward thinking methods for French-language education planning is motivated by multiple considerations:

1. *Facilitate awareness of issues.* A useful analogy is explosions. Explosions are merely compressions in time, whereby an otherwise tranquil flow of events is telescoped into a sudden and relatively violent transformation. To illustrate; the die-off rate of species may be perceived as a slow constant, but if viewed on an evolutionary time scale the last century becomes a massive extinction event. Forward thinking attempts to compress possible event chains and factor confluences into sharp detonations that analytically cannot be ignored as part of policy-making's background noise.

2. *System-planning horizon.* Education systems, like oil supertankers, move slowly, and can take a long time to turn around. Proper steering and navigation thus requires much forethought and forward scanning. The consequences of choices made today only become manifest a generation later. Given the Ontario French-language education system's fragility and narrow margin of error (in light of the erosion of the French-language population base and the school's central role in reproducing language and culture), once the consequences of poor choices become evident, it may be too late to fix the system.

3. *Institutional legitimacy.* A year prior to the 1998 establishment of a separate system of French-language school boards, all of the French-language stakeholders, policy actors, and communities convened for a series of visualisation exercises (called meetings of the Estates General) that resulted in a widely endorsed and respected portrait of what the nascent French-language system ought to look like. Visualisation processes thus have validity and acceptance within the French-language system. It has now been five years since the

establishment of French-language school boards in Ontario, and the time has come for stock-taking and reflection over long-term trends and possibilities.

4. *Institutional capacity maintenance.* There have been many changes in the French-language community in recent decades; while less homogenous than before, it remains animated by a sense of community and partnership. That, combined with the small size and young age of the education system, have resulted in greater integration of the system into the community, facilitating experimentation and the trying out of new forms of governance. Ontario's French-language system, for instance, is a leader in distance education and minority-context teaching. Initiatives in forward thinking help maintain and exercise this systemic flexibility by periodically challenging participants to think outside the box and by questioning emergent "sacred cows".

5. *Historical sensitivity.* As is often observed with peoples in minority situations, French-Canadians probably have a finely tuned sense of history. To them, history is a palpable presence, in whose shadow they view the present and the future, reinforcing the links between all three. Since future history is constantly being recreated and reinvented in the present, scenario-based planning helps give the French-language communities more conscious control over how their future is shaped, and how their past journeys can be reconciled with forward-looking aspirations.

6. *Transcendental benefits.* The dual nature of the French-language system and the competition for resources between it and the majority-system leave it at risk of becoming increasingly prone to disagreement and friction on the management of common opportunities and challenges. Opinions may harden into positions, wagons may circle, and stakeholders become reluctant to depart from their agendas. By focussing on the future and pointing to its broad vistas, it is hoped to transcend the immediate problems of the present (more tactical and technical in nature) by providing longer term perspective.

## **II. The Vision 2020 Initiative**

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An independent panel of experts has been assembled. The panel consists of academics, retired civil servants, parents, teachers, students, and education system administrators. Panellists are there by invitation of the Ministry, and do not represent any organization or constituency. Its first meeting was held on December 2, 2002, and the next is scheduled for February 3-4, 2003.

Using the *Schooling for Tomorrow* scenarios and Ministry-developed tools, the panel is tasked with visualizing desirable futures for French-language education in Ontario. A target date of 2020 was selected, in part because 20/20 vision, in optometry, signifies clear sight.

Issues discussed include:

- Perspectives on possible French-language educational systems in 2020, given existing trends.
- Potential strategies to improve and enhance the system by 2020.
- The governance of French-language schools.
- Catholic-public collaborative structures.
- Administrative models for the recruitment and training of educational leaders.
- The viability of secondary schools and their programs, including concepts of schools' program specialization.
- The nature of parent/community participation and involvement.

In terms of tangible outputs, the objective is neither to create a specific blueprint for reform nor a more conceptual study, but rather a hybrid. Blueprints would likely be rejected by the field without buy-in and participation by interested stakeholders, and non-action-oriented studies rarely trigger any tangible change or improvement. The objective instead will be to produce a visualization guide that will propose clear and actionable policy options.

Users could then channel ideas and choices generated from scenario discussions into *operational* measures.

The *Vision 2020* initiative, therefore, aims not to validate a specific course of action to address a set of problems, but to improve the capacity to produce good policy, by validating and developing a set of policy tools. The test, in this case, is to determine if the scenarios, in conjunction with the visualization guide, work as policy tools to initiate and sustain discussions on the courses of action that best lead the system to the optimal vision for French-language education. It is hoped that the OECD scenarios, in conjunction with the Ontario visualization guide, will raise the bar for dialogue on education planning in Ontario.

### **III. Planned Developments**

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Once the Expert Panel has produced the visualization guide, field consultations will be organized with stakeholder groups to validate the guide towards the end of 2003. This will be followed by a wider forum in 2004 that assembles all interested parties within the French-language educational sector. Using the new tools, alternative courses of action will be suggested by analyzing identified gaps between desired scenario-based trajectories and current trajectories. These alternative courses of action will be articulated by the assembly participants, and will have several characteristics.

First, they will be both operationable and relevant. The recommendations of large assemblies are often vague or general affirmations of universally endorsed principles. These have little operational specificity. Alternatively, when they are specific, it is because no one objected to them, and they have little edge because they do not materially address any of the key problems (the matter of relevance). The visualization guide should serve to frame issues in clear actionable terms, and only on matters of relevance.

Second, it is hoped that they will have buy-in from the field, despite their clarity and relevance. This is because it will be the *field itself* which develops the courses of action from the menu of options provided by the visualization guide, and from discussions sparked by the scenarios.

### **IV. Observations and Impressions**

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A number of insights have been generated from meetings of the Expert Panel:

- There is high interest in the *Schooling for Tomorrow* scenarios. These have sparked much discussion and launched many ideas.
- While many participants may desire or prefer the same scenario, they may have radically different conceptions of what that scenario entails in terms of systems design and policy implications.
- The preferred scenarios are the re-schooling scenarios, although every scenario had at least *some* advocates on the panel. The one exception was the market-based scenario, which had no advocate.
- The notion of attachment to the community was identified as central to any desirable role for education. The term, however, remains to be operationally defined.
- There is a willingness and openness within the expert panel for a frank discussion of the issues.
- The diversity of participants' interests and professional backgrounds positively benefits the process. It guarantees a multiplicity of perspectives, and minimizes the dominance of current orthodoxies.

- The Expert Panel benefits from participants that are familiar enough with Ontario's French-language education system to provide authoritative opinions about it, but not familiar enough to be considered insiders. In other words, it is best to think outside the box while still being well informed.
- There is a need to avoid vague statements in favour of engaging partners in a process that leads to clear thought about an engaging vision for the future that can provide a focus for policy-making. The planned visualization guide is intended to help resolve this, filtering and refining ideas sparked by scenarios.
- Perhaps the key observation so far is that while the scenarios are excellent tools to stimulate thoughtful discussion, they are not by themselves sufficient. They need to be accompanied by complementary tools, such as the visualization guide, that will channel the broad thinking stimulated by scenario analysis into "policy language", specifically, choices that are stated in clear operational terms.

## *Teaching as a Profession Project*

### **I. Context**

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The changing role of schools and schooling is of major concern to most OECD countries. The special demands of a rapidly changing technological and social environment have led to searching questions about the nature of schools and their suitability to meet these demands.

The challenges education systems will face in the years to come will be increasingly complex. A rapidly expanding knowledge base, dramatic advances in information technology, changing job markets and educational disparities in many societies are examples of the direct pressures affecting education systems. Broad social changes such as globalization, environmental concerns, and international security will result in other indirect pressures on them.

Competing perspectives on the purposes of education prescribe differing roles and status for teachers and schools. Diverse notions of what education is supposed to accomplish include: preparation for work, personal development, transmission of a cultural heritage and other values. Similarly, teachers are also characterized in a variety of ways from unionized workers to highly specialized professionals. The combination of these different factors results in a complex environment in which it is difficult to achieve meaningful dialogue, let alone consensus.

In recent decades, Ontarians, along with those in most other jurisdictions, have wanted greater assurance that their schools are graduating properly educated young people. As a result, intense efforts at education reform have taken place worldwide. Changes in government, expert commissions and numerous reports recommending extensive education reform have resulted in tremendous flux in education systems over the last 20 years.

Many of the reform attempts have been directed toward such areas as curriculum, early childhood education, assessment, accountability, and graduation requirements. Particularly over the past decade, education reforms have been largely standards and "results" based, with an emphasis on accountability.

In Ontario, these reforms included a new curriculum for kindergarten to grade 12, standardized testing of students in Math and English, a funding mechanism for school boards that provides a similar level of per pupil funding regardless of local tax base, standardized report cards, new secondary school graduation requirements including literacy testing and mandatory community service, and the creation of school councils to ensure enhanced parental and community involvement in school. The Ontario College of Teachers, a self-regulating professional body for Ontario's teachers, was also created in 1996.

Teaching and teacher education is another integral part of the recent education reform movement. Ontario's answer to teaching reform was translated into a "teaching excellence" strategy, which has resulted in a comprehensive set of initiatives to support teachers and teaching. These initiatives include an Ontario Teacher Qualifying Test (entrance to the profession exam) for new teachers, a Professional Learning Program (mandatory professional development requirements) and a standardized Teacher Performance Appraisal System (for evaluating teachers).

Internationally, similar types of far-reaching reforms, the swift rate at which they have been undertaken, and the complex and every-changing environment under which the reforms have

been made, have all directly or indirectly had a significant impact on teachers and the teaching profession. However, only limited national and international discussion has occurred related to the possible characterization of the teaching profession in the years to come.

## **II. Ontario Study**

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To stimulate dialogue on the issue of teachers and the teaching profession, Ontario is using modified OECD scenarios to begin to address several issues, including:

- How does the issue of teachers as professionals relate to the quality of teaching?
- In order to maximize student learning and achievement, what would the status of the teaching profession be under the various scenarios?
- Are all teachers the same and should they be treated the same as other professionals?

The Ontario project uses alternative “futures” as an integral contribution to discussion. The methodology is based on a multiple-scenarios strategic planning framework that identifies desirable futures and the strategies for achieving them. The starting point for our dialogue was the series of futures scenarios developed by the OECD.

Over the course of this project, Ontario plans to engage an increasingly wide variety of experts, teachers and others with an interest in education in order to clarify how various alternative ideas about schools and schooling will have consequences relating to teaching as a profession. It is anticipated that this process will allow a series of preferred scenarios to emerge and will enable the development of robust strategies to meet Ontario’s goals of furthering discussion and building understanding.

Ontario plans to organize the project into three phases to help identify and clarify how the scenarios relate to the Ontario educational environment and to develop the toolbox as a discussion support. Each phase is intended to move the process forward and provide a gradual clarification and identification of areas of future development and discussion.

### **Phase One**

The process began with a literature review on the issue of teaching as a profession, the hiring of a facilitator/research team and the selection of members of the study group. The Core Study Team has been purposely composed of individuals with diverse perspectives and backgrounds. This Team of twelve individuals, of varying political perspectives, includes representation from government, unions, practising teachers, school board administrators, academics and other education experts. While the majority of participants come from Ontario, the Team also has members from other provinces, the United States and from a national Canadian education organization.

The Ministry held numerous organizational meetings and met with a research team and OECD representatives to identify how work already completed could contribute to the objectives of this project.

The first meeting of the Study Team took place on December 3, 2002. At that meeting Ontario used the OECD prepared scenarios to guide discussion. The OECD scenarios instigated discussion. However, the Study Team found the scenarios’ specificity with respect to education and the predetermined conclusions to which they came relating to teachers and

teaching, constraining in terms of discussing our chosen topic. Participants also found that there was not enough time to discuss the scenarios in the detail they would have liked.

In order to promote a more in-depth discussion, Ontario organized an additional workshop for January 15, 2003 and altered the OECD scenarios to try to elicit more wide-ranging discussion.

Using the OECD scenarios as a guide, Ontario engaged its research team with the task of developing five broader futures scenarios to provide a more flexible basis for thinking about teaching in the future. It was hoped that these revised scenarios would allow participants to explore, in a more open ended way, what is possible and what is desirable in the future.

Each of the scenarios is still aligned with the OECD scenarios with differing impacts on teachers in Ontario in the year 2032. They have been constructed to promote discussion of the question *What would teaching and teachers look like in the future?* and are based on present conditions, tendencies and projections.

## Phase Two

At the January 15<sup>th</sup> workshop the Core Study Team engaged in more detailed and lengthy futures exercises to further refine the revised scenarios. The Team was asked to distinguish between likely and preferred scenarios and to elaborate them for teachers and teaching in Ontario. Continued recruitment of members for the next phase of the project was also discussed.

The workshop was enlightening and thought provoking. In several scenarios, the conclusions to which participants came related to what teaching would look like were somewhat surprising. For instance, the potential impact that technology and the access to technology could have upon teaching and learning in most of the scenarios was more far-reaching than anticipated. The Study Group's scenario preferences, the role of parents in their children's education and the potential role of teacher unions also varied from what was predicted.

However, the Study Team was unanimous in its view that the use of the modified scenarios greatly assisted in facilitating a richer discussion of our issue. It is noteworthy that there was a slight shift among participants with respect to their most likely and most preferred scenarios from the commencement of the meeting to the end of the meeting.

It was also clear that some of the revised scenarios require further modification and refinement. Scenario 3 in particular, will be reworked to align more closely with OECD Scenario 2 (a) in order to ensure greater parity in terms of likelihood of each particular scenario.

Following is a brief outline of the modified OECD scenarios as they were used in our January 15<sup>th</sup> workshop.

### *Scenario 1: Refining the Present in 2032 (OECD scenario 1a)*

This future brings new evidence and experience to the structures and processes of 2003. Canadian civil federalism becomes a preferred world model. Governing systems become far more efficient and accountable and the mixed public/private economy is regulated to produce slow and steady growth. The educational system is highly regulated in terms of curriculum, credentials and accountability for results.

Scenario 2: Breakdown Leads Up to 2032 (OECD scenario 1b)

In this depressed and unstable future, there is a high level of unemployment and underemployment. Regional warfare and terrorism increase the number of refugees while international trade becomes more difficult. Technological innovation supports effective but low cost ways of delivering no-frills services. Public education systems become smaller and less comprehensive. Alternative forms of schooling increase.

Scenario 3: Community Focused Model in 2032 (OECD scenario 2a)

This future emphasises the impact of changes in the nature of community life. In it there is a dramatic increase of concern for the global environment. Large numbers of highly self-sufficient communities develop strong local cultures, engage in urban agriculture and assume greater responsibility for educating their members.

Scenario 4: Macro-markets in 2032 (OECD scenario 2b & 3b)

This future maximizes the long-term impacts of global trade. The scale and number of major global businesses increases dramatically. The boundaries between corporate and national interests begin to blur. Public and private sectors recognize the importance of knowledge management as essential to development. Learning becomes more entrenched as a life long endeavour for every one.

Scenario 5: Major Breakthroughs in Complexity Science in 2032 (OECD scenario 3a)

This future highlights a growing understanding of complex systems in which economic, social and political growth is closely tied to access to learning by doing. Technology provides communications and transportation capacity for many multi-faceted learning networks. Education responds to preferences and changing interests of individuals. The development and refining of one's taste for learning is a lifelong effort.

Our revised scenarios are differentiated using many parameters. For example, the macro-market future does not depend on continuing political rule by international market advocates. Instead, it considers that these attitudes will predominate everywhere so that all political parties will assume policies in the direction of those indicated.

Some factors are projected in all futures. But there may still be variations of emphasis because of the overall differences. Technology will change more rapidly in the next twenty years than it has in the last twenty, but it is hard to forecast the detail. For example, we are at the edge of a series of breakthroughs to new technologies for energy conservation, genetic engineering, manufacturing and so on, but it is difficult to know where and when particular innovations occur.

The five scenarios are further elaborated in Appendix A.

### Phase Three

We are planning a series of additional workshops in Ontario to further evolve the toolbox and pursue discussions to address our core questions related to teaching as a profession. They have been tentatively scheduled for *March 18<sup>th</sup>*, *June 3<sup>rd</sup>*, and *September 22<sup>nd</sup>* of 2003.

It is expected that there will also be bilateral and trilateral international meetings. These meetings have yet to be scheduled. The results of the meetings will be used to further enrich discussions in all three contexts. This focus will deepen the discussion and result in several case studies for Ontario.

## Appendix A:

### **FIVE SCENARIOS FOR THE FUTURE OF SCHOOLING IN 2032 (version 1)**

We have defined five alternative scenarios with differing impacts on teachers' roles in Ontario in the year 2032. They have been constructed to differentiate possible roles for teachers and perspectives on teaching in the long term. They are based on present conditions, tendencies and projections. The broad alignment comes from OECD documents prepared by the Policy Studies Institute. The schooling alternatives have been developed by a group of researchers in Ontario in order to provide a basis for exploring possible ways of teaching in the future. In this document, the scenarios are first outlined and then described in narrative form.

We should note that the scenarios are differentiated using many parameters. For example the macro-market future does not depend on continuing political rule by international market advocates. Instead it considers that these attitudes will predominate everywhere so that all political parties will assume policies in the direction of those indicated.

Some factors are projected in all futures. But there may still be variations of emphasis because of the overall differences. Technology will change more rapidly in the next twenty years than it has in the last twenty but it is hard to forecast the detail. For example, we are at the edge of a series of breakthroughs to new technologies for energy conservation, genetic engineering, manufacturing and so on, but it is difficult to know where and when particular innovations occur.

In 2032 information technology exerts an accelerating influence on work in general and certainly on education. The increased capacity for three-dimensional printing allows for decentralized highly customized manufacturing processes to evolve. Fibre optic networks allow smart systems to improve student access to a wide variety of learning processes. There is a proliferation of cheap educational software and game-like learning devices. In some futures they function very much like household appliances.

In all scenarios there are important advances in our understanding of education: a more fundamental knowledge about many developmental processes and influences on learning capacity. But these occur at differing times and with differing impacts in the different scenarios.

In all scenarios there are new and more effective electronic educational techniques such as interactive multi-media hyper-linked modules. More specific and effective educational techniques change teaching patterns in all scenarios. But the detail of these changes will be quite different.

More of the GDP is devoted to education but in varying degrees. New demands on the system, more expensive technology and increased labour costs mean that in most scenarios there will continue to be a gap between what is possible and what is affordable, but the nature of the constraints vary in different scenarios. There are invariably fewer standard classrooms in all futures but the amount of reduction varies.

## **Scenario Outlines (version 1)**

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### **Scenario 1: Refining the Present in 2032**

This future brings new evidence and experience to the structures and processes of 2003. Canadian civil federalism becomes a preferred world model. Governing systems become far more efficient and accountable and the mixed public/private economy is regulated to produce slow and steady growth. The educational system is highly regulated in terms of curriculum, credentials and accountability for results.

### **Scenario 2: Breakdown Leads Up to 2032**

In this depressed and unstable future, there is a high level of unemployment and underemployment. Regional warfare and terrorism increase the number of refugees while international trade becomes more difficult. Technological innovation supports effective but low cost ways of delivering no-frills services. Public education systems become smaller and less comprehensive. Alternative forms of schooling increase.

### **Scenario 3: Community Focused Model in 2032**

This future emphasizes the impact of changes in the nature of community life. In it there is a dramatic increase of concern for the global environment. Large numbers of highly self-sufficient communities develop strong local cultures, engage in urban agriculture and assume greater responsibility for educating their members.

### **Scenario 4: Macro-markets in 2032**

This future maximizes the long-term impacts of global trade. The scale and number of major global businesses increases dramatically. The boundaries between corporate and national interests begin to blur. Public and private sectors recognize the importance of knowledge management as essential to development. Learning becomes more entrenched as a life long endeavour for everyone.

### **Scenario 5: Major Breakthroughs in Complexity Science in 2032**

This future highlights a growing understanding of complex systems in which economic, social and political growth is closely tied to access to learning by doing. Technology provides communications and transportation capacity for many multi-faceted learning networks. Education responds to preferences and changing interests of individuals. The development and refining of one's taste for learning is a lifelong effort.

## **Scenarios in Full (version 1)**

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### Scenario 1: Refining the Present in 2032 (version 1)

It has become clear that Canadian federalism works. Canada has prospered since it resolved its federal provincial problems through the evolution of Federal Provincial Territorial committees into early mediation/arbitration panels, the drafting of a large number of mutually acceptable agreements in many areas of difference, and the recognition of the tremendous advantages that civil societies bring to international relations. Canadians have once more achieved a reliable, world leading universally accessible health care system. In fact the worldwide adoption of Canadian models of federalism began after the healthcare system in the United States broke down in 2010 under its own weight and Canadian Medicare was introduced after prompting by major corporations. The revived new Canadian multiculturalism brought Quebec back into the union and became the basis for the resolution of the Hispanic separatist movement in California and Texas in 2020. The first President of the American Union is the glamorous Canadian, Kim Campbell III who converted "good government" from an oxymoron into the basis for the future by reviving and stabilising the flagging American economy. Government is widely accepted as necessary for a stronger economic and social infrastructure.

Due to advances in the field of mediation studies, the UN has become a significant force in international politics and increased collaboration has resulted in less international conflict. International regulation is critical in arms reduction and environmental monitoring as well as trade. Continental Unions have evolved not only in Europe and North America, but also in Asia, the Middle East and much of Africa. A good example is the Israeli-Palestinian Peace Accord, which established a now thriving federal middle-eastern state, which comprises most of the pan-Arab world, and Israel. It has achieved major breakthroughs in increasingly scarce Petrochemicals and provides most of the materials for lightweight vehicles and the new jewellery.

Although nuclear energy is still in use, no one is planning new reactors. Kyoto II has been widely accepted and will reduce global energy consumption below that of 2000 over the next ten years. There is ever increasing use of alternative energy sources driven by regulatory mechanisms.

A wide array of new regulations and services assure equal opportunity - careful employment procedures assure the fair treatment of foreign workers. Men and women receive equal pay for equal work. Tough laws and extensive childcare services support mothers with young children.

Government creates strong incentives for more money to be spent on research and development. Unemployment is low and taxation levels are higher than is presently the case. Due to a robust economy, and generous government support, consumers spend less on private health care and education as citizens are satisfied with the services they receive from the government. The basket of goods and services is slightly less than in the market scenario.

Higher employment, increased opportunity, improved government funded services result in improved educational status. Government encourages life long education in sponsored classes on a large variety of subjects.

Government spends more on education and research. The educational system is highly regulated for curriculum, credentials, supply of teachers and accountability for results.

## **Scenario 2: Breakdown in 2032 (version 1)**

The world as we know it has fallen apart. The economic bust, which followed the boom of the late twentieth and early twenty-first centuries, has dragged on for more than twenty years. World markets collapsed in the face of crippling Third World Debt, and depletion of key resources led to the wars of the 2020s. The world's major governments failed to act effectively to alleviate the economic strain. Nations became gripped with fear as individuals began to lose faith in governments and in supranational organizations such as the UN.

People decided to take matters into their own hands. With little or no public support, governments crumbled or shrank. In this new world of markedly debilitated nation states, anarchy prevails; the paramount concern for everyone is survival. There is war on multiple levels, large-scale conflicts over resources as well as civil wars, widespread acts of terror and even inter-group feuding. As national governments disintegrate, the power void is increasingly filled by society's criminal element. Warlords plunder the world's nuclear arsenal. A new and extremely precarious balance of power emerges.

The well off remain inside gated communities, which have taken on the characteristics of medieval fortresses. Meanwhile, in order to increase their chances of survival the underclasses have joined powerful criminal syndicates or banded together for mutual protection in street gangs and vigilante groups. Within these groups, there is strong pressure to conform. There has been much innovation in the area of personal and home security. Mobile weaponry production is an important industry as is the production of personal protective force fields. Inequalities are entrenched and become further exacerbated by technological advancements.

With the economy in shambles, there is little hope of steady employment. People move from job to job in an attempt to provide for their families. Work is characterized by a division between unionized workers and strikebreakers. The increased militancy of unionized workers is matched by the availability of many who are desperately seeking work under any conditions. There is a widespread view that workers are mostly day laborers. Even employers feel that their businesses are not secure and that they might lose them at any time. With people focused on surviving from one day to the next, there is little time for creativity or development.

Amidst the political turmoil, Quebec separates from Canada. A bloody internecine civil war follows. In the aftermath, the Quebec government is so severely weakened that it is eventually forced to cede control to a criminal organization that acts as a dictatorship. In addition, the federal government has to stop providing the most basic public services, and transfer payments to the provinces cease. In 2030 Canada is forced to declare bankruptcy.

There is no public childcare and quality schooling is only for those that can afford it. Privately funded schools within the gated communities provide a good education to the children of the well off. These children have access to e-technologies, which provide infinite learning opportunities. Meanwhile the urban poor have to make do with the chronically underfunded and frequently closed mobile school units which are often run by automated teaching equipment and/or poorly qualified staff.

### **Scenario 3: Community Focused Model in 2032 (version 1)**

Some time around the year 2015 the world gets a serious wake up call when the detonation of a number of nuclear warheads leads to the polar ice caps melting and flooding the Southern tips of Florida and California. People realize that the conservation of the planet's natural environment is of paramount importance and begin to act accordingly. In a last ditch attempt to save the planet, people reject what they see as ineffectual societal organizations like the nation state and take matters into their own hands.

Relatively small self-sustaining communities begin to form whose primary concern is the conservation of the earth. These communities aim to think locally and act globally. Individual wants and needs become subordinate to the will of those communities. Regional government becomes the most important locus of control with federal governments and supranational organizations acting largely to ensure the smooth running of communications technologies. In 2020 as devolution continues throughout North America, Quebec separates from Canada and people hardly notice. Community boundaries are relatively fluid and people are free to move from one community to another. Intercommunity relationships are based mainly on the barter of specialized skills. Due to the high levels of interdependence, war between communities is basically non-existent. However, communities are willing and able to wage war against those people who violate the environmental codes. The WEO (World Environmental Organization) becomes the supreme military power, which patrols land, sea, and air for eco-criminals.

Within the communities there are people from many different ethnic and cultural backgrounds. Diversity and free speech are encouraged as long as the values of the community are upheld. Religion as we know it essentially ceases to exist and is replaced by complete devotion to the communal cause. Full gender equality is achieved, as children become the responsibility of the entire community. The motto "it takes a village to raise a child" is taken extremely seriously. Communities are built around massive complexes that include, among other things, day care, schools, wellness centers, and work environments. Men and Women move from career to career depending on the needs of their communities. Technological breakthroughs occur mainly in the fields of renewable energy and pollution control

In 2032 a small anti-environmentalist terrorist organization is formed to combat what they consider to be eco-fascism. They call themselves the People's Liberation Front (in an ironic reference to the most active environmental terrorist group of the early 21<sup>st</sup> century Earth Liberation Front). Their terrorist acts include, but are not limited to, stealing animals from community centers in order to test their shampoo on, and cutting down trees for no apparent reason. These terrorists enjoy little public support and are easily apprehended.

#### **Scenario 4: Macro-market - Management for 2032 (version 1)**

In order to survive in the expanding global economy many companies large and small enter the global market. Knowledge management is a key in international business growth. By the year 2015 the first major corporations join the UN and smaller knowledge based companies like Weber's hamburgers have branches in most countries. Business becomes a major focus of global activity and national governments and supranational organizations become mediators and providers of infrastructure. World peace is achieved as a necessary condition for business to run smoothly.

Progress is measured in terms of economic growth and the development of new markets is a key ingredient. The phenomenal growth of the Chinese appetite for consumer goods has brought enormous profit to existing corporations. Nortel in particular has benefited from the success of their knowledge-based slogan "A home without a phone has no ring to it." It becomes widely recognized that increased purchasing power of large populations is the most critical contributor to business success. And education becomes a driving force in society largely because a more educated population consumes more manufactured goods.

In this future everybody has a chance to contribute to knowledge. There is no discrimination based on anything except capability; it is the ultimate meritocracy. Both public and private sectors value innovation and therefore encourage creativity and learning. Countries and companies alike invest in a growing knowledge base. Welfare corporations compete with the state to assume cradle to grave responsibility for their workers. They provide day care, schooling, and the promise of job security provided a minimum standard of performance is maintained. Although individuals usually stay with one employer for very long periods of time, there is career flexibility within each corporation. Movement between competing corporations is possible but rather difficult considering the intricacies of different cultures, procedures and even languages. Within each corporation individual competition is encouraged to promote innovation. In this future research and knowledge transfer is critical. Small niche markets and organizations also begin to develop. Corporate espionage is treated as treason in law.

Matt was born in 2010, he has a gift for language and he is a talented negotiator. Despite having been raised in No Name (where they speak N-talk), Matt masters PC-talk and moves to President's Choice in order to assist them with the purchase of Quebec. While there, he meets and marries Mary a woman who is from P.C. They decide to settle down in P.C. Their child Jeff is grown ex-utero which allows them to continue at work until the due date in 2032. To Jeff's classmates, the fact that his dad is Black and his mum is East Asian is of no interest. However, they are fascinated by the fact that he is technically half No Name. Jeff turns out to be a gifted child and after having accepted all his knowledge from P.C, he will go on to work his way far up the corporate ladder.

Knowledge management has become scientifically based. There are proven methods of improving learning capacity throughout life. In 2020 researchers isolated several genes for improving learning even more. It is now possible to improve capacity to know in the embryo.

### **Scenario 5: Living with Complexity in 2032 (version 1)**

The complex nature of the world becomes more apparent. Mathematical, physical and philosophical breakthroughs pave the way for a better understanding of chaos theory and complex adaptive systems. Our investments in this kind of research have begun to pay off. We have learned not only about the nature of complex physical and social phenomena, but also how to get greater success from our interventions. We recognize the importance of local conditions, necessary observer bias, and so we accept a much higher level of uncertainty about results. We plant large numbers of small seeds and make use of self-organization to improve our chances. Seeded, little known, projects have sprouted large results. Explanation no longer follows prediction/control models as it did in the past but rather quality of understanding and ingenuity of intervention.

Many of the dichotomies of the Twentieth Century have been resolved. There are no longer Left-Right political debates. The dichotomy between centralization and devolution is no longer recognized as interesting in management. Social distinctions between individual and collective become less meaningful. Philosophical antinomies such as freedom and determinism no longer make much sense in complex systems.

Individuals are connected to multiple collective interest groups with a global geographic distribution. There are very few isolated individuals and a very great multiplicity of different kinds of groups with differing levels of engagement. The need for research and development leads to international distributed networks of researchers on an unprecedented scale and diversity.

A good example of success is the story of how complexity science released Africa from its terrors of plague, famine and tribal warfare. Breakthroughs in fusion power and the science of fresh water are the first step in recovery. One effective AIDS drug immunises against HIV infection; another revitalises the immune system. The shared need to deal with famine and plague help to change the vicious cycle of tribal politics into virtuous cycles of mutual development. Africans self-organize to convert the Sub-Saharan desert into the orchard of the world. As world hunger diminishes, the Rich/Poor divide lessens and international tensions ease.

New technologies create home appliances like the 3D printer and dramatically change how many manufactured products are produced and distributed. Genetic engineering allows for most food to become robotically grown in organic conditions. Individualized mass transit (another superseded dichotomy) uses satellite-positioning systems to get people to school and work. There are also many electro-mechanical substitutes for human services. Visa and Banking are now interchangeable complex networked organizations that provide customized daily financial updates to subscribers over the age of 3. The morning shower includes an automatic daily diagnostic check up (with automatic follow-ups if necessary).

As a result work has changed. There is less of a distinction between work and leisure. Most work is knowledge based and those who work do so because they want to. Learning has become a major activity at work. In this future the workplace will be more like a voluntary organisation. Employers recognize that workers come to work because they want to be there, they appreciate how the worker adds value and above all tailor rewards to suit individual workers in order to retain them. The most general motivation for work is to learn not to earn. Also, learning has also become a major leisure activity.

More money for education comes from the conversion of leading economies from service based to knowledge based. In many ways the focus on education is highest in this future. Computerised teaching machines take on much of the burden of rote learning. Self-paced self-training is part of every curriculum. "The Open Brain" is a training network that

communicates with the pervasive "Sony Walk-minds" and provides interactive education for everyone. Children routinely begin to read at 3 and some nine-year-old mathematicians have their PhDs.