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Christian Couturier

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[See table of contents](#)

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Article abstract

"A cloud masses, the sky darkens, leaves twist upward, and we know that it will rain. We also know that after the storm, the runoff will feed into groundwater miles away, and the sky will grow clear by tomorrow. All these events are distant in time and space, and yet they are all connected within the same pattern. Each has an influence on the rest, an influence that is usually hidden from view. You can only understand the system of a rainstorm by contemplating the whole, not any individual part of the pattern" (Senge, 1994). This paper follows a keynote presentation and attempts to reflect on the systems view of the present, and the futures that may very well affect how we live as much as how we do business in the global e-economy. As an organization, you are a corporate citizen of the world. You need to pay close attention to the evolution of that world - changes in population, health, education, etc., so you can better understand the impact on your business eco-system. As in Senge's example of the storm, we must consider all the phenomena as being interconnected and inseparable.

Management Paradigms for an Evolving Future: Towards Prosperity in the e-Economy*

by

Christian Couturier

Institute of e-Business, National Research Council of Canada

“A cloud masses, the sky darkens, leaves twist upward, and we know that it will rain. We also know that after the storm, the runoff will feed into groundwater miles away, and the sky will grow clear by tomorrow. All these events are distant in time and space, and yet they are all connected within the same pattern. Each has an influence on the rest, an influence that is usually hidden from view. You can only understand the system of a rainstorm by contemplating the whole, not any individual part of the pattern” (Senge, 1994). This paper follows a keynote presentation and attempts to reflect on the systems view of the present, and the futures that may very well affect how we live as much as how we do business in the global e-economy. As an organization, you are a corporate citizen of the world. You need to pay close attention to the evolution of that world - changes in population, health, education, etc., so you can better understand the impact on your business eco-system. As in Senge’s example of the storm, we must consider all the phenomena as being interconnected and inseparable.

* (Keynote address presented at the International Conference of Business, Economics and Management Disciplines, Fredericton, New Brunswick, Canada, August 20, 2005.)

Key Concepts and Framework

Let's begin by establishing a baseline of a few concepts that underlie the e-Economy. Innovation is a key driver of productivity and sustainable businesses. It has been defined as "the process by which new ideas are generated into new products, services, technologies, and business processes to bring greater value to customers" (Government of New Brunswick) or "the process through which new economic and social benefits are extracted from knowledge" (Government of Canada). The focus is on attaining benefits through self-improvement: commercialization through improvement of our productivity, improvement of our processes, our manufacturing tools, our services, using novel ideas and approaches.

As a means to accelerate innovation and create the desired economic impact, technology clusters are a current business model being implemented around the world in many communities (Porter 2003). Two diverse components are essential for a cluster's success. They are: 1) a sustained investment in research and development (R&D) by every level of government as well as by the private sector, and 2) innovation by small and medium enterprises.

Let's first discuss what we mean by the knowledge economy and the e-Economy. Essentially, the knowledge economy is not technology, but people. Everything depends on having people. The new, globalized economy relies more on knowledge and skills than did the traditional economy. "The most important sustainable resource asset of any economy is its people, their knowledge and business skill in creating and sustaining wealth and culture" (Government of Canada IC Roundtable, 2002). "For countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most important factor determining the standard of living - more than land, tools, and labor. Today's most technologically advanced economies are truly knowledge-based" (Government of New Zealand, 1999).

Furthermore, the e-Economy is about networks of people - using the power of the grid of people to enhance any business process. Today, over 250 million hosts exist on the Internet (this represents the number of two-way communications possible). This is up from 50 million in 1999 and one million in 1993. There are 18 million WWW servers and 50 million websites.¹ The world has become our backyard because of information and communications technologies (ICT). Close to one billion people use the Internet (and that number is growing every day). Most importantly, geographical boundaries and distance no longer define the choice of those with whom we interact in real time.

Innovation occurs when people interact. Given this new reality in which we operate, we cling to localized assembly of forces to create competitiveness on the global scene. Clusters are one example of how we bring local stake-

holders together to enhance global penetration of the markets in a given focused field of expertise. So why do clusters matter in the knowledge economy? Because:

- Clusters increase productivity / efficiency
- Clusters stimulate and enable innovations
- Clusters facilitate commercialization
- Clusters are about influence (networks) for specific purposes (increases in innovation, productivity, profit, highly-qualified people, etc.).

Challenges

By now we have established a frame of reference for the knowledge economy (and the e-Economy): innovation, people, networking and clusters. Now let's turn to some of the challenges we are facing within the reductionist framework of the economy as we have presented so far. It is our view that globalization (the growing interconnectedness reflected in the expanded flows of information, technology, capital, goods, services, and people throughout the world) is a force so ubiquitous that it is substantially shaping all other major trends in the world of tomorrow (short-term as well as medium-term). Our long-term global future could prove challenging if we don't take account of our financial, economic, environmental, and social behaviors, along with our industrial technologies.

Over the next five to ten years, the world (including Canada) will be facing three very specific challenges: energy, environment, and health and wellness. Our foremost natural resource - human capital - drives all these challenges (providing a solution and a problem at the same time), and the supply of that resource is dwindling.

The current imbalance between North and South - overpopulation and undereducated people in the South, depopulation and overeducated people in the North - has led to a period in which the balance of power can and will shift from its current position. Sadly for the North, and for obvious reasons (the missing infrastructure being the main one), retention, repatriation and immigration (in other words repopulation) will not occur at the staggering rate of depopulation (death/birth ratio and emigration). Everything else being equal, we in the North are a dying species! Depopulation, based on econometric predictions, as we know them today, is inevitable (see table 1).

Table 1 - World Depopulation Over Next 80 Years²

WORLD (000's)	2000-05	2040-45	2085-90
Birth rate (per 1,000 people)	20.9	14.7	12.8
Death rate (per 1,000 people)	9.4	10.4	11.3

Take for example the Province of New Brunswick, Canada. We are aging: people over 45 now constitute 39% of the population. We are not replacing ourselves. From 1990 to 1998, birth rate decreased by 21 percent. Our young people are leaving, and they are not coming back—from 1996 to 2001, the youth population in NB decreased by 8.1%. If we continue to lose our youth at that rate every five years, by the year 2026, within a generation, we will have lost 40% of them. There will be even fewer births, and fewer people working to pay the taxes that support health care for retired and elderly people!

Second, let's discuss wide spread repopulation efforts (i.e., immigration, repatriation and retention). Statistics taken from New Brunswick may be deemed representative of a growing trend present throughout Canada and beyond. We are not replacing our population losses through immigration. The Atlantic Provinces are practically invisible on the immigration data charts, and the few people who come to the Atlantic Provinces tend to “shoot through” to one of Canada’s three biggest cities.

From research data³ we now know that by next year, New Brunswick will be amongst the few jurisdictions in Canada to officially start to depopulate in net terms (death rate higher than birth rate and insufficient repopulation efforts ranging from immigration, repatriation and repopulation). New Brunswick brings in only about 700 immigrants per year. For the whole of the country of Canada by 2011, immigration will be the only source of net gain in the workforce and in less than 20 years, it will be the only source of population growth (Citizenship and Immigration Canada, 2001). Therefore we offer you that immigration, repatriation and retention are only stop-gap solutions on an eighty-year horizon. We know that depopulation is imminent and that repopulation is not a certainty.

What are some of the likely business implications of this situation? First let's consider the effect of “people as the primary natural resource” on the nature of the business we transact (where we are in the value chain). Business will thrive where opportunities occur for the greatest economic return. This usually takes place where higher concentrations of population are located. Emerging economies (like India and China in the short term) will provide economic opportunity to mature economies.

At the same time, those countries that do have huge populations (India and China, for example) are experiencing a knowledge explosion, with thou-

sands upon thousands of knowledge jobs at vastly lower wages than Canadian workers receive and expect - and we just don't have the human capital to compete with them on their terms.

To survive, our goods and services will need to be transformed through second and third transformation processes near markets. In the short to medium term, North America will continue to see basic jobs move elsewhere, so the concept of value-adding will become more important.

As our market becomes accessible wherever it is (even widely dispersed geographically, but accessible by an electronic community of interest), highly specialized and customized products and services will have to be created and delivered. Mass-customization with widespread distribution by very small enterprises will become the norm. This trend is well exemplified by an oversimplification of US-India affairs.

North America educated the Indian elite. The call of patriotism brought back the sons and daughters of India (failed immigration) and brought back with them knowledge and business opportunities (migration of business to the South-East). Even strong protectionism from the US economy cannot reverse that trend. Today, there is a very large concentration of personal wealth (more millionaires per capita) in India than in many other places in the world. India now provides IT services to the world. So American corporations, big and small, are shifting towards value-adding in order to stay in the game.

Let's take this scenario a bit further as we move towards the longer-term horizon. Depopulation will have started to occur on the world scene. The most populated areas will still be in the eastern and southern parts of the world. If the current trend toward environmental awareness and pressures (e.g., the Kyoto accord) succeeds, countries like Canada will still be producing raw resources to export for transformation (e.g., water, wood, beef, etc). Tele-working will greatly facilitate distance collaboration in real-time. The North will not hold much of the human natural resource (depopulation) but it could be an important player in providing other natural resources that its workers will be adding value to once they are transformed elsewhere in the World.

A second challenge to consider, in the context of we need people and people are the primary source of innovation, is the level of investment in R&D. Overall investments in R&D will continue to be lower than those of highly populated areas. This brings great imbalances in ability to stay competitive through increased productivity for rural areas versus urban areas. It is an issue of critical mass - there are not enough people to attract enough investment in R&D to stay competitive in the innovation race. This trend is exacerbated by the worrying fact that the little current investment in R&D is still biased heavily toward the universities (53%, versus industry which is at only 24%) in countries like Canada.

In essence, governments and businesses will not be able to invest what the shrinking number of citizens and workforce will not be there to provide: revenues. Perhaps our biggest challenge moving forward lies in our biggest opportunity - social and strategic planning to affect mental models, to produce lasting change - change that would offset the current, most menacing trends as discussed earlier. As a society, we need to become more realistic in assessing the gap between our realities and desires.

“Mental models” are deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action. Very often, we are not consciously aware of our mental models or the effects they have on our behaviour. Many insights into new markets cannot be deployed fruitfully because outmoded organizational practices conflict with powerful, tacit mental models (Senge 1994).

We need to develop better models to understand our environment to get the holistic view and not the distorted view that comes of breaking problems in too many little pieces. When you reassemble the fragments of a broken mirror, you get a distorted vision. You cannot find the truth in the pieces - only in the whole mirror (Senge 1994). Following the Nine-Eleven tragedy, a mental model has begun to evolve that required to change the rules of engagement. Terrorism is a sad reminder that respect and chivalry have disappeared. Churches are burning, faith is slipping away and the family as an institution is dying with it (e.g., Double Income No Kids).

Opportunity

So what is the opportunity? We have a very real storm brewing. Demographics paint a staggering picture of our demise. Our capability to innovate based on investment will not increase in real terms. The next generation is redefining how we interact on the world scene, creating a movement of forces that are not understood but will be inevitable. At the same time, we want to be an agile generation with a long range and reach. The rules of the game are changing, but are we changing our mental models as quickly?

Let's explore the example of the *Global Teenager* (Schwartz 1996). Two billion or so teenagers around the globe (concentrated in Asia, Latin America, and Africa) are being transformed (values and behaviours) by cheap accessible technologies (ICT). The power of networking in the e-Economy is great. Add the data about the technology adoption rate and the exponential growth in technology penetration in the southern hemisphere. Add also the will of the next generation to do things better, faster and cheaper than the previous one. What can we expect from them?

Interestingly enough, we can derive a scenario where teenagers finding their own way in life will develop a brand new identity and become less

dependent on their local geography for their choice of religion, music, arts, and work ethics because they are now influenced by many other cultures. What you really get is a community fragmented into interest groups. You may live two doors away but we do not consume the same media, so I (as an individual) distant myself from my close physical surroundings. With ICT today, those who were formerly marginal can now influence the economy. Markets are influenced by critical mass and although they are not geographically co-located, these communities of interest constitute a critical mass by association through media. You can easily envisage effects on everything from how education is offered to them, to how they purchase the clothes they wear. Demand will influence the offer. There will be a shift from mass production to mass customization or specialized production. The “push” era is in peril from finances to groceries, everything will be part of this shift.

In India, we can witness women and children, without shoes on their feet, digging trenches next to roads so that fiber optic cable can be laid. It is a question of time before the poor have access to media while their infrastructure and economy are flourishing. India is like an elephant - heavy to move, but watch out when it does! Today’s youth of India, coupled with youth in other countries such as China, have the potential by virtual association to re-invent businesses as we know them now.

Conclusion

To make our ship go forward, we need people. One lock barrier we need to lift to get to the next level is repopulation strategies but we can’t rely on immigration alone. Without these people, we won’t have the knowledge to generate the number of ideas required to stimulate our economy.

To advance these ideas to the next level, we can use tools such as technology clusters, which allow us to generate momentum through partnerships, to attract financing, to develop our new products and services (innovation), and take them to market. Growing this financing base for entrepreneurs will have the effect of raising us to the next lock, where they will be generating social and economic value. Through a shared vision we can reach a renaissance of our society, strong and self-sufficient with direction for future generations.

But regional players need to be travelling together in the same direction. Think of how the sun and the wind affect the boat in the locks. Like any other sailboat it will require wind in our sails to move forward. Forward is towards the sun where our society will redefine (with depth) who we are, how we do things and when we will be doing them. The wind is simply a wind of change that will bring us to rethink together how we will be combining our resources and working together towards that shared vision.

Are we entering an era where, in the medium term, the social fabric of the

world will align productivity, profits and social good by taking on major challenges at a global scale? Will we recognize in time that wider public benefits must accrue from private activities? Will we move from having a few big corporate giants to having small and medium size enterprises (SME) and very small SMEs, recognizing that corporate social responsibility lies at the heart of sustainable, high-performance, business operations? Will the traditional approach of clustering be effective in such a distributed world? Are we ready to embrace the business challenges posed by such a spread in the value chain?

Can we achieve a common vision for society, given the world's current political system? A favourite anecdote: in 1824 John Cadbury believed that in founding his company to provide tea, coffee, cocoa and chocolate as an alternative to alcohol, he was helping poor people alleviate their poverty, since alcohol consumption was believed to be a direct cause of poverty and deprivation. At heart, such corporations have always focused on more than simply maximizing profits and a return to shareholders. Today, over 180 years later, the same corporation is growing and strong financially, commands respect and commitment from its staff and believes in its role as a corporate citizen of this world.

My point is this: corporations are a key vehicle for effecting the changes needed in our mental models - because they have the most to gain. Their greatest natural resource is people; without the institution of the "family", corporation cannot expect that the supply of that resource will be renewed to the necessary level; so it is in their best interests (materialist, capitalist interests) to support the institution of the family. This level of CSR goes far beyond the provision of adequate day care facilities and flex hours. This is a radical shift in how we perceive the value of our greatest human resource, and how we foster it. The link is explicit: the corporations whose employees think they are good employers to work for are the corporations whose employees perceive that those employers take their responsibility to society seriously (Bevan et al 2004). And those employers are Ford, Shell, Nestle, Coca Cola - the ones that have, not coincidentally, lasted the longest. If those employers united to take CSR to the level of fostering the family institution (not just the individual family lives of their employees), think of the huge impact that could have for our evolving society.

So, I leave you with what I feel is a challenge to leaders in all sectors (business, government and academe) that I think you can help find answers to the question—How can our corporations shift paradigms for an evolving future, driving towards prosperity in the e-Economy? Perhaps more importantly: will the corporate citizens of the world unite to shift our mental models for the common good? What role will they play? How will they come to play it?

Notes

1. http://news.netcraft.com/archives/2004/05/03/may_2004_web_server_survey_finds_50_million_sites.html . Compare this to estimates saying that there are about 900M Internet users, http://www.clickz.com/stats/big_picture/geographics/article.php/5911_151151. (Données tirées de <http://www.isc.org/index.pl?ops/ds/> et Security Space, http://www.securityspace.com/s_survey/data/man.200404/growth.html)
2. http://www.uis.unesco.org/ev.php?ID=5182_201&ID2=DO_TOPIC
3. Conference Board of Canada, cited in Moncton Times & Transcript, pp A1/A5, October 28, 2005

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