

# The Changing Face of the Knowledge Business

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*Paige's knowledge business is known for applying creative approaches to client needs. Paige has been in the corporate world for over 20 years. She began her career with a major Chartered Bank and then worked several years for an international Accounting and Consultancy firm. She noticed that people with creative thinking skills often left companies to start their own businesses. Feeling inspired by their courage, Paige started her own company in 1999 and now applies her business acumen and creative spirit to knowledge management consulting services. Her formal education includes a Bachelor of Commerce, Chartered Accountant, Certified Fraud Examiner, and Masters level courses in human resources and information systems.*

There is incredible pressure on knowledge workers to adapt to dramatic changes in their industries. At the same time, stakeholder expectations are increasing in every business. Companies are racing for strategic solutions to cope with the gaps between what they know and what customers think they *should* know. Before choosing a solution, corporate managers would benefit from taking a breath and reflecting on what is actually going on. A deep understanding of the causes underlying changes in knowledge work can lead to solutions that ignite the creative energy of employees at every level in the organization.

When you have finished reading “The Changing Face of the Knowledge Business,” you will:

- Understand why the knowledge business has changed.
- Be familiar with new jargon.
- Be aware of how one knowledge industry is changing.
- Understand how you are impacted.

## The Case For Change

The knowledge race is on. Britain intends to win this race by spending an extra \$40 billion in education and health and \$1 billion over the next three years on innovation.

Canada has no intention of being left out of this race. Industry Canada has devoted \$1.8 billion from 1999 to 2001 for innovation. Municipalities have also directed attention to knowledge-intensive businesses. In a recent audit by the International Development and Research Council, Edmonton, Alberta was named one of the top three “Smart Cities” in North America. Edmonton is following a “Smart City” strategic plan. The 7/25 Model seeks to increase the proportion of knowledge-based industries from 7% to 25% of Edmonton’s economy by 2010, shifting the emphasis away from resource-based industries. Specific industries targeted are:

- software and multimedia
- information communication technology
- environmental services
- biotech
- agrifood
- healthcare

## The Changing Knowledge Worker

What is the definition of a knowledge worker? In her book *The Next Century — Why Canada Wins* (1998), Nuala Beck defines knowledge workers as “people in the organization who are paid primarily to think”. Her research led to a trademarked measure she calls “knowledge ratios”. Knowledge ratios are calculated by comparing wages of knowledge workers to total company wages. The results show how dependent a company is on knowledge workers. Her research concluded the following:

- Ratios higher than 40% are defined as “high knowledge”.
- Average Knowledge Ratios in past eras:

Commodity (1760 to 1918)	14.7%
Manufacturing (1918 to 1981)	18.0%
Technology (1981 to ?)	48.9%

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“Our ambition is to turn Britain into the leading knowledge-based economy of the world.”

– British Prime Minister Tony Blair,  
November 16, 1998

Check out the New Economy website for knowledge ratios of several industries. Management consulting, for example, has a knowledge ratio of 85%, reflecting the knowledge-intensive work done throughout this industry.

This research clearly demonstrates that economic reliance on knowledge workers has increased. As the number of these workers has increased, so has the volume of technical knowledge necessary to sustain professional competence. Knowledge workers have experienced a growing knowledge gap in their areas of expertise. This has led to specialization in every knowledge business. Now after years of specialized training, customers and employers are demanding a more integrated approach. To complicate matters, it has become more difficult to define which industry one is really in. While financial service companies were benchmarking themselves against each other, computer companies emerged out of nowhere to stake a claim in financial services. It is best to say one is in the knowledge business. Then the possibilities for knowledge workers are endless.

### The Productivity Paradox

With so many knowledge workers who are paid primarily to think, it is logical to expect quantum-leap improvements in productivity, right? Wrong. In fact, growth in global business productivity has been dismal. Compare the data cited below to the fact that business has increased its annual information technology investment by 30% in each of the last 25 years. This unsatisfactory result has been called “the productivity paradox”.

How will we solve this dilemma? Work harder? Given the rise in work related stress leaves, working harder does not appear to be solving the problem. Clearly, working “smarter” is the key to resolving the productivity paradox. Knowledge workers will have to lead the way. Why? Because knowledge workers are paid primarily to think. To lead the way, knowledge workers need to understand causes of change in knowledge work if they are to invent new, more productive methods.



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For further information, see  
[www.neweconomy.com/  
LeadingIndicatorMarch00.htm](http://www.neweconomy.com/LeadingIndicatorMarch00.htm).

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“Knowledge defies the basic economic principle of scarcity.... (T)he more you use it and pass it on, the more it proliferates...(becoming) infinitely expandable.... What is scarce in the new economy is the ability to understand and use knowledge.”

– *Society of Accountants of Canada and Debra Amidon of Entovation International, Collaborative Innovation and The Knowledge Economy, Issues Paper 17, 1998*

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1947 -1973 annual growth in global productivity was 2.85%

1973 - 1997 annual growth in global productivity was 1.1%

– Brearton, “Spectrum”, *Globe and Mail Report on Business, July 1999*

## Causes of Change

After completing an intensive knowledge journey, I have concluded that there are three major causes underlying the current changes in knowledge work:

1. global literacy;
2. invention of electronic infrastructures; and
3. social revitalization.

## Global Literacy

Who were the knowledge workers of the 1900s? They were the privileged few who could afford education – doctors, lawyers, professors. The introduction of public education and the invention of printed books sparked an explosion in learning. Knowledge that was only accessible to elite members of society was now distributed to the masses. Literacy became a basic skill required to gain employment. The more people learned, the more new knowledge was created. Literacy is about more than reading. It entails understanding the spectrum of audio, visual, and kinesthetic meanings underlying any specific kind of knowledge work. For example, to be literate as a chartered accountant I need to read technical material in my field; listen to clients and ensure the advice I provide aligns with the needs they expressed; and examine documents to make sure they comply with technical requirements. Peter Drucker has been saying for years that the corporate focus on literacy and learning will increase. That time has now arrived.

In addition to learning how to learn, I believe we also need to learn how to guide. Teaching others is the best test of how literate a person is in any one topic.

The literacy project has spawned many kinds of jargon:

- “Community of Practice”
- “The Learning Organization”
- “Corporate University”
- “Chief Learning Officer (CLO)”
- “Chief Knowledge Officer (CKO)”
- “Dean of Corporate Education”

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“A knowledge society requires literacy – because of the vastly expanding corpus of knowledge we will also be required to learn how to learn.”

– Peter Drucker,  
*Managing for the Future, 1992*

Communities of practice are particularly interesting because many of these groups are self-organizing.

## **Invention of Electronic Infrastructures**

Obviously, technological advances impact every business. However, knowledge businesses have been particularly affected by electronic infrastructures recently invented. In 1990, Alvin Toffler's *Powershift* predicted the creation of powerful electronic infrastructures. These infrastructures, he noted, will be characterized by six features: interactivity, mobility, convertibility, connectivity, ubiquity, and globalization.

### ***Interactivity***

**From passive to active observation.** Interactive communication systems engage the interest and creative energy of individuals more than passive, read-only kinds of systems. The ability to send ideas, receive feedback, and validate thinking using an interactive electronic infrastructure will improve the speed of knowledge creation and knowledge transfer.

### ***Mobility***

**Convenience and communication from anywhere.** To support user interactivity, the electronic infrastructure needs to be accessible from anywhere. Recent telecommunications advances have made this possible. Mobile phones, laptop computers, and other communication devices are now commonplace.

### ***Convertibility***

**Ability to transfer information from one medium to another.** The infrastructure will handle different media that can interact with each other to allow unified presentation. For example, voice recognition software will convert oral messages into text form. Text can also be converted back into an oral form.

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For deep insight into communities of practice, check out Etienne Wenger's book *Communities of Practice- Learning, Meaning, and Identity*, Cambridge University Press, 1998.

## **Connectivity**

**Ability to connect devices regardless of who made them.**

Current technology presents numerous problems for connecting proprietary devices. For example, some operating systems will not work unless specific hardware is purchased that is compatible with the software. The recent drive for “open systems” is addressing the connectivity issue. Hardware and software manufacturers are being pressured to modify their systems so they can work in any environment.

## **Ubiquity**

**Systematic spread of new media system globally and through every economic layer of society.** Toffler refers to the “Law of Ubiquity” as the reason that electronic infrastructures will reach people at every level of society. The “Law of Ubiquity” states that profit motives will make the new electronic infrastructure inclusive, not exclusive. For example, IBM would make more money selling six billion computers than it would selling a few million to an élite sector of society.

## **Globalization**

**Creation of permeable mental borders.** The electronic infrastructure will result in permeable mental borders. How will any one country control the flow of its knowledge, capital, goods and services when the borders are intangible and bound in a complex, interconnected system? Current perceptions of geography will be transformed by the globalization inherent in this electronic infrastructure.

We call this electronic invention the Internet. It is interesting to note that the word “Internet” does not appear anywhere in the index of Toffler’s 1990 book. The Internet is having a profound impact on knowledge businesses. Here are some statistics on Internet use:



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For more information on  
open systems, check out  
[www.linux.ca](http://www.linux.ca)

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“Result produces a revolutionary  
nervous system...a far more adaptable,  
intelligent, and complex nervous system  
than ever before imagined.”

– Alvin Toffler, *Powershift*, 1990

- Internet revenue \$74 billion in 1998\*
- Expected to be \$1.2 trillion in 2002\*
- Business to business commerce could be 80% of this\*
- 3% of world GDP\*

\*Deloitte Touche Tohmatsu, “The E-Business Tidal Wave”, 1998, page 6

Internet usage is also impacting the balance of financial power. Toffler predicts that the shift will move from traditional pillars of capital distribution to those who adapt most quickly to capitalize on this electronic infrastructure.

Methods of creating, storing, accessing and selling knowledge are changing. Knowledge is increasingly being shaped into products like expert systems and self-directed learning. More customers reject blind trust in experts and are demanding access to “just-in-time” inventories of knowledge so they can make informed decisions in partnership with the experts. To meet customer expectations, a knowledge business must invest in a well-designed electronic infrastructure.

- “Knowledge Management”
- “Innovation”
- “Intellectual Capital Management System”
- Microsoft’s “Digital Nervous System”

Knowledge Management has taken on dozens of different meanings. Definitions range from dry and rigid processes to poetic and flexible organizational processes. Here is a definition that is more on the poetic side.

IBM built a knowledge management system that supports push, pull, and pattern recognition of knowledge. Larry Prusak of IBM describes knowledge management as the strategic way his company provides its people with speed, scalability, scope, and supply of information. When he speaks at conferences, he says: “The only sustainable competitive advantage is in what my people know.”

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“Power over capital flows to firms capable of customization and constant innovation.”

– Alvin Toffler, *Powershift*, 1990

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“Knowledge management embodies organizational processes that seek synergistic combination of data and information-processing capacity of information technologies, and the creative and innovative capacity of human beings.”

Dr. Yogesh Malhotra, *Deciphering the Knowledge Management Hype 1998*,



[www.brint.com/km/whatis.htm](http://www.brint.com/km/whatis.htm)

## Social Revitalization

Literacy and technology skills cannot replace physical human interaction. People want more meaningful connections, both professionally and personally. Corporate values are being challenged – does the company, it is asked, “walk the talk”?

Respected demographer John Yerxa describes this as “concern for personal well-being”. In his *1995 Yerxa Report*, he states that people will be concerned with the following five areas:

1. Augmentation of intellect (education, entertainment, information);
2. Health (physical and mental);
3. Security (personal safety and financial);
4. Personal services (customization);
5. Spiritual well-being (spiritualism, religion and ethnic affiliation).

People are less motivated to work hard and ignore other needs necessary for personal wellbeing. The overriding questions are: “Who am I?” and “Why am I here?”

The result is a new language of revitalization.

- “Corporate Soul”
- “Balanced Lifestyle”
- “Workplace Diversity”
- “Values Based Management”
- “Inspirational Leadership”

## Education Business Example

Education is **BIG** business.

Lifelong learning is **BIGGER** business. Hundreds of new educators, coaches and mentors are appearing out of nowhere as people capitalize on the opportunity of lifelong learning. The notion of who is a teacher is being challenged. Using electronic infrastructures, virtual learning systems are attracting customers who are ready to adapt to new learning techniques.

An example of a new technique is the use of “eloquent presenters”. These are videotapes of teachers presenting technical

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“In 1997 the U.S. spent \$3 billion on elementary books and \$2.7 billion on college books.”

– Bill Gates,  
*Business @ The Speed of Thought, 1999*



content. Videos can be stopped at any time and students can explore questions using online support.

Education customers are very excited about the learning opportunities available using multimedia. It is interesting to compare traditional aspects of education with emerging realities.

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***Traditional Characteristics***

Geographic barriers –education regulated and delivered within geographic borders.

School/campus delivery

Maintaining aging physical premises diverts funds away from core competencies – teaching, research and course development.

***Emerging Characteristics***

Borderless – new entries into market offering competitive educational alternatives.

Alternative delivery channels such as Internet

Virtual learning centres have low overhead for physical infrastructure

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In addition to changes in delivery systems for education, the complexity of the customer base has increased. Education customers of every age are demanding access to different approaches. Traditional challenges drive the current system while emerging challenges will shape the future system.

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***Traditional Challenges***

Teaching to tests – Teachers prepare students for tests and design teaching to match the expected tests.

Meeting academic standards –A good school is defined by academic measures, usually what percentage of the student body exceeds a standard of excellence. This standard is measured by grades.

Focus on youth – Education models assume youth are the primary customers

***Emerging Challenges***

Teach students to think – Teaching basic thinking, operacy and value creation (as Dr. DeBono has been pleading for over 40 years). Create better measures than tests.

People have multiple intelligences, as researched and defined by Dr. Howard Gardner. Emerging education systems will not focus on academic measures.

Focus on lifelong learners –Education models recognize the impact diversity of student age has on course offerings.

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The challenges described will result in new performance measures.

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<b><i>Traditional Measurement Tools</i></b>	<b><i>Emerging Measurement Tools</i></b>
Grade point average is the tool of choice. These grades are based on the bell curve, which has done nothing to foster the potential of those on the wrong end of the curve.	Multiple intelligence measures. Developing and measuring success in learning is best achieved through individual portfolio management.
Funding follows student in curriculum/faculty-dictated programs.	Funding follows student in self-directed learning plans.
Knowledge management measured by discipline/department.	Knowledge management measured through neural networks

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## **Literacy**

Literacy is always a challenge. With bodies of knowledge expanding so rapidly, literacy has become a serious problem for everyone in the knowledge business. How do we keep technically current? How do we absorb the new knowledge needed to remain competitive and offer the valued services our clients expect? The need for lifelong learning is obvious, but who has the time or energy? Literacy can be approached from a creative perspective by building “just-in-time” learning systems that integrate the need for lifelong learning with the realities of the daily work grind.

**The message is: Hurry up.**

## **Electronic Infrastructures**

It is amazing that many educators are still questioning the need for computers in schools. Here are some lessons on computers in schools, from a November 1997 *Wall Street Journal* special report, that educators can think about:

- Kids flourish when everyone has a computer.
- Struggling students get more out of computers than higher performers.

- Most teachers are not trained in computer use in class.
- Computers don't diminish traditional skills.
- Internet and e-mail excite kids by giving them an audience.
- Old technology is not good enough for school use.
- Kids love computers.

New market entrants are capitalizing on this knowledge and are exporting education via the Internet.

At the advanced levels of education, universities were the respected providers of quality higher learning. Now “cyber schools” and “corporate universities” are successfully competing for the same market, especially in graduate level business programs. Examples include the MBA from Open University in the UK, and the MBA from Motorola University.

How can educators use an electronic infrastructure to respond to these competitive challenges?

#### **Interactivity**

- Support virtual learning programs for different life cycle stages.
- Build internet connections with businesses skilled in research, and share learning in these knowledge centres.
- Establish a campus intranet skills database to support professor and student innovation.

#### **Mobility**

- Remove provincial trade barriers to education.
- Support off-campus experiential learning courses.

#### **Convertibility**

- Use scanning technology to convert student text documents into an electronic knowledge base.

#### **Connectivity**

- Link systems together. For example, the student registration system can be linked into the financial management system.

#### **Ubiquity**

- Economic prosperity is linked to an educated work force.
- Many countries are discussing extending public education to the university level. In Finland, students can already obtain a university degree for free.

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Canada's Schoolnet is a web centre that connects schools across the country. Keep an eye on this site – it has tremendous potential to spark a national education system.

## Social Revitalization

With so many advances in knowledge over the past one hundred years, educators, parents, and communities are shocked about a perceived deterioration in the wellbeing of children. This has led to dozens of revitalization movements designed to rethink the way we educate children. In Edmonton, Dr. Steve Ramsankar ran Alex Taylor Elementary School for 28 years using a community school approach. He demonstrated the immediate and lifelong benefits children receive from being educated in an openly loving environment that invites the entire community into the learning process. At West Valley City Middle School in Spokane, students are being educated in a micro-society model that emulates the experience of real civic life.

Interpersonal problems are not limited to children. Adults are demonstrating very poor conflict resolution abilities as well. People are completing numerous education programs, but appear to be gaining little wisdom in the process. What they are gaining is massive loads of stress. Dr. Pearsall is a psychoneuroimmunologist – a licensed psychologist studying the brain, the immune system, and life experience. For his book, *The Heart's Code* (Broadway Books, 1999), Pearsall administered a test on personal reactions to the pace of everyday life. He scored the test and determined that scores 21 and above represented a health risk.

- 1,000 heart patients scored an average of 66.
- 200 Polynesians not living a modern lifestyle scored an average of 8.

“Normalcy,” Pearsall concluded, “is now the major risk to our health.”

**The message is: Slow down.**

This message contradicts the literacy message “hurry up and learn”. Or does it? Perhaps the wisdom underlying the expression “the hurrier I go the behinder I get” needs to be explored. As a society we would benefit from some serious reflection on where we

are today and where we want to be in the future. Slowing down the pace of modern life is critical if we are to prepare our brains for the demands we are placing on them. Is the drive to exceed customer expectations (the 24/7 integrated services world) worth employees' mental and/or physical health? Think about it.

## Conclusion

As a chartered accountant, I cannot resist the temptation to conclude with a simple, linear formula.

Literacy + Electronic Infrastructure + Social Revitalization =  
Opportunity for New Social, Political, Technological and Economic Infrastructure.

Corporate strategy needs to address all three of these elements of change.

Literacy and electronic infrastructures relate to knowledge distribution.

Social revitalization relates to motivation.

The knowledge business has changed. Are you in the knowledge business?

Are you up to speed on the current thinking in your profession?  
Do you have the literacy skills needed to use electronic infrastructures?

What other skills are needed in your future?

Is your mind geared to rethink what you think you know?

**How will you close your knowledge gap?**

*Let's chat.... paigemilner@hotmail.com*



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A great example of a developing societal infrastructure can be found at [www.geocities.com/](http://www.geocities.com/).  
Did you know that over 2 million people live in this virtual city?