



## Research on the Future of Learning and Business

### ■ The Age of Networks

Every day it becomes more clear that the Net is taking its place alongside the other great transformational technologies that first challenged, and then fundamentally changed, the way things are done in the world.

Certainly the Net is a powerful medium for communication. But even more important, it is a vocational medium -- a place where real work gets done, real competitive advantage is gained, and real growth is generated.

That's because the Net has emerged as a powerful means for parties of every type to conduct transactions of every type: transactions among employees inside an enterprise; among trading partners in a supply chain; and networked transactions that transform the way educators teach students, physicians treat patients, and the way governments deliver services to citizens.

This is what we call 'e-business'. It's a term we coined to describe all of the ways individuals and institutions will derive value from the Net... as well as our strategic direction in the emerging networked economy."

-- Lou Gerstner  
IBM Chairman and Chief Executive Officer

### Chicken Little is Right This Time

The Information Era has arrived. The Machine Age is over. The rules have changed. The sky has fallen in. Human resources are more important than natural resources, brains more important than brawn. Networks are connecting everyone and everything. Clocks run faster.

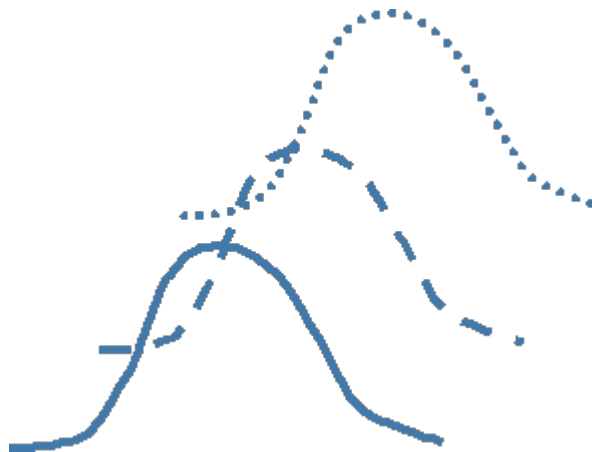
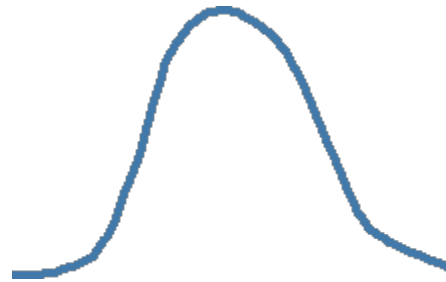
In this topsy-turvy world, few things are predictable. %&#\* happens. Straight-line projections are almost certainly wrong. Absent a long-term perspective, we make decisions on the fly. We trade speed for quality. Most damaging of all, we respond to tomorrow's questions with yesterday's answers.

Tossing around on a sea of turbulent change, companies that can't respond to new situations rapidly are sunk. People at every level must take challenges as they come and solve problems on the spot. Competitors do not afford them the luxury of getting approval from higher-ups or checking for compliance with procedures. To be successful, people must learn to learn. They must shoulder responsibility for learning what they need to know from their experience and from their peers. Not just in class. Always.

Learning has become a corporate survival skill. It is a line responsibility. Learn or die. Machine-age managers complained when employees had downtime because they were in training. Tomorrow's leaders will understand that learning is not just another discretionary item. In the information age, innovation is *the* competitive advantage. Learning *is* the business. That bears repeating:

## In the Information Age, learning *is* the business.

Every business has a life cycle. Businesses are born, they grow, they prosper, they mature, they taper off, they die. Corporations used to pass away at 35 or 40. At today's pace, they are burning out sooner. Half the Fortune 500 of twenty-five years ago are six feet under.



As in life, the only way to live beyond your normal lifespan is through your offspring. Your children carry forward your DNA. Successor companies benefit the parent organization's stakeholders.

The trick is to hand over the reins to the next generation when you're about to peak out. It's also a good idea to spawn several children to increase the odds that one of them will be a real winner. These "strategic inflection points," as Andy Grove calls these transitional moments, arrive when conditions change and existing businesses do not adapt.

The coming of the network age is as big a change as any of us are likely to see. Bob Metcalfe, the inventor of Ethernet and founder of 3Com, says that however much hype you've heard about the web – the best thing since sliced bread or the printing press or sex or fire – whatever you've heard is simply not enough to describe what's going on. In the face of massive change, it's tempting to some to sit things out, make a few improvement here and there, watch the 1,000 channels of television when they arrive.

"Instrumentalism is the greatest enemy of innovation," says the MIT Media Lab's Nicholas Negroponte. Most businesses have wrung most of the productivity benefits out of their processes. A great year of improving efficiency in a mature business yields what? A 20% improvement on the bottom line? And what can an entirely new way of business, one in tune with the rhythm of e-commerce and the Internet bring in? A 100% improvement? 200%? Revolutionary change calls for revolutionary action. It's time to lead the charge against the reactionaries.

Let's think out of the box.

### Why three years?

A corporation investing in training is analogous to a consumer buying a new PC. Damned if you do and damned if you don't. If you buy the PC, you will be disappointed when you see the same machine for half of what you paid

### Dilbert's Law

"Everything is increasing exponentially."

only a year later. If you forego buying the PC, you don't gain the advantages a fast, powerful computer can bring to your work and your fun. If you take the plunge investing in performance infrastructure now, you may see equivalent solutions later on for a fraction of the price. Or you may find that you've blown millions on dead-end technologies and projects that do not achieve their potential. But if you don't invest, you may lose competitive advantage, put relationships with customers at risk, fail to meet your business objectives, decrease morale, and extinguish the flame of innovation. With millions, sometimes hundreds of millions, in the balance and many executives flustered about what to do in the realm of employee training and performance improvement, we prepared this report to reduce the uncertainty around making decisions.

Why three years? It's far enough out that the world will be very different. At the same time, it's not so far away as to be divorced from today's reality. Decisions you make today are painting the picture of where you'll be five years hence. Ten years out we'll be facing problems we can't even dream of today. It's the Jetsons.

### Business Climate

- Half life of knowledge shrinking
- Front-line staff make decisions
- Services provided in real time
- Teams, not individuals

## Why is this a management responsibility?

## Why can't the Training Department handle this?



"We're a Knowledge Business," say an increasing number of CEOs. "Intellectual capital is more important than financial capital," they say. "People are our most important asset," say managers. "The ability of our people to learn and grow is our only sustainable competitive advantage," say the management consultants.

Corporations must make revolutionary changes to prosper in the new economy. Is the word "revolution" in this context mere hype and bluster? We think not. Consider what businesses must do to win a seat at the riches of the Information Era. Daniel Goleman, respected author of *Emotional Intelligence* and *Working with Emotional Intelligence*, expresses the challenge this way:

"In the Industrial Age most work was organized hierarchically, and individual responsibility was replaced by systemic controls. Only relatively few people at the

top needed to be creative, imaginative and enterprising. Most workers had to be good only at performing highly precise, structured and repetitious tasks necessitating a high degree of discipline but little or no personal initiative. Understanding by employees of the total business process was deemed unnecessary and actively discouraged... Whereas, today's successful businesses tend to be highly decentralized and rely on continuous innovation and employee involvement at all levels. Almost all workers have now to be able to think for themselves, take personal responsibility, identify new opportunities and training needs, and understand the relationship of their business to that of others. Workers must be able to adapt rapidly without waiting for external direction.”

Seismic change cannot be delegated. A major purpose of this project is to paint a picture to help leaders how to realize the potential inherent in their people.

## What is this Age of Networks and what does it mean to me?

A dozen years ago, business visionary Stan Davis<sup>[1]</sup> described a future where no one has to wait, distance disappears, and matter no longer matters. Time shrinks to real time. You can see what's going on without going there. Ideas replace physical substance. Stan's crystal ball was right.

*Blur*, Davis's latest book, brings the situation up to date.

- Any Time ® Speed
- Any Place ® Connectivity
- No Matter ® Intangibles.

These are the hallmarks of the age of networks:

- Speed and agility win out over stability.
- Everything is connected to everything else<sup>[2]</sup>.
- Intellectual capital outstrips financial capital in importance.

The result is “blur,” a chaotic world moving so fast that it's impossible to focus. Most of our assumptions about how things work are out the window. Nothing seems predictable<sup>[3]</sup>. Seat-of-the-pants decision-making crowds out careful planning.

Rosabeth Moss Kanter likens the age of networks to the croquet game in *Alice in Wonderland*. Think of the mallets as technology and the croquet balls as customers. You discover that your mallet is actually a flamingo that moves its head whenever you try to strike the ball. The balls are rolled-up hedgehogs that run around whenever they feel the urge.

Unsettling? You bet. Crazy? No. Underneath the confusion, the fundamentals still apply. Love customers. Do a better job. Outperform the competition. Enjoy life.

And what about those unpredictable flamingos of technology? Don't worry; be happy. Technology is not the driver here; people are. Relationships with people drive the age of networks. The technology objective is to select the best flamingos to build and strengthen relationships with customers<sup>[4]</sup>.

Torrents of information pour from our screens.

Info glut, half life,

- Nothing is ever finished. **Learning is forever**. No one ever graduates. Everything flows.

Industrial Age organizations...standardization..

- Abundant information **obsoletes** the concept of **rank**. Everyone bears **responsibility**. Information empowers the individual.
- **Customers and employees** are two sides of the same coin. In a learning relationship, their roles blur into one. Learners are customers; customers become learners. Focus shifts from inside organizations to **outside**
- **Leaders** gain control by giving control.

In a world where everything's connected to everything else, it's artificial to look at people as separate from technology, business from learning, and so forth. But it's also useful.

## Unpredictability

Chaos happens. It's a nonlinear world. Miniscule changes trigger monumental events. Things are going smoothly until the straw breaks the camel's back. Andy Grove calls these moments "inflection points." Economist Thomas Schelling calls them "tipping points."

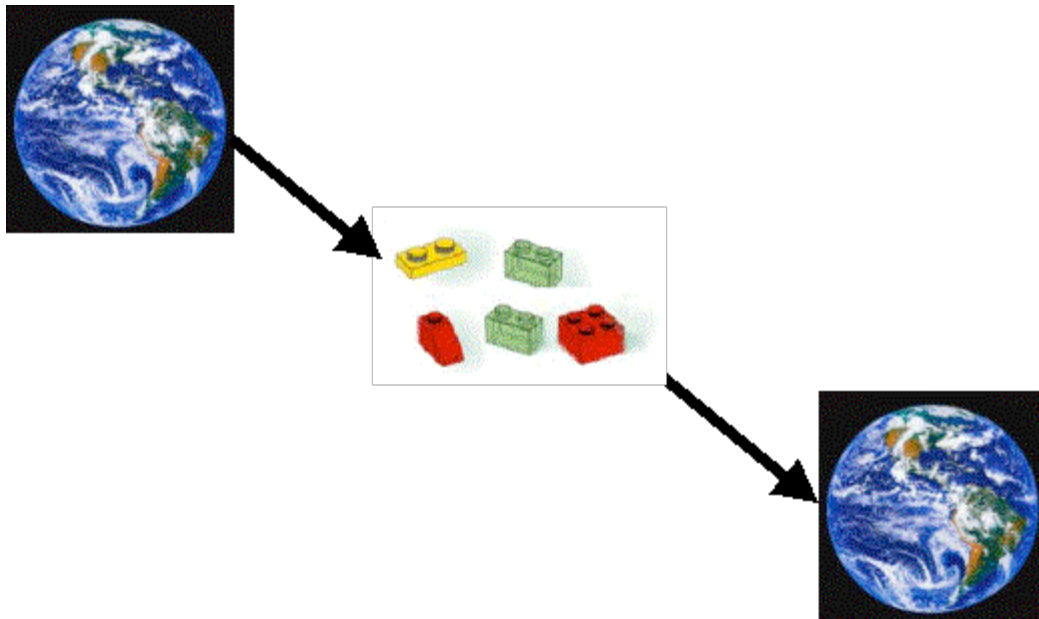
Rich Karlgaard asks, "When does one rock rolling down a hill cause an avalanche? When does freezing water turn to ice? When does audience clapping coalesce around one rhythm?"

In the Age of Networks, customers can vanish and knowledge workers cross the chasm in the blink of an eye. To cope with discontinuous change, businesses must continually innovate and be light on their feet.

## Fragmentation and Convergence

Talking with

David Liddle of Interval Research about how tough it is to keep up. "You have to keep up in so many fields." The categories themselves are changing. You don't know what fields to keep up with. And you've got to look at how they interrelate.



**Convergence** works both ways. It's not as if the monolithic TimeWarner Microsoft Cisco Consortium is going to provide all the entertainment, training, phone calls, and news you'll ever need. *Au contraire*, the common denominator of digits enables one to deconstruct industries and "value chains" whose parts were Epoxied together inextricably in the analog world. In the digital world, we can reassemble those parts in new configurations, cutting out the middle man or building new entities from these business Legos. Networks, human and electronic, are the glue that holds all the pieces together.

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I believe that the moment is near when, by a procedure of active paranoid thought, it will be possible to systematize confusion and contribute to the total discrediting of the world of reality. - Salvador Dali, 1930

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## What happens to traditional training?

### Industrial Age

Tired  
 Training  
 Passive  
 Listen  
 Alone  
 Teaching  
 Just in case  
 Classroom  
 Absorb  
 Graduate

### Age of Networks

Desired  
 Learning  
 Interactive  
 Learn by doing  
 Community  
 Apprenticeship  
 Just in time  
 Anywhere  
 Experiment  
 In perpetuity

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[1] Stan Davis, *Future Perfect*, 1987. A remarkably prescient book. First use of the term “mass customization.”

[2] Kevin Kelly, *New Rules for the New Economy*. As Kelly poetically puts it, “a cloak of glass fibers and a halo of satellites are closing themselves around the globe to bring forth a seamless economic culture.” In an interconnected world, everything is relative.

[3] The Truth is *not* out there.

[4] Later in this report, we’ll look at a variety of playing fields to enable you to consider which work best in your situation.

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