

- Groupware applications to communicate among participants,
- Common information systems operate in all units,
- Electronic layouts are transferred to all shops.

The ability to balance IT and trust-based relations is one of the most important goals of Diesel (Bielli, 1998).

In a virtual enterprise in which processes are partially internal and partially outsourced, subcontractors are treated as partners who are involved in a common process of accomplishing the task. Since new products/services require high levels of innovation, the search for that type of expertise is stretched from the local to global partners. The global reach of a virtual enterprise depends on the elaboration of trust and IT application among partners.

FUTURE TRENDS - THE 21ST CENTURY CORPORATION

At the beginning of the 21st century, the Industrial Economy is giving way to the New Economy and corporations are at another crossroads. Attributes that made them ideal for the 20th century could cripple them in the 21st century. The Darwinian struggle of daily business will be won by the people and the organizations that adapt to the new world that is unfolding.

The Real Assets: Ideas. The turn of the millennium is a turn from hamburgers to software. Software is an idea; hamburger is a cow. There will be hamburger makers in the 21st century, of course, but the power, prestige, and money will flow to the companies with indispensable intellectual property. You can see it already. At the end of the year 1999, Microsoft Corp., with just 31,000 employees, had a market capitalization of \$600 billion. McDonald's Corp., with 10 times as many employees, had one tenth of the market cap.

Or take Yahoo! Inc. – a virtual place in a virtual medium, the Internet. Although far below its peak price, Yahoo in 2000 trades at more than 40 times book value. If USX Corp.'s U.S. Steel Group traded at the same multiple to book as Yahoo, its market capitalization would be nearly \$90 billion, instead of less than \$2 billion.

In an economy based on ideas rather than on physical capital, the potential for breakaway success like Yahoo is far greater. That is because ideas, like germs, are infectious. They spread to a huge population seemingly overnight. And once the idea – say, a computer program – has been developed, the cost of making copies is close to zero and the potential profits enormous.

With the possibility of gargantuan returns, it's no wonder that idea-based corporations have easy access to capital. In 1999 U.S. companies received nearly \$50 billion in venture capital, which is 25 times as much as in 1990. The amount of money raised in U.S. initial public offerings in 1999, nearly \$70 billion, was 15 times the amount in 1990.

In the New Economy, based on the creation of ideas, the most important intellectual property isn't software or music or movies. It's the stuff inside employees' heads. When assets were physical things like coal mines, shareholders truly owned them. But when the vital assets are people there can be no true ownership. The best that corporations can do is to create an environment that makes the best people want to stay.

There will be the Industrial Economy jobs in the 21st century, but high-tech employment will grow much faster as it is reflected in Table 2-3.

The most valuable companies today have fewer employees than those of a decade ago. And they are less capital-intensive. In the same way that the economy is losing weight – software instead of steel – corporations are getting lighter, too.

Management by We. The Net gives everyone in the organization, from the lowest clerk to the chairman of the board, the ability to access a mind-boggling array of information – instantaneously, from anywhere. Instead of seeping out over months or years, ideas can be zapped around the globe in the blink of the eye. That rapid flow of information will permeate the organization. Orders will be fulfilled electronically without a single phone call or piece of paper. The “virtual financial close” will put real-time sales and profit figures at every

Table 2-3: *Jobs of The Future 1999-2008*

| TOP FIVE IN TOTAL JOBS ADDED | | | TOP FIVE IN PERCENTAGE GROWTH | | |
|------------------------------|---------------|----------------------|-------------------------------|---------------|----------------------|
| | JOBS ADDED | PERCENTAGE GROWTH | | JOBS ADDED | PERCENTAGE GROWTH |
| System analyst | 577,000 | 94% | Computer engineer | 323,000 | 108% |
| Retail salesperson | 563,000 | 14 | Computer support specialist | 439,000 | 102 |
| Cashier | 551,000 | 17 | System analyst | 577,000 | 94 |
| General manager | 551,000 | 16 | Database administrator | 67,000 | 77 |
| Overall | 20,300,000 | 14 | Overall | 20,300,000 | 14 |

Source: *Business Week*, August 28, 2000, p. 80.

manager's fingertips via the click of a wireless phone or a spoken command to a computer. The organizational chart of a large-scale enterprise had long been defined as a pyramid of ever-shrinking layers leading to an omnipotent CEO at its apex. The 21st corporation, in contrast, is far more likely to look like a web: a flat, intricately woven form that links partners, employees, external contractors, suppliers, and customers in various collaborations. The players will grow more and more interdependent. Fewer companies will try to master all the disciplines necessary to produce and market their goods but will instead outsource skills – from research and development to manufacturing – to outsiders who can perform those with greater efficiency. Cisco Systems has taken the concept to an extreme. It owns only two of the 34 plants that produce its products. Roughly 90% of the orders come into the company without ever being touched by human hands, and 52% of them are fulfilled without a Cisco employee being involved.

Managing the intricate network of partners, spin-off enterprises, contractors, and freelancers will be as important as managing internal operations. Indeed, it will be hard to tell the difference. All these constituents will be directly linked in ways that will make it nearly impossible for outsiders to know where an individual firm begins and where it ends.

It's Mass Customization. The previous 100 years were marked by mass production and mass consumption. Companies sought economies of scale to build large factories that produced cookie-cutter products, which they sold to the largest numbers of people in as many markets as possible. The company of the future will tailor its products to each individual by turning customers into partners and giving them the technology to design and demand exactly what they want. Mass customization will result in waves of individualized products and services, as well as huge savings for companies, which will no longer have to guess what and how customers want.

It's global. In the beginning, the global company was defined as one that simply sold goods in overseas markets. Later, global companies put manufacturing facilities in numerous countries with cheap labor. The company of the future will call on talent and resources – especially intellectual capital – wherever they can be found around the globe. Indeed, the very notion of a headquarters country may no longer apply as companies migrate to places of greatest advantage. The new global corporation might be based in the U.S. but do its software in Sri Lanka, its engineering in Germany, and its manufacturing in China. Every outpost will be seamlessly connected by the Net so that employees and freelancers can work together in real time.

It's about speed. The computer-driven speed of action, the speed of deliberations, and the speed of information flows is faster and faster. That means that old, function-oriented corporations must radically revamp. With everything from product cycles to employee turnover on fast-forward, there is simply not enough time for contemplation and bureaucracy.

It's the end of job. In the later half of the 20th century, power flowed to corporations, where bodies were as replaceable as light bulbs. Today, with the transition to a knowledge-based economy and global connectivity, the power is shifting to those with skills. To cater to the shift of an expanding and contracting labor force, workers will be auctioning their services, becoming the just-in-time employees. Bucking the trend are companies that offer careers—but as a series of projects, not as a static job. But increasingly, companies will keep their most prized employees on site and outsource everything else. Experts predict that workers will have as many as 20 different positions in their lifetimes. Think of yourself as a volleyball player in a floating boat. Among them, those who will handle ambiguity will be leaders.

The corporate ecosystem of the 21st century will be characterized by a blurring of once distinct boundaries: between public and private, foreign and domestic, insider and outsider, friend and foe. The effect will be liberating in many ways. Corporations will be freer to pursue opportunities wherever in the world they find it, and exploit it according to the requirements of circumstance, not blind dictates of tradition. Outsourcing will become ever more prevalent, transforming many corporations into super-efficient, virtual facsimiles of their old selves.

The growing fluidity of vital business relationships will require constant vigilance and improvisation by all concerned. Like it or not, corporations also will assume a larger role in education and other public-sector preserves, taking over tasks that government either is unwilling or unable to do it itself.

Toward the Global Rules

The Internet and the rise of globalization are creating new pressure to develop a commercial code that is recognized from Hong Kong to Chicago. Think for a moment about a world that now faces New Economy giants such as America Online Inc., Amazon.dot, and Yahoo! Inc. As they sell products and services to an increasingly global marketplace, these companies face a patchwork of conflicting local regulations. Europe's privacy rules are much tougher than those in the U.S. A digital signature that seals a deal in Albany may

be invalid in Kuala Lumpur. Thousands of different sales taxes are levied around the world.

Regulating the global economy will require international cooperation. Here is how commercial law will evolve in key areas:

- *Taxes.* Internationally, tariffs will largely disappear. Multinational agreements will assure that companies pay the tax they owe, but protect them from being double-taxed.
- *Finance.* Worldwide accounting standards will increasingly develop. Efforts are already underway to create global capital rules for banks.
- *Privacy.* Business and government will form partnerships to create minimum privacy standards for commercial transactions.
- *Antitrust.* Governments will sign multilateral agreements spelling out acceptable business practices. The new global standard will be aimed at increasing competition.

How long will this take? Many decades – if history is any guide. But make no mistake: as business seeks simplification and predictability, the rules of the 21st century will be developed faster, because the *speed* is a paradigm of a New Economy.

CONCLUSION

The IT-driven enterprise evolution leads towards more complex organizations that require sophisticated operational and management knowledge and skills. Employees of such enterprises must know IT quite well; otherwise they will not be able to work in them.

The virtual enterprise is perhaps not the last phase in the enterprise evolution, although even nowadays it is not the optimal solution for many firms. In general, the IT-driven enterprise rationalizes the scope of employment at the times when the population growth is global. This contradiction is the challenge for the politicians and business executives who must solve “unsolvable” problems.

BIBLIOGRAPHY

- Abegglen, J.C. & Stalk, G. (1985). *Kaisha, the Japanese Corporation*, New York: Basic Books, pp. 112-115.
- Alstyn, M. van. (1997). The state of network organization: A survey in three frameworks. *Journal of Organizational Computing and Electronic Commerce*, 7(2/3), pp. 83-151.
- Bielli, P. (1998). Virtual enterprises and information technology: An ambiguous relationship, *Proceedings of 1998 Information Recourse Management Association*. Boston, May 17-20.
- Bradley, S.P. & Nolan, R.L. (1998). *Sense & Respond: Capturing Value in the Network Era.*, Cambridge, MA: HBS Press.
- Byrne, J.A. (1993). The horizontal corporation. *Business Week*, December 20, pp. 76-81.
- Chorofas, D.N. (2001). *Enterprise Architecture and New Generation Information Systems*. Boca Raton, FL: Saint Lucie Press.
- Cook, M. A. (1996). *Building Enterprise Information Architecture: Reengineering Information Systems*. Upper Saddle River, NJ: Prentice Hall.
- Cummis, F.A. (2002). *Enterprise Integration*. New York: John Wiley & Sons.
- Goodyear, M. (ed). (1999). *Enterprise System Architectures: Building Client Server and Web Based Systems*. Boca Raton, FL: CRC Press.
- Haeckel, S. & Slyvotzky, A.J. (1999). *Adaptive Enterprise: Creating and Leading Sense-And-Respond Organizations*. Cambridge, MA: HBS Press.
- Pickard, J. (1998). Fountain of knowledge, *People Management*, 4(2), p. 37.
- Pine, J.B., II. (1993). *Mass Customization, The New Frontier in Business Competition*. Boston: Harvard Business School Press.
- Rampal, R. (1998). Communication Technologies in Virtual Enterprise: A Case Study. *Proceedings of 1998 Information Recourse Management Association*, Boston, May 17-20.
- Roberts, B. & Scribar, V. (2002). *The Adaptive Enterprise: IT Infrastructure Strategies to Manage Change and Enable Growth*. Boston: Addison-Wesley Professional.
- Ruh, W.A. et al. (2000). *Enterprise Application Integration: A Wiley Tech Brief*. New York: John Wiley & Sons.
- Spewak, S.H. & Hill, S.C. (1993). *Enterprise Architecture Planning: Developing a Blueprint for Data, Applications and Technology*. New York: John Wiley & Sons.

- Twenty-first (21st) Century Manufacturing Enterprise Strategy*. (1991). Bethlehem, PA: Leigh University Press.
- Zuboff, S. (1998). *In The Age of The Smart Machine*. New York: Basic Books.

ENDNOTES

- ¹ Synonyms for a global corporation are transnational corporation (TNC) and a stateless corporation.
- ² A virtual enterprise emerged historically before an electronic enterprise, however, the former performs better if it is electronic.
- ³ In the early stage of the On-Line Enterprise development (the 1960's and 1970's) "on-line" meant just having remote terminals connected on-line to a mainframe; later, with the advent of LAN's and WAN's (1980's and 1990's) the "on-line" solution evolved into one that is described in this section.
- ⁴ The KMS will be described in depth in Chapter 4.

