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2000



CAP GEMINI  
ERNST & YOUNG

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# LETTER FROM THE CHAIRMAN

In 1974, the take-over of C.A.P enabled little Sogeti to triple its size, growing from a revenue of 52 million francs to 146 million\* and increasing its workforce from 647 employees to more than 1500. The following year, the acquisition of Gemini Computer Systems completed the design and gave birth to the Cap Gemini Sogeti Group.

At the time, this transaction (described as "a giant leap" by one journalist) caused quite a stir. Another giant leap was made during the course of 2000, and this produced almost as powerful an impression: the acquisition by Cap Gemini of Ernst & Young's consulting arm. The Group's revenue practically doubled from one year to the next (8,471 million euros pro forma against the 4,310 achieved in 1999) and its headcount grew in one stroke from 40,000 to 60,000 people.

However, beyond the increase in size and the world scope gained by the Group as a result of this operation, it is the **excellent complementarity** between the two partners that has been most widely commented upon and underscored: first, geographic complementarity (for example, the United States represented two-thirds of Ernst & Young Consulting's business but only 13 percent of Cap Gemini's) but also, and above all, complementarity of professions, now enabling the new Group to offer its clients a continuous range of services which run from strategy formulation and management consulting right through to information systems management.

Today, everyone recognizes that the merger is a great success, and one that validates the new organization's ambition to establish global leadership in every one of its professions. Just a year ago, however, there were those who compared this operation to a mating of dinosaurs and predicted that its offspring would quickly suffer under the assault of the net economy's new players.

Let's think back a little: it was the moment of glory for the Internet "pure-players." They were busy explaining to our amazed clients that their projects could be completed in a matter of days rather than several months, and they were convincing the financial world that they could capitalize future losses. That was the time when America, and with it the rest of the world, seemed to have discovered a new Eldorado; where the new technologies were creating a new economic order, writing their own new rules. Every "idea.com" was a good idea. Money flowed freely, feeding all projects more or less connected to the Internet or telecommunications. The stock market kept on climbing in tune with the boldest claims.

Certainly there were a few doubting souls, here and there, who were astonished and worried and called to mind the basic laws of accounting, or even of simple arithmetic. To no avail, and even Alan Greenspan himself, the chairman of the American Federal Reserve Board – according to the media the most widely listened to person on the planet – tried in vain to warn against – the "irrational exuberance of the markets."

That was a year ago. You might as well say a century. Exuberance has since given way to an equally irrational gloom. It is as though everyone had forgotten that the human race moves



Serge Kampf

(\*) or approximately FF 800 million in today's money.

forward through cycles, **by great swings of the pendulum**, the only novelty being its accelerating rhythm. In a world where everything goes faster and faster, where today's innovation drives out yesterday's, where information travels at the speed of light, it seems that there is a tendency to forget the lessons of the past. As if this "real time civilization" introduced by information technology and telecommunications is announcing a society without memory.

The past teaches us, however, that Western economies have experienced similar phenomena, and that technological innovations have always spread through the economic fabric one step at a time. It all begins with an incubation period of variable length. Then comes the boom, which leads to irrational behavior, most notably in the financial markets. People imagine that one can rewrite the basic rules of the economy; even the most solid competitive positions are called into question. Then comes the time for the swing. Euphoria gives way to gloom, a gloom every bit as deep as the previous excitement was high. Finally comes the last phase in the cycle: when those new technologies are no longer new and become instead mass-market products which define the basic structure of economic activity and help transform companies. Meanwhile, laboratories and high tech companies are preparing the next "revolution."

The past also teaches us that the enterprise is a living organism and that it cannot exist and develop except by way of a subtle chemistry between its different component parts. There are no companies without capital (a little or a lot, depending on the business); in other words, without shareholders. Neither are there companies without customers who buy their products or services. Nor products and services without the men and women who produce them. It only takes one of these components to underperform for the entire business to start limping. **Shareholders, customers, employees:** satisfying them all was, for Henry Ford, the essential precondition for a prosperous modern economy as for a company.

Neglected for a long time by corporations, it seems that in the past few years, shareholders have become their sole object of attention. This imbalance has today caused some perverse side effects: people speak of value creation only in relation to the shareholders; the enterprise follows the dictates of fashion at the expense of its long-term strategy; stock market performance (or non-performance) becomes the only measurement of its capabilities and merits; its leadership spends too much of its time seducing the markets...

Everyone knows perfectly well, however, that to make sure that its shareholders receive a fair return on the capital they have invested, the enterprise first of all needs customers. And a customer, at least for most businesses, is not some more or less captive subscriber to whom you can promise the riches of the earth at the mere cost of a local phone call. The customer is a **credit worthy partner**, who has specified a need and agreed to pay a fair price for a useful service (that is, a service which responds to the need expressed by the customer). Both Cap Gemini and Ernst & Young Consulting have always uncompromisingly placed this customer at the center of their attention, and it is the customer who feeds us, who legitimates our existence, whom we must satisfy as a priority. For us, there are no large or small customers, no good or bad customers, simply customers to whom we must listen, whom we must help, advise, sometimes inspire, and always serve as well as we can.



Client satisfaction obviously requires mobilizing all employees in the firm, not simply lining up their knowledge and skills. It is this focus on mobilization that has guided us all the way through the process of the merger between Cap Gemini and Ernst & Young Consulting. The very strong support of employees from both groups for the principle of the merger has helped us avoid frictions, turf wars, waste of energy and massive departures which are the normal risks inherent in bringing together two large enterprises, both having a strong culture of their own. Supported by the commercial successes that neither of the two firms could have achieved alone, this merger took place in a spirit of great mutual respect which makes **everyone now feel at home** in this new Group. Ambitious but pragmatic, strengthened by a project formulated several years ago and carried through as planned, the Group offers its people, regardless of their background, career opportunities which are both varied and stimulating, very much designed to nurture and raise real entrepreneurs and great professionals having in common what we call a "passion for customer service."

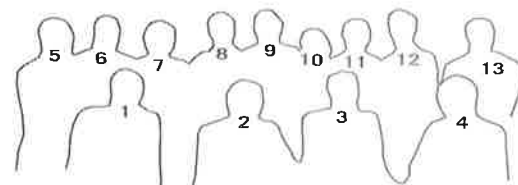
Shareholders, customers, employees, Henry Ford's formula remains in force: it is essential that the interests of each one be taken into account in an equitable way. That is what we have always strived to do for the past thirty years and I am certain that the new Cap Gemini Ernst & Young Group will continue to do the same in the thirty years ahead.

Grenoble, April 18, 2001  
Serge Kampf

## THE BOARD OF DIRECTORS OF THE CAP GEMINI ERNST & YOUNG GROUP



*The Board of Directors (seated first row, left to right): Christian Blanc(1), Terry Ozan(2), Bruno Roger(3), Michel Jalabert(4); (standing second row) Paul Hermelin(5), Geoff Unwin(6), Serge Kampf – Chairman(7), Ernest-Antoine Seillière – Vice Chairman(8), Ruud van Ommeren(9), Guy de Wouters(10), Chris van Breugel – censor(11), Phil Laskawy – censor(12) and Pierre Hessler(13).*



# FINANCIAL RECAP 1967 - 2000

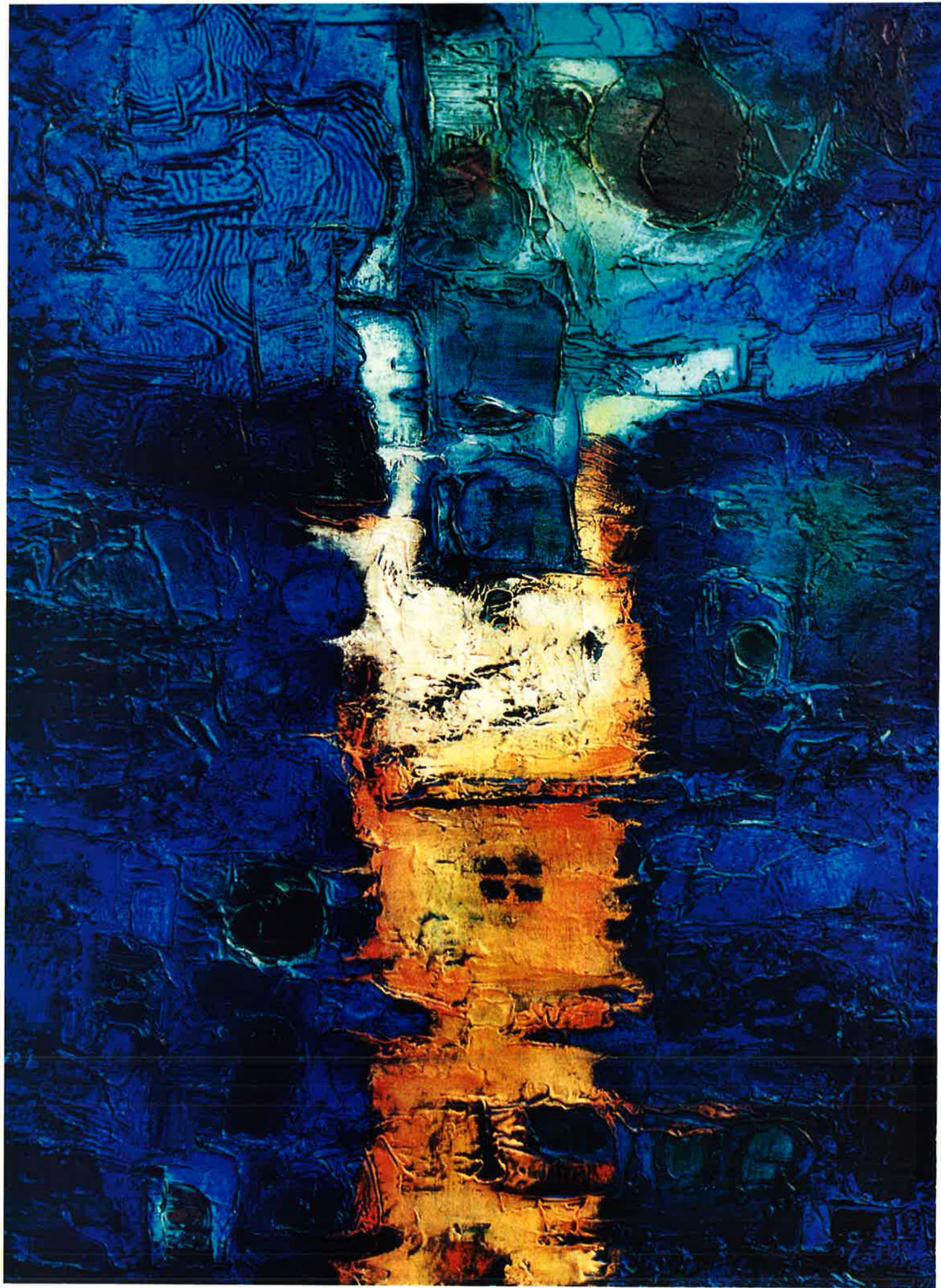
Year	Revenue (in MFF)	Average work force	Per capita revenue (in KFF)	Operating income		Net income exclusive of minority interests		Number of shares at Dec. 31	Par value (in French francs)	Net income per share (in French francs)	Stock exchange capitalization at Dec. 31 (in MFF)
				total (in MFF)	%	total (in MFF)	%				
67/68 (1)	1.5	22	68	0.13	8.3%	0.06	4.2%	2 000	100	31.7	-
1969	4.2	49	86	0.44	10.5%	0.20	4.8%	10 000	100	22.3	-
1970	6.8	65	105	0.73	10.7%	0.34	4.9%	50 000	100	6.8	-
1971 (2)	26.2	391	67 (2)	2.65	10.1%	1.19	4.5%	50 000	100	23.7	-
1972	39.4	502	78	4.25	10.8%	1.90	4.8%	50 000	100	38.0	-
1973	52.1	647	81	5.84	11.2%	2.56	4.9%	120 000	100	21.3	-
1974 (3)	145.9	1 514	96	10.2	7.0%	5.25	3.6%	135 000	100	38.9	-
1975	226	1 893	119	14.1	6.2%	8.2	3.6%	135 000	100	60.5	-
1976	250	2 033	123	11.5	4.6%	9.4	3.8%	135 170	100	69.6	-
1977	293	2 138	137	15.4	5.3%	10.8	3.7%	340 000	100	31.8 (4)	-
1978	370	2 256	164	32.5	8.8%	15.2	4.1%	340 000	100	44.8	-
1979	455	2 543	179	51.8	11.4%	21.9	4.8%	340 000	100	64.4	-
1980	580	2 753	211	69.8	12.0%	29.5	5.1%	340 000	100	86.7	-
1981	823	3 368	244	86.2	10.5%	43.0	5.2%	442 000	100	97.2	-
1982	1 027	3 514	292	118.6	11.5%	51.5	5.0%	442 000	100	116.5	-
1983	1 404	3 776	371 (5)	140.6	10.0%	72.3	5.1%	540 000	100	133.9	-
1984	1 803	4 238	425	215	12.0%	95.8	5.3%	540 000	100	181.6	-
1985 (6)	2 222	4 910	452	265	12.1%	133	6.0%	3 262 500	20	40.7	4 528
1986	2 907	6 564	443	365	12.5%	193	6.6%	3 534 375	20	54.6	7 634
1987 (7)	4 175	8 908	469	563	13.5%	280	6.7%	3 891 890	20	72.0	5 274
1988	5 816	11 438	508	763	13.1%	402	6.9%	4 570 463	20	88.1	11 266
1989	7 055	12 974	544	783	11.1%	525	7.4%	25 251 046	40	20.8 (8)	12 853
1990 (9)	9 172	16 489	556	1 021	11.1%	623	6.8%	27 939 313	40	22.3	9 639
1991	10 028	17 971	558	724	7.2%	560	5.6%	37 472 775	40	14.9	10 867
1992 (10)	11 884	21 675	548	339	2.9%	(72)	-	41 964 338	40	(1.7)	6 924
1993	11 028	20 900	528	201	1.8%	(429)	-	42 431 755	40	(10.1)	7 417
1994 (11)	10 176	19 001	536	526	5.2%	(94)	-	53 068 478	40	(1.8)	9 022
1995	11 329	20 477	553	678	6.0%	52	0.5%	53 073 228	40	1.0	7 324
1996 (12)	14 820	23 934	619	1 042	7.0%	282	1.9%	60 356 666	40	4.7	15 143
1997 (13)	20 177	28 059	719	1 636	8.1%	762	3.8%	61 198 877	40	12.5	30 202
1998	25 941	34 606	750	2 664	10.3%	1 237	4.8%	69 130 658	40	17.9	62 010
1999 (14)	28 272	39 210	721	3 076	10.9%	1 745	6.2%	77 945 108	€ 8	22.4	128 844
2000 (15)	45 464*	50 249	905	4 611*	10.1%	2 827*	6.2%	124 305 544	€ 8	22.7	140 092*

- (1) 15-month fiscal period (Oct 1, 1967 - Dec. 31, 1968)  
 (2) creation of Eurinfor (processing and facilities management)  
 (3) merger with CAP  
 (4) doubling of the capital by incorporation of premiums and reserves  
 (5) following sale of "data collection" activity (365 people) on Dec. 31, 1982  
 (6) introduction on French Stock Exchange (La Bourse) with 10% of capital (326 250 shares)  
 (7) following 5 months' integration of Sesa  
 (8) number of shares multiplied by 5.5 and par value raised to 40 francs

- (9) following 9 months' integration of Hoskyns  
 (10) following 12 months' integration of Volmac and 8 months of Programator  
 (11) following deconsolidation of German subsidiary Cap debis (FF 1.1 billion in 1993)  
 (12) following integration of 7 months of Gemini Consulting  
 (13) following integration of 12 months of the Bossard Group  
 (14) investment in Cap Gemini N.V. increased from 56.4 to 93.9 percent  
 (15) following integration of 7 months of Ernst & Young Consulting.

\* 1 euro = 6.55957 French francs





1999 – "Blue echo" – Paul Baleka (Hallgarter Str. 8 D-65197 Wiesbaden – Germany)



# THE END OF THE "NEW ECONOMY"?

The trends of fashion, which brought to a zenith the Internet and everything related to it, might obscure the fact that the network economy calls for a deep-rooted transformation of companies, regardless of the economic climate and the whims of the stock market.

A slow motion worldwide crash of technology stocks, the widespread failure of firms trying to ride the obligatory "e" wave, the disillusionment of Internet users, a slowdown in computer and network sales, layoffs by the thousands: even if one person's economic woes are not always another's joy, the skeptics of the net economy are nevertheless savoring their moment of triumph.

According to the nay-sayers, there would be no such thing as the new economy, only temporary aberrations in the economic laws. The network of networks would represent just another step in the progress of technology going along at "cruising speed." Employers and employees would hardly see any need to recast relationships no longer provoking major conflicts. And the clients, the incontestable arbiters of the economic game, would start losing interest in playing on the Internet once the early excitement had died down. Their habits, from the Frenchman's daily trip to the boulangerie to the American's weekly expedition to the shopping mall, would be fixed for all time.

The naivety of the early enthusiasts was at least refreshing. Today's skeptics – who, by the way, kept very quiet at the time – will end up paying a high price for their conservatism if it leads them, as nature would have it, to maintaining the *status quo*: that is our argument.

## ■ New economy?

Proponents and opponents of the new economy should easily agree on one point: the expression "new economy," which implies an economy so different that it would quickly replace the old one, is misleading. Economies evolve as the result of successive additions and alterations, the new being superimposed on the existent without eliminating it. Thus, agriculture declined in importance with the rise of industry, which was itself outstripped by the growth of services. Whether the net economy

opens a new era, or is just a new twist in the services economy, it will not in any case replace the economic world as we know it but will, sooner or later, force most of the economic players to behave and act a lot differently than in the past.

## ■ Keys to success

How does the company succeeding in the net economy distinguish itself from the traditional firm which flourished at the end of the twentieth century? Three of the keys to success are so different from those of the past that they call into question the very foundations of the industrial and commercial enterprises:

- *In the network economy, the customer is at last crowned king*, because companies are losing hold of their monopolies, whether natural (geography or language) or artificial (the client's imperfect knowledge of the market), thereby broadening the customer's scope for choice. While developing and maintaining a relationship based on trust and intimacy with the client is a condition for survival, enlarging this relationship to as many of the client's economic actions as possible is a competitive must. To achieve this, the company must move from what is generally a linear progression – one business sector, one strategy, growing market share, regularly improved margins – to the mastery of more complex evolutions. Without losing sight of what it already knows how to do, a company must acquire a level of creativity and flexibility that meets the needs of its clients – multiple sectors, parallel and changing strategies, markets whose shapes defy statistics, growth through portfolio management, margin management by challenging the company's geometry.

- *For today's company, single-handed success means failure in the near future*. Suppliers, distributors, partners of every kind, who are already dealing with the extended corporation, are now integrated into it. The company's key



processes involve them in the same way as they do direct employees, thus expanding each internal network toward the external networks upon which it becomes dependent. The consequences are ambivalent: the firm's potential is stronger but its autonomy restricted; its resources are greater but more fragile; and its identity, although expanded, is challenged by the network, which has interests different from those of the individual company.

In this connected world, the company's employees no longer occupy only the place carved out for them by the traditional hierarchies. They are also visible or discreet members of internal or external networks which provide them with the means of getting information or of doing things which the traditional organization might sometimes have preferred to deny them. Here, again, the multiplication and enrichment of such links challenge the very structures and definitions of the company.

- *The value of the net company depends just as much on its strategic potential and its human and intellectual resources as it does on the usual economic data, based on strict accounting rules. In order to manage and exploit a network, the economic weight of the company, measured by revenue or headcount, is not enough. It is the magnetism of people, their ambition and their ideas that are needed to create the network, then to direct and stimulate it. Because this wealth escapes the usual system of measurement, it must be apprehended, developed and brought to the fore by means until now reserved for other purposes. Thus, communication, image and expectations management, internal and external mobilization, career and skills development are all shaking off their roles as extras to take center stage on the managerial scene.*

#### ■ The deep-seated renewal of the economy

The reality of a deep-seated economic renewal therefore seems established, independently of the ups and downs of the economic climate and the misadventures of the pioneers. Even if one does not endorse this analysis, the relentless rise of competitive pressures, whatever the causes, is enough to justify the transformation effort of numerous companies, and to preannounce it for others.

Compared to the transformation efforts of the last twenty years, however, a very different program is needed now.

First of all, to respond to increasing market volatility and to reduce the cycles of development and commercialization, companies must learn to compress the traditional cycles by taking advantage of the power of today's technologies. Creating new businesses, new products, new information systems requires a parallel approach in which conception and implementation go hand in hand and implementation helps remodel the new concept.

Secondly, with the help of modern communication tools, close links need to be set up – stronger than e-mail or video-conferencing – between the employees themselves, to encourage permanent communication, shared innovation and knowledge development; and links between the firm and the outside world (suppliers, distributors and clients), to instill close collaboration and strong relationships at every stage in the life of the company.

Finally, the transformation program must aim at breathing new life into all areas of the company – and consequently into its processes and systems. Like living organisms, companies have to become capable of learning, adapting and evolving. It is the established operations, the routine, the comfort of a conservative management system which are, fortunately, the victims of today's economy.

Transforming their company into a strong player in the network economy and, at the same time, maintaining its success in a less rosy economic climate, is a thrilling challenge for leaders at every level... direction, new adventures!

**Pierre Hessler**  
Group Managing  
Director

**Richard Seurat**  
Strategy  
& Transformation





1999 — "Renaissance" — André Laurenti (Galerie Alizarine)



# HOW WILL THE CONNECTED ECONOMY EVOLVE NEXT?

**The retreat of dot-com stock prices will not afford companies a chance to catch their breath. The changes in business driven by the connectivity revolution have barely begun. Over the next few years, connectivity will continue to grow, as not just individuals but everything becomes connected; and the economy will begin to evolve in response. Those exhausted by what has come thus far will need to find their second wind.**

Consider the following: In the 19th century, technological breakthroughs in connectivity – the Suez and Panama Canals, the U.S. Transcontinental Railroad, the Brooklyn Bridge – generated as much excitement – and investment – as today's auctions of wireless spectrum. Trade, of course, was the "killer application" driving investment in connectivity. But the evolution that followed transformed far more than trade, bringing on mass production, which would not have been economical without cheap transportation to bring manufactured goods to broad markets. Once mass production gained a foothold, society evolved around it, changing the nature of work, the role of the farm, labor laws, and economic power structures.

Today, the Internet and the cell phone are the most visible connectivity technologies. Commerce, once again, is the driving application that has led to the explosion of the Internet (in Europe, Internet penetration rose from 18 percent to 28 percent of households in the nine months ending December, 2000; worldwide, 40 million pages were added to the Net last year). But the changes that businesses are making in their distribution systems and supply chains are, once again, only the beginning.

In the next 24 months, six broad trends will demand attention.

## ■ 1. Global mobile, always on

While connectivity has become almost ubiquitous in the advanced economies, we are still conscious of how we connect. Will my GSM phone work in the U.S.? Can I get on the corporate network from a remote office? What do I do when my ISP is down? Can I really retrieve e-mail on an airplane?

Two developments will make connection unconscious: new communications protocols

will emerge to fill the gaps in connectivity, and vendors will work hard to integrate their own networks with all others. First, protocols: third generation (3G) cellular systems will bring medium speed data to cell phones; standards called Bluetooth and 802.11 will give objects as small as fountain pens mobile networking capability; Digital Subscriber Lines (DSL) and cable modems will put households online 24 hours a day, not just for brief dial-up sessions. And integrated solutions are arising (e.g., UNET; see <http://www.unet.net.tw>) that can take information in one form, say a voice message, and present it on whatever device is handy – pager, PC, Blueberry, or phone.

Individuals may choose to opt in or out of this trend, but for companies, the opportunity will be too good to ignore. A small example: McDonald's recently started accepting payment using Mobil's Speedpass, a small transponder that tells Mobil Oil's gasoline pump – and now McDonald's drive-through window – how you'd like your purchase charged. Soon, you will be connected to your customer anytime, anyplace, anyhow. What advantages will you create? The opportunities for true mass customization, for full time availability for customers, for mining new information from customer data are as challenging as they are enormous.

## ■ 2. Software and sensors everywhere

Remember when the clocks of the world's VCRs were all blinking 00:00? Now the VCR is connected enough to sense the time from the airwaves and smart enough to update itself continually. So far, networks have been connecting people; next they will connect objects. For every microprocessor powering a PC, there are ten embedded in smart appliances and equipment – in a high-end car there are 78!



1989 – "The boat" – Michèle Battut (Galerie Tosaka)

Most of these intelligent chips are controlling something local, like the VCR clock – they're not connected to anything more than ten feet away.

That is about to change. In three years, there will be 12 million connected automobiles, navigating, providing maintenance data to manufacturers, and offering customized concierge services. High-end appliances – the Miele dishwasher, the Onkyo receiver – can upgrade their software to endow themselves with new features. Your thermostat, connected only to your furnace today, will be connected to diagnostic software at your utility tomorrow. More personally, your heart could be supported by a smart, implanted device that senses information about its rhythms and reports them to your cardiologist.

### ■ 3. Real-time everything

When every object contains software and is connectable, there will be few barriers to obtaining instant information. Cisco Systems has committed to "continuous close" – their books are continually updated to provide the firm's financial condition in real time, anytime. The airlines now use the Web to provide customers the position of each flight. Many companies have begun offering real-time order tracking and your car's navigation system will communicate with the parking lot, identify the closest available space, and direct you there.

The opportunity: among the innovations companies will be pursuing this year will be real-time pricing, to ensure maximum yields; transparent order tracking to enable customers to see precisely where their orders are; and automated markets in supply chains to replace centralized dispatching with software market





1999 – "Yellow dahlias" – Do Fournier (Galerie M.C. Goinard)

"engines" that analyze conditions in real time, putting available supply to its most valuable use, and reacting to breakdowns, shortages, or demand fluctuations smoothly.

Sensors, software, and networks are linking every element and aspect of the economy. But once things begin to connect, they take on a life of their own. This pervasive connectivity will lead to three major evolutions in business.

#### ■ 4. Economic webs

Think of an economic web as the ecosystem in which you or your company is nurtured, defended, and attacked. In a traditional economic system, buyers and sellers depended upon one another, as did sellers and suppliers – but it rarely extended beyond that. Today, webs of networks are created among consumers, suppliers, and alliance partners, as well as across formerly competitive boundaries.



The question for a business is: how can I both profit from and enhance the ecosystems I'm part of? There are significant opportunities in the area of integrating and operating the complex financial elements of these exchanges. There is also opportunity in securing comprehensive databases of customer information. And, as more alliances are created, companies will need to learn how to enter and exit alliances smoothly and rapidly.

### ■ 5. The human capital crunch

Historically, we've placed customers at the center of all economic webs. Today, however, intellectual capital is the scarcest resource and individuals are coming to represent talent as well as demand.

The talent question is affecting every business in every sector all over the world. Creativity and technical talent are hard to attract – and more impossible to keep. How can companies provide leadership in this environment?

As the labor markets shift from local commodity trading to global marketplace, the Human Resources role will transform from that of administration and compliance to one of talent agent, identifying valuable people and creating attractive options for them.

Individuals will have far more awareness of their market value and, through office and work design, more control over their work lives. Flexible work arrangements and remote dial-in are two major examples, as well as the increasing influence employees have on workplace environment. Self-designed workspaces are becoming more common and are often key decision factors for employees.

As the relationship between employer and employee continues to evolve, there is much needed to support it. New human capital management systems will need to be created which can track and monitor value creation, variable compensation, stock options, referrals, and team-based bonuses. All of these elements must be connected to measure the value of human capital. The result will be a shift of wealth from institutions to individuals; the corporation that wants the best talent will embrace this trend, not resist it.

### ■ 6. Intangibles matter – but are not counted

When people and innovation are considered to be an organization's most important assets, isn't it time to track their value? Shouldn't annual reports devote as much space to the real drivers of corporate value as they do to tracking depreciation of office equipment?

Traditional accounting standards were designed for an economy in which the value of a business lay in its physical assets. But in the knowledge-based economy, new measurement and reporting standards are required to help firms and their investors manage their investments in intangible assets.

According to the Cap Gemini Ernst & Young Center for Business Innovation's research, non-financial performance accounts for 35 percent of a company's value. The quality of leadership, the sustainability of its business model, and its track record for innovation are among the non-financial factors driving market capitalization. Most firms are aware of the importance of these drivers, but few have the capability to measure them.

Shareholders, stockholders, and the market are demanding tools that better measure intangible assets and that shift the evaluation focus from past to future. The opportunity for business lies in the creation of a new accounting system that would enable companies to measure and value intangibles pertaining to human capital. Measures on intellectual capital, relationship capital, and the potential of employees could likewise be incorporated into the company and communicated to investors. In addition to intangible measures, real-time shareholder value metrics would also help companies to better communicate their value.

Progress has always been driven by connections and commerce has been the force behind the creation of these connections. Then management adapts to the new economic trade-offs. The six trends explored above are among the changes that will be prominent in the next two years. The challenge is to be a part of creating the next wave, not just riding it.

**Christopher Meyer**

*Center for Business Innovation*

# 2000: YEAR 1 OF DIGITAL MARKETPLACES

The last eighteen months have seen one of the greatest innovations in business commerce: the creation of a new intermediary with an innovative business model – digital marketplaces to facilitate commerce between companies on a global basis. In 1999, approximately 30 Business-to-Business (B2B) marketplaces were announced. By spring 2000, that number had mushroomed to more than 400 trading communities, and now there are over 2,000 online B2B marketplaces clamoring for would-be members' attention.

## ■ The waves of digital marketplaces

In the first wave, these marketplaces were set up as independent exchanges. Focused on highly fragmented industries, these exchanges enable buyers and sellers to discover each other, compare prices and other attributes and complete procurement transactions. As a result, significant procurement cost efficiencies were realized.

Yet most large companies hesitated in participating in such marketplaces because of the uncertain future of electronic procurement and the possibility for diluting their big name brands. Lured by the potential of large market valuations of software companies (like Commerce One and Ariba), however, large industrial companies created the next wave of marketplaces by combining forces with other companies in their industry to launch their own procurement exchanges. Industry consortia were announced in almost every major industry sector: energy, aerospace, automotive, electronics, chemicals, utilities, consumer products, and so on.

## ■ Challenges for successful marketplaces

The concept of major industry consortia forces raised concerns about companies that may have been competing fiercely for decades and now find themselves in the unfamiliar position of having to cooperate with rivals. Would they misuse their power and position over their smaller suppliers? Would they aggregate demand and drive down prices? How would they manage the information they have been encouraged to keep secret for decades? And what about information such as price lists, discount policies,

historical selling information and all sorts of other data that most companies are not exactly eager to share? Depending on the industry – and the size of the players planning the exchange – the effort could also face government scrutiny. The Federal Trade Commission took a close look at the automakers' Covisint effort before giving the group the green light in mid-September 2000 (see page 19). The close scrutiny is no surprise given the magnitude of the project and the implications for copycat exchanges in other industries such as aerospace.

Current belief is that the industry consortia are expected to be successful, while the independent exchanges may survive only in niche-frAGMENTED markets. There is no guarantee, however, that the big names behind some B2B marketplaces will be able to set aside their cultural differences. Consortia efforts involving technology do not have a great historical track record. Consider the number of organizations devoted to developing a standard version of Unix during the late 1980s. Most were quietly scrapped before the turn of the decade.

The services that marketplaces intend to provide are rapidly going beyond procurement services. Basic catalogue and auction services are of limited value to participants. But what if exchanges could support a negotiated buying process between strategic partners? What if exchanges could allow engineers and buyers between multiple organizations to collaborate on product design? What if exchanges provided inventory visibility to participants no matter where the inventory is in the supply chain? Services like these are likely to be very high value to the participants because they reduce cost, time to market and create new revenue opportunities.





1992 – "The happy cyclist" – Charles Marcon ([www.charles-marcon.com](http://www.charles-marcon.com))

The success factors of marketplaces are not entirely clear, and will evolve as the models evolve over the next few years. In general, marketplaces will be successful if they focus properly on a number of key areas such as:

- *Opportunity.* The target market should be potentially large enough to build liquidity and generate revenue.
- *Market positioning.* The marketplace must have sustainable differentiation relative to other horizontal and vertical industry exchange.
- *Offering.* Making sure that the service provided by the marketplace has a compelling value proposition for its members.





1997 – "Jilali Café, tea anytime" – Christophe Ronel (Galerie Suzanne Tarasiève)



# A SEISMIC UPHEAVAL IN AUTOMOTIVE

**What will the "connected economy" mean for the world's carmakers and their partners? Triumph or disaster? Mass extinction or a new evolutionary leap forward? In our view e-commerce is likely to bring both outcomes to an industry already undergoing massive change. For all players, success will depend on rapidly finding new ways of doing business.**

Few industries have faced problems like those of the automotive sector. Problems of over-capacity (more than 20 percent in Europe), of global competition, of uncertainty in regulatory regimes and of spiraling development costs (up to 1 billion euros for a mid-size car, for example). Not to mention the sheer complexity of running multi-tier, multi-model supply chains on a worldwide basis. All these issues have presented carmakers and their partners with huge challenges in recent years, and are continuing to do so in the new millennium.

Faced with such problems, it is hardly surprising that many famous names have realized they can no longer survive alone. Hence the mega-mergers of recent years, some of which have worked well and others less well, thus creating doubts about their viability. New patterns for the future are now appearing: partnerships like GM/Fiat or Renault/Nissan; and new technical liaisons between companies which remain independent, such as PSA and, to some extent, BMW.

It is still not clear what the "right" industry model is for the 21st century. Probably several models will co-exist, in contradiction to what was said by most commentators five years ago.

To address so many challenges, common sense suggests that major change is unavoidable – a view shared by many executives inside the industry and by many experts on the outside.

## ■ The power to transform

One of the keys to that change lies in the connected economy and the new technologies of e-commerce and the Internet which have created it. Why? Partly because it addresses the inadequacies of communication in the industry. But mainly because the connected economy is the unique opportunity for the automotive industry to get rid of some of its constraints and generate new winning business models.

The winners will be those who accept the need for fundamental change, who are ready to start immediately (or have already started) and who are prepared to invest huge effort in such a transformation.

This essential transformation will impact such major parts of the motor industry value chain as Inbound Supply Chain, Customer Relationship Management, Car Connectivity and Mobility, Order To Delivery and finally – perhaps most significantly – the overall structure of the entire industry.

## ■ The Inbound Supply Chain

Some 55 percent of the cost of a new car is in the inbound supply chain area, coming from a 30 percent figure 20 years ago. Some 30 percent is in distribution costs and only 15 percent in assembly.

Over the last ten years car manufacturers have aimed at managing the costs in the inbound supply chain. This has resulted in an increasing transfer of added value to their suppliers combined with very tight management of those suppliers' margins.

Today, e-exchange marketplaces are being created which are aimed at getting out of this spiral. They will provide tools to operate all forms of procurement activity more easily and at a lower cost, and to manage the inbound supply chain more efficiently. Analysts estimate the cost reduction generated by B2B exchanges at over \$1500 per vehicle.

Today, Covisint, the new B2B trading exchange set up jointly by Ford, General Motors (GM), DaimlerChrysler and Renault-Nissan, is a reality, with an increasing set of services ranging from e-procurement, e-auctions, supply chain management, collaborative design and certainly more to come.

## ■ CRM, connected cars and mobility

In Customer Relationship Management, the industry has been making enormous efforts in recent years, but it still lags behind the best practitioners in areas such as telecoms or financial services. Tussles between OEMs and dealers, and between dealers and consumers, have impeded progress. And historically, the corporate cultures of the big carmakers have focused on brands and models rather than on consumers. A consequence of this is that the makers are experiencing a low loyalty rate and are struggling to retain a decent share of the after-market.

At a time when the consumer is king as never before, it is an issue that needs to be tackled urgently. The connected economy is now bringing new major change factors, for example:

- Customers can now be accessed easily through multiple channels – and they like that. According to a major market research study (Cars On-Line) of 8,000 consumers in North America and Europe commissioned by Cap Gemini Ernst & Young in 2000, in most advanced countries, 25 percent of car users are now ready to access the Internet in the process of buying a new car.
- An increasing part of the market is moving to mobility – a contract to satisfy consumers' wide range of mobility needs as opposed to simple ownership of a car.
- And, at last, more and more of the 500 million cars in use in the world will be "connected," giving consumers access to a whole range of in-car services, from navigation and rescue through to information and entertainment.

Clients will expect an increasing number of services through this channel and if they cannot get them from the OEM they will get them from new suppliers. This creates two new challenges for the car industry: (a) not to lose this source of business and (b) to make full use of it to improve customer loyalty.

We are already seeing huge efforts from OEMs to tackle this market either by themselves like GM with OnStar, or in partnering with operators or service providers like PSA.

## ■ Order to Delivery

The current Order to Delivery process is fundamentally still the same cumbersome one as ten years ago. There are still many inefficiencies in the sales, planning and delivery processes, so that a customer has to wait on average 30-50 days to take delivery. Of this time, about 20 days are taken up by outbound logistics – simply getting the car from the assembly plant to the dealer. And, according to market research conducted in the U.K., 40 percent of customers did not order, and thus receive, precisely the car they wanted. Manufacturers fail to meet specific customer needs because they "sell what they make" not "make what they sell."

Colin Wilson of the Cap Gemini Ernst & Young automotive team says: "The challenge is how to 'build-to-order' within just a few days and therefore drastically reduce the stock and costs in the distribution process. If you took all the best practices in the car plants worldwide and put them into one plant on a greenfield site the best you can achieve is a 12-15 day car – still too long.

"But with today's technology, a car could feasibly be manufactured and delivered within less than eight days from order. Why isn't this happening? Because in order to reach the 'few days' objective, the mind set has to change completely and every player in the value chain has to re-invent their role.

"The 'three-day car' model is addressing this issue. Delivering cars in days is no longer seen as a futuristic fantasy. Indeed, many of the major manufacturers are committed to this goal."

## ■ A new industry model

The most exciting and far-reaching changes relate to the overall shape of the industry, to basic questions of "who does what," and to strategic issues of how different players choose to define the roles they will play.

Will car manufacturers want to manufacture cars? The actual added-value from the assembly process is only about 15 percent of the final value of the vehicle. Outsourced, contract assembly is already starting to happen, leaving the manufacturers (or ex-manufacturers) to re-define themselves as brand owners and brand managers – with a brand that could go far beyond the vehicle to include car- or even non-car-related products and services.



1999 – "Three fish" – Sami Briss (Galerie Romanet)

At the other extreme, a manufacturer could choose to focus 100 percent on manufacturing operations, providing super-efficient assembly operations for a whole range of different models from different companies.

It is the connected economy, with its power to create "instant partnerships" based on seamless information flows and real-time communications, which is making such choices feasible.

#### ■ The global connection

With some 50 million cars being produced per year, an average life of 10 years means that there are about 500 million cars in the world at any one time – each with its owner/driver and perhaps three passengers. So we are talking about a connected economy of 2000 million players worldwide. Reaching out to consumers on that scale is a huge challenge and a huge

opportunity, and one that will not be met without change.

Players will need the vision to redefine their business model, to adapt their structure and connect effectively with partners on the one hand, and with customers and car users on the other. It is a big challenge, but for those who can meet it, the connected economy brings a unique opportunity to anticipate tomorrow's rapid development in markets, customer preferences and technology changes.

**Pierre Durand**  
*High Tech & Automotive*





1970 – "Waiter at the brasserie Lipp" – René Galant (Galerie Art Témoin)

# LESSONS FROM THE NEW / OLD ECONOMY

The new economy is turning out to be a challenging place. Less than twelve months ago companies with strong net future expectations and P/E ratios of forty, fifty and even one hundred were considered attractive. In the last six months, the world markets have come back to basics, de-emphasizing the "new valuations" and looking for companies that demonstrate consistent earning growth, meet their financial forecasts, generate positive cash flow and have realistic P/E.

The last ten years of extraordinary growth, the rush to solve the Y2k bug, and the dot-com mania prompted many companies to embrace new technologies and business models. Companies created slick websites, publicized their virtual attributes through innovative advertising and continually poured investment dollars into technology. What went wrong? Why have companies' capitalization been cut in half, or even a third? Why have 75 percent of the dot-com companies gone out of business? Did companies invest in the wrong technology? Did the world economy not grow fast enough? No. Rather companies neglected to hold their technology investments to stringent ROI rules.

The most forward thinking companies, however, were also using technology to drive operating efficiencies and simultaneously growing their business. *Business Week*, for example, reports that General Electric expects to save \$1.6 billion from its technology investments this year.

Companies now need to regain earning momentum, become more nimble and take out cost. But quick fixes – arbitrary pulling back on technology investment or across the board layoffs – rarely achieve full objectives. Competitive advantage can be achieved by combining the technologies of the new economy and the values of the old economy.

The following is one prescription for competing in today's new marketplace:

## ■ Create a cost management culture

Sustaining cost reductions and productivity improvements requires a change in the culture of an organization. Companies that have continued to maintain lean and efficient operations have cost management embedded in their corporate "DNA." A pragmatic way to accelerate a cost management discipline is by establishing a dedicated team organized within a Cost Management Office (CMO). The CMO would mine, capture, prioritize and record cost savings opportunities throughout an organization, ensuring that there is no leakage between functions, as well as address resistance issues.

## ■ Link your technology strategy to your business and cost management strategy

Technology spending is here to stay. A recent survey by Financial Executives International and Duke University reveals that roughly one-third of the companies surveyed plan to cut costs this year while two-thirds expect to increase technology spending.

Establishing a clear view of your company's value chain, cost structure and cost drivers is an essential first step in developing a real strategic cost management strategy. Setting specific cost reduction goals by business area, and understanding the impact of these cost reductions on value, growth, quality, capabilities and business strategy, can provide management with real insight into opportunities. Linking and refocusing your technology strategy completes the picture.



### ■ Innovate all parts of your business

Continuing innovation in new product development, one to one marketing, CRM and adaptive supply chains is critical to achieving competitiveness in the new uncertain economy. However, significant savings must also be driven out of the support and general and administrative areas of a business. Finance, human resources, purchasing, administrative support and IT infrastructures are fertile ground for the use of technology innovation and cost reduction.

A few of the world's leading companies have already seized upon the notion of digitizing all of their business and back office functions. Oracle is using its e-business suite of software applications and claims to have saved \$1 billion in one year. Cisco has leveraged the Web to achieve a virtual financial closing process and optimizes its workforce through web-based self-service. These innovations result in even greater information transparency, quality and cost effectiveness.

### ■ Unlock your hidden assets

Taking a fresh and different look at a company's assets and capabilities may yield substantial cost savings and provide a basis for sustained competitive advantage.

Standardization, optimization and sharing of technology, business processes, knowledge and organizational capabilities are not new, but they can be powerful platforms for achieving cost reduction and future growth. *CFO* magazine reports that the St. Paul Cos significantly reduced their costs through consolidation, shared services, standardization and process rationalization. A number of leading companies in Europe and Asia are establishing shared business centers to achieve dramatic cost reductions and establish standard ways of doing business needed to support globalization efforts. According to *Business Week*, Tyco International leverages its standardized financial and ERP systems software to enable rapid integration of acquisitions, thereby unlocking significant business value.

Over the past several years many companies have implemented ERP systems. And while many have had good results, others have not yet optimized these investments. Now is the time to revisit these implementations

– particularly where results have been disappointing – and strive to tune the software's effectiveness including the underlying technology architecture and business processes. Companies are pursuing ERP Enterprise Effectiveness first to achieve operational stability, then to move on to operational and strategic excellence. A major equipment manufacturer reduced its order-to-cash cycle from 113 days to 87 days after optimizing its ERP implementation and eliminating systems-related customer billing and shipping errors.

Re-evaluating core competencies in conjunction with the overall business, technology and cost management strategy can yield significant results. Outsourcing the management of your applications, or moving systems development to a low cost provider, can unlock critical human resources and technology assets resulting in dramatic cost savings and higher productivity.

Finally, don't overlook existing financial assets and opportunities to reduce working capital, monetize intellectual property, and redesign your capital structure.

**James Aselta**

*Support Services*





1999 – "Canal in Venice" – Jean-François Larrieu (Opera Gallery)

## XML, A REVOLUTION IN THE MAKING

The world of information technology has been invaded by the XML acronym. Some view it as the Esperanto of IT, others as computer science's magic potion, still others as the last word in marketing strategy. However you view it, XML is raising a lot of questions. For example, if you look at the top of this page, printed in boldface, you know at once that this is the introduction to an article. If you look at a column of figures, you are able to determine the state of your bank balance. Even provided with very little data, the human being is capable of filling in a lot of missing information. Computers are not so clever. They have to be told exactly what these bits of information represent, how they are related and how to use them.

XML (or eXtensible Markup Language) makes the information self-explanatory for the computer. It is a universal format for structured documents and data on the Web. This minor modification in the way computers communicate with each other will transform the Internet from a platform for exchanging information to a platform for processing information.

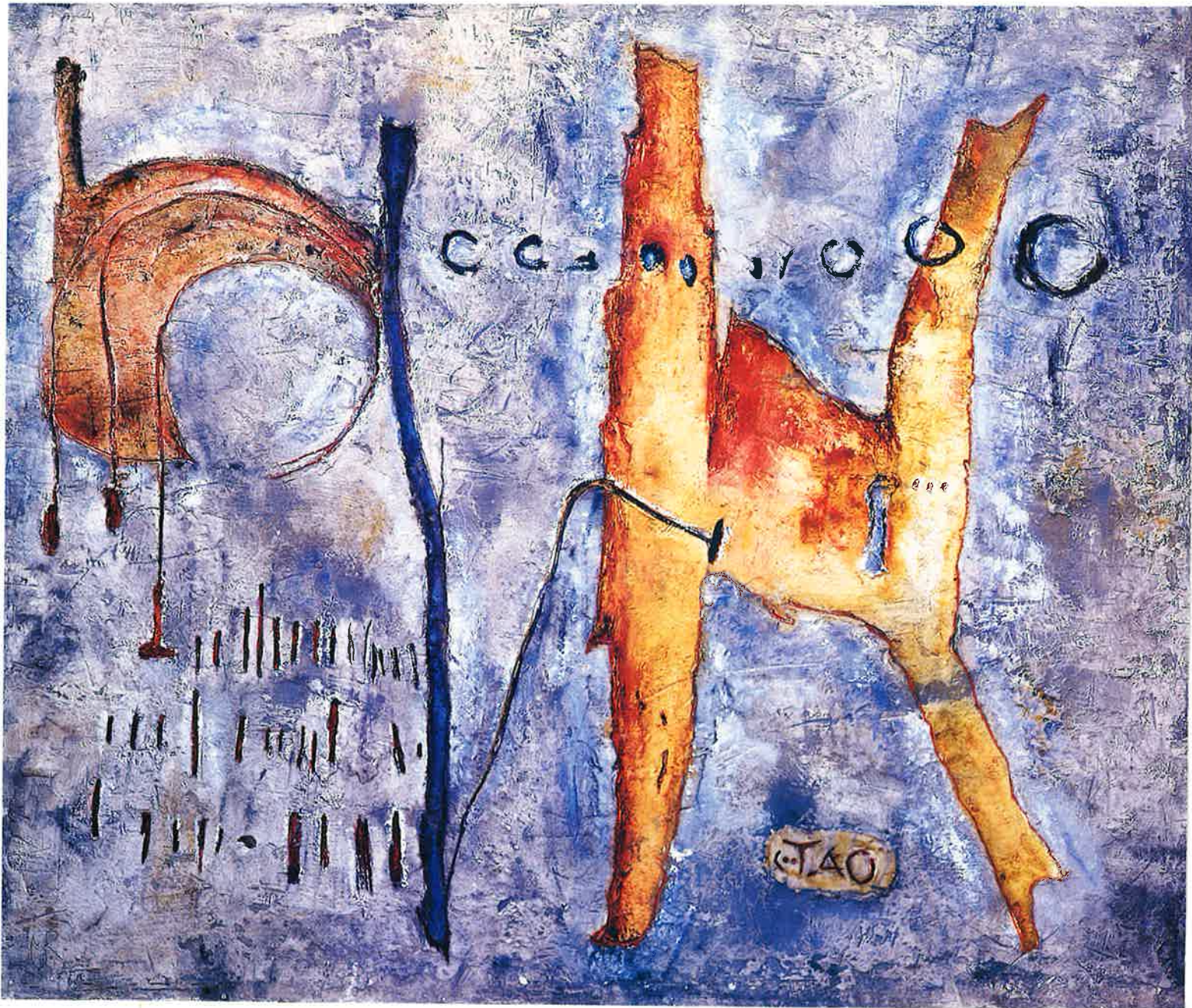
### A little background

Thanks to the Internet, hundreds of millions of users can exchange digital data with tens of million of servers. Ten billion electronic messages are exchanged worldwide every day. The success of the Internet has been

built on three technologies: TCP/IP, HTTP and HTML:

- TCP/IP enabled global connectivity by simplifying the networks and reducing the costs of telecommunications.





1996 – "Untitled XXIV" – Richard Marolle (Galerie Alberio)

- HTTP is the Web server protocol. Henceforth, all the computers around the world can communicate without acknowledging differences in proprietary systems.

- HTML has become the universal language for presenting information to users and the "point-click" on the hypertext link has become the standard interface with the machines.

These technologies have provided instant access to information which has given rise to the Internet revolution. Nevertheless, it is often extremely difficult to find available information on the Internet. And furthermore, users and businesses are looking for Web sites that provide services more sophisticated than those supplied by a super-fax – which can send pages to anyone who asks for them; they are looking

for systems which can take a client's order, consolidate information or even run a factory, if so required. HTML was not designed for tasks like that.

EDI (or Electronic Data Interchange) was an attempt to solve this problem. By universally standardizing the contents of an order, an invoice or a stock market transaction, for instance, it was believed possible for computers to exchange documents automatically. In most cases, however, this approach did not work. Added to the inherent slowness of obtaining global agreement on the contents of a document, was the "committee effect"; consensus was possible only on very complicated documents which, in most cases, were unusable.



The beginning of the 1980s saw another attempt at document management: the SGML standard in 1986. The complexity of implementing SGML, however, considerably restricted its use for large document systems. Then, in 1996, a team led by Jon Bosak of Sun Microsystems decided to create a simpler version of SGML, one better adapted to data exchange on the Web. Within a few months, he rallied all efforts in this field and, on February 10, 1998, W3C published the first version of XML specifications in 26 pages – nothing compared with the 500 pages for SGML!

### ■ A short presentation of XML

XML, the abbreviation of eXtensible Markup Language, is a universal format for documents and data on the Web. Structured information contains both content (words, pictures, etc.) and some indication of what role that content plays. XML is a method for putting structured data or objects in a text file.

XML is extensible because markup tags are not defined in the language as in HTML. Users have the total freedom to define their structures and "tags."

How could this simple trick – of putting tags around content – lead to a revolution? The advances made in software development are not dependent on a single technology, or even a dominant technology, as in the case of hardware. Software techniques progress through a series of tiny improvements in every aspect. After several years, this progress is no longer seen as simple improvements but as real innovation. Between a film viewed at two images per second and twenty images per second, there is more than a ratio of ten; there is the illusion of movement.

The simple fact that everybody agrees on the same XML standard to represent data is, in itself, a revolution – the next stage of the Digital Revolution where computers will talk to each other, discover new peers and exchange information without human intervention.

Another source of XML's unifying strength is its reliance on a new standard called Unicode, a character-encoding system which supports intermingling of text in all the world's major languages. In HTML, as in most word processors, a document is generally in one particular language, whether that be English or Japanese or

Arabic. Thus, XML enables exchange of information not only between different computer systems but also across national and cultural boundaries.

### ■ The two faces of XML

There are two XML worlds, unconnected but linked by a common technology requirement: structured data that exist independently from systems.

#### **In the first world, XML is used as a technical tool to build applications within the enterprise.**

This first XML world allows the deployment of low-cost, robust and efficient enterprise applications based on Internet technologies. XML is a world of new technologies, a full set of tools: "XML Namespaces" provide ways to mix XML tags without chaos; "XML Schemas" are rich and extensible ways to describe the rules for the content of a document; "XSL" and "XSLT" are advanced languages for expressing and using style sheets; "DOM" is a standard set of function calls for manipulating XML files from a programming language and much more. These technologies are extremely powerful but at the expense of an ad hoc training. The time needed to understand these new concepts will no doubt slow down the deployment of XML in the short term.

#### **In the second world, XML is used as the common business language for cross-enterprise and e-commerce applications.**

The second XML world will radically transform the nature of the Web as we know it. For centuries, humans have successfully done business by exchanging documents: purchase orders, invoices, manifests, receipts and so on. Each record exposes exactly what its recipient needs to know and no more. The exchange of documents is probably the right way to do business online, too. Enterprises will use the XML-based family of specifications to communicate with their customers and with each other.

By reducing the amount of human intervention, XML will drive further supply chain efficiencies and automate back office functions. XML will reduce the cost of ordering and processing mistakes. Having XML data will be a "must do" to maintain market position. XML technology will also deliver information to user agents in a form that allows automatic processing after receipt.



### ■ From Web sites to "Web Services"

With the explosive growth of B2B e-commerce, the Internet presents value and reach for businesses of all sizes, providing opportunities to find new customers, streamline supply chains and provide new services. Web Services are self-contained applications that can be described, published, located and invoked over the Internet. Previous attempts at distributed computing (CORBA, JavaRMI, COM+) have yielded systems in which the coupling between various components in a system is too tight to be effective for low-overhead, ubiquitous e-commerce over the Internet.

With XML, websites can exchange data much more easily. Applications will be based on compositions of services. Some services could be discovered and marshaled dynamically at runtime. Service Integration becomes the next generation of paradigms, moving existing IT applications to the Web. The barriers to rapid participation in the global Internet economy will be removed for any business anywhere, thus allowing it to participate fully in the new digital economy.

### ■ The future of XML

XML is a victory for the user. It is an open standard which can be freely extended without the usual limitations of some other systems and languages. XML is intended to be read by computers, but can also be read by humans, and can be produced and manipulated by the most elementary text editors. In theory, at least, XML users no longer have to become hostages to the proprietary software vendors, and this signals the demise of market domination by a few giant companies.

The end-to-end use of XML and XSL means that users will no longer be the victims of proprietary standards. Companies which built their empires on these standards will no doubt put up a fight. Their most obvious weapons will involve limiting the use of XML to middleware, of continuing to use HTML instead of XSL for publication, of trying to impose "namespaces" and "specifications" on proprietary platforms. In short, they will be attempting to backtrack. If, however, users stay on the alert, XML will gradually transform the Internet into an enormous database and a powerful, "business-friendly" service platform. It is even a good bet that within a few years this platform will have capabilities surpassing those of any human beings in any field. That comforting image of the computer which helps us out, but which can always be disconnected, may soon disappear.

**Jean-Paul Figer**

*Innovation & New Technologies*



1999 – "Orange village" – Raya Sorkine (Opera Gallery)

## CONSUMER-DRIVEN SUPPLY CHAIN: LESSONS FROM NATURE

Many similarities can be found between a supply chain and an organism living in a continually changing environment. Like its biological counterpart, the supply chain needs to evolve and adapt in order to survive successfully in today's globally connected economy. This adaptation requires rapid information flow, coordination, and decision-making not only within a company, but across organizational boundaries. The new science of complex adaptive systems is perfectly suited to these complex business problems.

### ■ The problem...and existing solution

Supply chain management is a difficult task requiring coordination and decision-making from end to end with the goal of optimizing the entire supply chain. Improving efficiency at each node in the supply network alone is insufficient for maintaining competitiveness in

today's dynamic business environment; in fact there is a danger that such narrowly targeted "improvements" could be detrimental to the running of the whole chain. Revolutions in supply chain operation will be driven by changes in coordination between the individual nodes making up the supply chain.





2000 – "The pruned trees" – Olivier Berlincourt (Galerie Alizarine)

Traditionally, coordination in the supply chain was mandated through a hierarchical organizational structure. The result is increased lead times and uncertainties in demand (volume and mix), process (yield and transportation reliability), and supply (parts quality and delivery reliability).

Advances in information technology provide promising solutions for these problems of increased lead-time and uncertainty. When this new technology is applied in today's connected economy it is not clear what types of strategic alliances should be developed. What information is important to communicate to the different nodes of the supply network? Different nodes in the supply chain have conflicting objectives and constraints. How should

global supply chain optimization address each of these constraints? These and many more vital questions must be properly addressed when managing the supply chain of tomorrow.

In reaction to delays, forecasting methods are used to predict future demand. In reaction to uncertainty, statistical averages are used to reduce errors in the forecasted demand derived from noisy data. Accurate forecasting of future demand has proven difficult since many of the statistical algorithms used are based upon a constant average demand. In reality, the commercial environment changes too rapidly to permit the collection of useful data series to support statistical requirements for data analytic approaches.



### ■ New solutions from complexity sciences

Tackling the challenges of the connected economy requires a new generation of tools. Research in complexity science resulted in the development of such tools with applications in simulation, data mining (detection of patterns in large databases), and optimization (seeking the best possible solution).

Cutting-edge technologies like agent-based modeling provide businesses with powerful tools for evaluating strategic reorganization in their way of working. By closely mapping the organization of the company and its internal flows, such models are used to perform detailed "what-if" analyses, which are out of reach for traditional techniques.

An example: When Unilever wanted to improve the performance of its strategies for managing ice cream inventories, an agent-based model of the whole supply chain, embedding the actual strategies for planning, sourcing, making and delivering exploited by the different nodes was developed. This model is providing managers with a tool that helps them to quantify the complex, non-intuitive trade-offs between customer service levels and costs. Now the outcome of those simulations is used to support strategic decision-making.

Agent-based modeling was also central in helping Procter & Gamble cut its inventory. Based on the results of simulations, it was found that the key to further inventory reduction was "constraint relaxation" – i.e., the removal of restrictions such as never sending out trucks that aren't fully loaded. Introducing flexibility into both delivery schedules and the size of truckloads worked wonders.

Another use of agent-based modeling: as a way of studying a population of consumers which exhibits reasonable purchasing behavior. Knowledge about expected consumer buying habits can then be exploited to find new ways of impacting those habits.

The automotive industry is a perfect instance in which such control can be critical for improving the supply chain by deciding how many models it should be selling and what their attributes should be. For example, Ford uses many sources of information to gain insight into customer preferences, including

focus groups, sales figures, J.D. Power surveys and, more recently, click-stream data. The problem is that data from different sources often conflict, and no one source is inherently superior. A further problem with focus groups is that consumers' answers don't always reflect what they would actually buy; they tend to forget their practical constraints and are more likely to answer with their fantasy car. Since dealers are interested in actual purchases to keep inventory low, the information gleaned from focus groups is not very helpful.

To get around such shortcomings, an artificial population of software agents programmed with buying characteristics – values and preferences for particular vehicle features – may be simulated. For each software agent, its rationale for decision-making can be analyzed in detail; if you could talk to one of the software agents, it could tell you exactly how much it would be willing to pay for air conditioning or four-wheel drive. The software agents will give Ford insights that it will not have to psychoanalyze. The automaker will be able to focus on building the cars that are most likely to attract buyers, rather than trying to appeal to everybody with a multiplicity of models.

Ant algorithms are another example of a biologically-inspired technique that offers an inventive and efficient way to address the challenges of today's ever-changing business environment. Despite the apparent chaos of life in the ant heap, and the simplicity of each individual ant, the colony as a whole demonstrates remarkable flexibility and robustness in response to changing events.

Especially useful when corporations are having trouble identifying the most efficient sequence for a series of actions, ant algorithms helped Southwest Airlines reduce cargo handling bottlenecks. A model was developed to simulate the destinations, shipments, freight-house operations, and ramp personnel of the airline's cargo operations.

The software agents used in the simulation first followed the established rules for controlling the flow of freight throughout the network. One of those rules called for loading the freight on the first plane going in the right direction. Simulations showed that following this rule slavishly leads to unnecessary handling and bottlenecks at certain locations.



Using some ant-like algorithms, a different rule emerged: "Try to put the freight on an airplane that is landing in the destination city within the delivery deadline." This rule could result in more circuitous routing, but it sharply reduced freight handling – and that was a greater expense than air miles. With this new software model, it was predicted that Southwest could cut overnight transfer weight by 71 percent and overall freight-handling labor by 20 percent. Southwest implemented the new rules across its system last year for an annual saving in labor costs of \$10 million.

Likewise at Unilever, ant algorithms were used to identify the most efficient allocation of manufacturing resources. The ants were able to schedule complex multi-stage factories in seconds, working around all the sequence, color, capacity and flow constraints. The ants ran the factory so effectively that they could be used to explore millions of possible alternative factory layouts.

### ■ Laminar flow of the future supply chain

Breakthroughs in thinking, derived from the science of complex adaptive systems, are currently emerging. Those concepts are offering a new perspective for approaching business problems, bringing a new family of powerful tools applied to supply chain control and yield maximization. By exploiting the connectivity and information exchange available in a modern-day supply network, these breakthroughs can be applied to improve individual and overall supply chain performance, optimizing both information flow and material flow in the supply chain.

Solutions based on these breakthroughs will soon be available to achieve a self-organizing, adaptive supply chain by utilizing distributed decision-making agents allowing the supply chain to be:

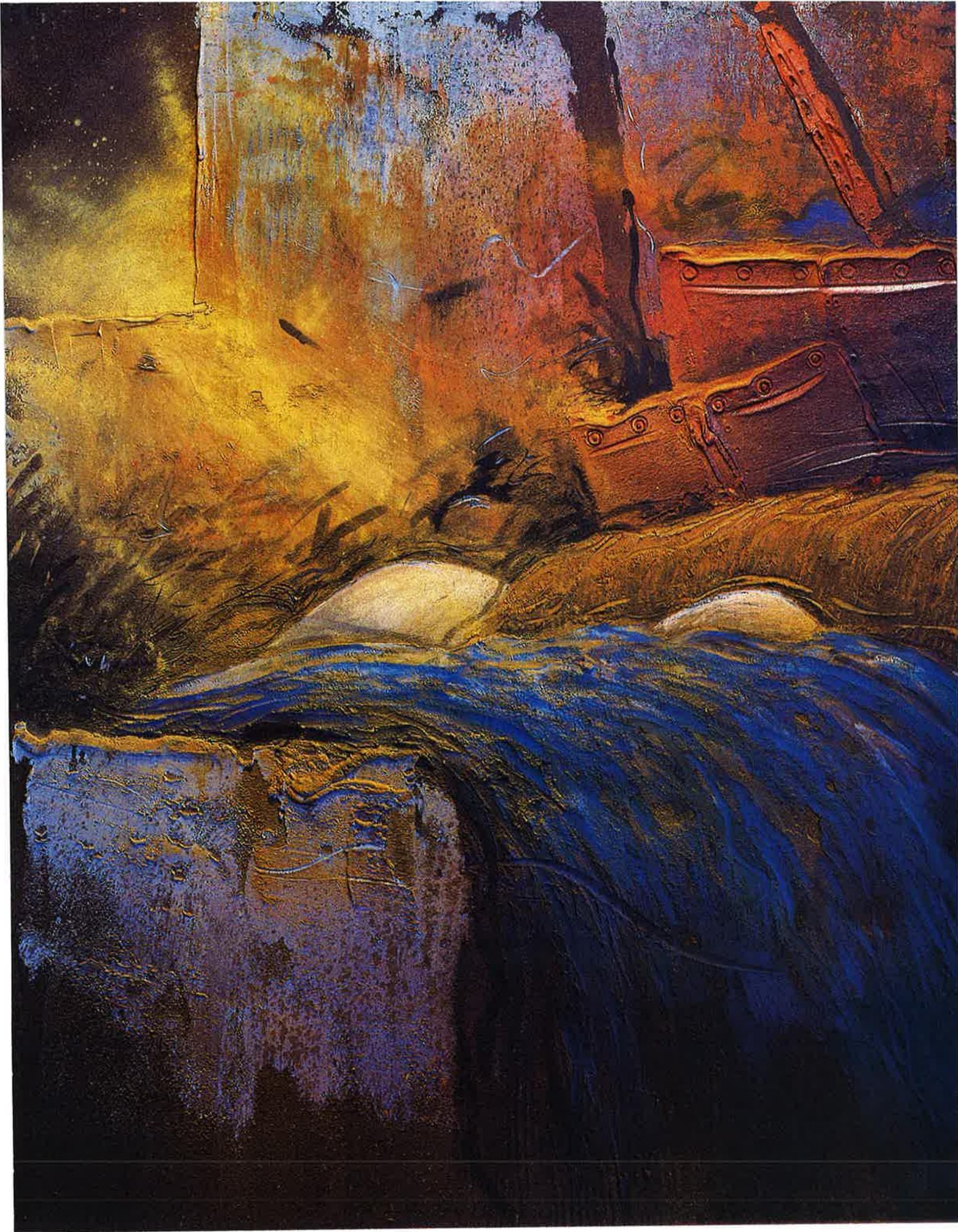
- **Self-organizing:** As product mixes or new products are introduced into nodes of the supply chain (retail outlets, distribution centers, warehouses, etc.) the overall system accounts for these changes and adjusts to maintain the highest overall performance level possible.
- **Adaptive:** As external and internal changes affect the flow of goods and information in the supply chain, the operating policies and strategies of the supply network adapt to maintain optimal performance.

Those properties will be achieved by using intelligent agents strategically and tactically distributed throughout the supply network. These software/firmware agents make real-time decisions based upon local knowledge and communicate these local decisions to high-level strategic agents. The goals of these strategic agents are aligned with the overall goals of the supply network. The agents continually model the system to evaluate alternative ways of achieving these goals. In this way we have a real-time dynamical solution to a complex dynamical system.

A key point in that solution is that the future supply chain is designed with inclusion of the monitoring, tactical, strategic, and control agents. An overall agent-based model of this future supply chain design is made incorporating these agents within it. When the final supply chain design is implemented, the corresponding software agents are incorporated into the real-world supply network. This technique takes advantage of incorporating real-world *behaviors* into the model *and* the final implementation. The supply chain is then capable of adaptation and self-organization to the evolving connected economy. Goods, relevant information, and services will then flow undisturbed from supplier to customer – laminar flow through an ever-changing environment.

**Hervé Zwirn**  
*Bios Group*





1999 – Untitled – Dominique Maraval ([maraval.dominique@wanadoo.fr](mailto:maraval.dominique@wanadoo.fr))





1999 – "The Nive at Bayonne" – Didier Lapene (Galerie Francis Barlier)

## HOW MOBILE COMMUNICATION TECHNOLOGY IS TRANSFORMING BUSINESSES

Point of view

**During recent years, Internet and related technologies have dramatically changed the way businesses are conducted. In the coming years, the arrival of mobile technologies will transform companies and people's lives to the same extent that the Internet has done. Corporate managers will have to consider the business impact of "m" just as they did with "e."**

Mobility in the enterprise world is interacting and communicating with clients, employees and partners using wireless devices. Driving forces like increased capacity in networks and terminals, new global and regional standards, new types of terminals, allocation of new frequencies in many countries, and a dramatically increasing number of users are all contributing to the fast development of new applications and services.

Compared to the networking technologies available during the 1990s, we will quite soon have networks with much higher capacities; networks that offer geographical positioning capabilities and deliver services where the user is connected all the time. Applications and services will typically be more secure than ever and highly personalized. A range of different types of handsets will appear on the market, giving different users the capabilities they need in

their specific professional roles: terminals with a large screen for some users, rugged models for people working outdoors, or extreme low weight devices for others.

The technology to support mobility will obviously be here within a few years. It will be possible for individuals to exchange information anytime with anyone, anywhere and on any device. But why should companies consider investing huge amounts of resources in implementing mobile services?

Leveraging mobile technologies successfully, as with all other investments, is about identifying increased revenues or decreased costs. The profits are normally achieved by increased internal efficiency and improved or new customer services. It is fair to say that companies not using these possibilities will not be competitive in the future. Clients, business partners and employees will soon expect accurate real-time information from all types of companies.

### ■ Typical applications

Just as with the Internet in the early days, the use of mobile technology in consumer-type applications has received the most attention so far. Different types of games, messaging applications and various types of ordering services are common today in most markets. However, the largest benefits will be achieved in the business application field due to larger potential per transaction and higher willingness to pay for these new services.

When companies start using mobile technologies to provide their own workforce, clients or partners with information just when they need it, wherever they are, huge amounts of money will be saved and clients served faster.

Consider the sales force of a company having access to business and decision support systems through mobile devices. Deals can be won or lost based upon the ability to respond quickly to customer demands. Mobility allows salespeople to shorten sales cycle times, respond to impulse buying, and improve the efficiency of each sales call.

Opportunities to cross-sell and up-sell are enhanced because dynamic promotions, product bundling and pricing options can be delivered directly to sales representatives even while they are sitting in the customer's office. Orders can be returned to the back-office system, and details about the delivery can be given back to the client directly. The possibilities of keeping track of different customers'

buying behavior and specific demands can very easily be documented and sent to a Customer Relationship Management (CRM) system for further analysis. Salespeople can focus on selling rather than on reporting and dealing with internal administrative routines.

Another type of application area is support systems for field service, supply chain and operations personnel. Companies must continually look to achieve more flexible, adaptable operations, the ability to scale capacity up and down quickly, and compress cycle times. With a mobility platform, and anytime, anywhere access to vital business information, true real-time operations, collaboration and execution are possible.

Wireless technology enables real-time tracking and asset management systems, cross-enterprise planning and dynamic inventory management to improve customer service, quick response for optimized demand, and supply matching. In today's supply chains (which should be viewed as value webs), the interactions are simultaneous and many-to-many; operations are co-managed, products are co-developed, and material must be visible and tracked in real-time. Mobility makes this practical.

Yet another exciting field is the machine-to-machine application arena. When companies start installing radio transmitters in their vending machines, vehicles, and surveillance equipment, both control and collection of data from such devices can be done in a much more cost-efficient way than with traditional wired solutions. Clients can be served at lower costs and probably with improved reliability.

Many examples of innovative use of new mobile technologies can be found in the automotive industry. Examples already available include cars capable of automatically transmitting their geographical position to an emergency operator when an accident occurs, triggered by an inflated airbag.

Future examples include cars equipped with dynamic navigation systems with online access to databases and telematic services offering navigation assistance, while taking the actual traffic situation into account. Service and repair will most probably be a very easy task for most car owners in the future. All functions of the car will be tested remotely and remedial information sent to the driver if necessary.





1999 – "Wide-angle bistrot scene" – Sergio Ceccotti (Galerie Alain Blondel)

### ■ The way forward

When the pioneering companies launched their first mobile initiatives in the late 1990s, return on investment was not always considered. Some companies even positioned their projects as branding activities. However, as the size of the initiatives increase, all major mobile investment decisions need to have a credible business case supporting them.

A successful mobile initiative requires commitment from top management and a tight connection to the overall strategy and targets for the company. Thus, well-managed and structured corporate mobile initiatives cover everything from a study of strategic implications through process changes, client and people relationship management changes, to technology-related changes. The latter often include innovative use of legacy data, installation of new infrastructure components and implementation of new operational routines.

Also keep in mind that the ability to connect ubiquitously is only half the battle in achieving enterprise mobility. It is not until business processes become more dynamic that the ability to have anywhere, anytime access will drive maximum value. Transforming back-end business processes to a continuous, dynamic model will result in the creation of real-time information, which represents a critical counterpart to real-time access.

All companies may not have to start huge mobile implementation programs immediately, but what is needed now is to start drawing the mobile business roadmap for the future. This can be achieved through different types of studies and pilot projects. The goal is to form a good understanding of what the new mobile technologies can offer to the company, its clients, suppliers and employees. In addition, an important piece of the puzzle is to get an overview of what the competition is doing. A corporate manager, who might have been late boarding the Internet train, must be alert in order not to miss the mobile train.

**Karl Andersson**

*New Markets*

# DRIVING GROWTH AND PROFITS THROUGH THE INTEGRATED INNOVATION VALUE CHAIN

During the decade of the 1990s, many industry executives were devoting considerable energy to large transformation programs aimed at cost reduction. Today they have set their sights on a new frontier: innovation. The ability to revitalize products and services quickly is becoming a lever for creating lasting value at a time of erratic growth. It is no longer merely a question of responding to clients' expressed needs, but of anticipating them, even influencing them, with a creative service offering.

## ■ Reviving the offering in the new economy

In *The Blur*, a recent book by Christopher Meyer, director of Cap Gemini Ernst & Young's Center for Business Innovation,\* and Stan Davis, the authors put the new rules governing the current economic climate into perspective.

The shake-up of traditional business structures – the boundaries between products and services, for example, or between buyers and sellers, capital and work, the enterprise and its environment – has given rise to new concepts that need to be explored: Speed, Connectivity and Immateriality.

From this vantage point, among the key business processes to come under scrutiny are innovation and the revitalization of the service offering.

*First of all, what are the stakes?* A company's ability to renew its offering is what determines its durability in the marketplace and its prospects for sustained growth. The success of Airbus and Nokia are good illustrations, as is the growth of PSA in 2000, when the company put a strong focus on innovation – and all these examples are clearly linked to the new business models.

*Next, what are the potential improvements?* Again, it is in the innovation and development of new offerings that the three “lines of force” described by Davis and Meyer define themselves:

### Speed

The processes of innovation and development still leave much room for acceleration. In a great many sectors, through the use of new

tools, it is now possible to reduce the current cycles – which amount to months, perhaps years – even at a time when systems design has become much more complex. In terms of added value for the end-customer, this time reduction is of greater significance than those still being envisioned for production and delivery. Is it preferable to gain a few days' delivery time on a car, or a year's jump on the new technologies to improve the safety of that car?

### Connectivity

Connectivity is the “open sesame”, the primary lever of creativity. Breakthrough innovations are most often the result of the confluence of several disciplines, of symbiotic experiences and cultures. To quote Richard Feynmann:\*\* “Borrowing from a single source is called plagiarism; borrowing from several sources is called Research!”

Seen in this light, the digital marketplaces being built today go beyond reducing costs – which they do – to become favored sites for “co-novation.”

### Immateriality

The new model is founded on the immaterial, on intellectual capital rather than tangible matter or physical flow. Design projects are driven essentially by information. Of course physical developments are often necessary, but less and less so thanks to digital engineering techniques and virtual prototyping. And the constraints normally linked to physical flow are therefore increasingly limited.

\*An article by Christopher Meyer appears on page 10 of this report.

\*\*Nobel Prize in Physics, 1965.



### ■ Toward an integrated innovation chain

The process of revitalizing an offering should be viewed as a value chain linking the appearance of a concept to the launching of a product – in the same way that the traditional supply chain links an order to its delivery. There is a lot to learn from this analogy. Obviously there are basic differences between these two "chains." In the case of the traditional supply chain, the processes are predefined and can be planned in terms of actions and results. The risks – gaps between production and delivery quantities and initial forecasts, problems of quality control, etc. – are generally limited, and questions of system flexibility and organization can usually be absorbed. In the case of the innovation chain, risk and trial and error are endemic. Planning is still useful in this context, although implementation has proven to be more sensitive.

But the processes involved in both cases – the traditional supply chain and the innovation value chain – share the same path to success:

- the breakdown of barriers between disciplines;
- the integration of partners/suppliers;
- the driving goal of bringing value to the client.

Companies which often take years to build an efficient supply chain should draw lessons from this process in how to speed up the move to an integrated innovation value chain.

It's a big challenge. In design projects, direct contact with the client is too often restricted to the marketing or sales teams, while relations between businesses and with suppliers are often purely contractual and much too rigid.

Instead, all the players should be motivated together in their approach to the client, so that each can incorporate his or her expectations. It is precisely a lack of alignment of the various teams vis-à-vis the clients' objectives which can initially stall an innovation project.

Means of collaboration must be established between suppliers or between multi-disciplinary teams based on mutual understanding, not merely on procedures for resolving unexpected situations quickly.

### ■ Integrated systems in the service of innovation

Information systems tailored to processes for renewing the service offering cover a broad functional spectrum: project and business management, technical data management, Computer Assisted Design, calculations and simulations, document management, knowledge management tools, among others.

In terms of cumulative investment for the enterprise, these systems often represent a total comparable to what is spent on the management software packages which support the supply chain.

These days, however, such investments are rarely the outcome of a global vision. And integrated solutions – proposed by ERP vendors, Product Data Management solutions, CAD, or document management developers, or by new players – are only beginning to appear.

Furthermore, with deployment of these tools not a regular feature of the business transformation project, the final impact on overall performance is often disappointing. Project planning systems, for instance, are sometimes abandoned despite heavy investments. Or implementation does not have management's full support, or the backing of the organization, or good communication or adequate training behind it. The line managers may not recognize "tools of the trade"; they may be using unreliable data and may view these tools as an administrative constraint rather than an operational asset.

For the past year or two, however, new techniques have given rise to solutions such as the Virtual Team, Co-development, Collaborative Product Commerce and Product Life Cycle Management. Incorporated into diverse business models – traditional vendors, application service providers or B2B marketplaces – they prefigure the integrated solutions of the innovation value chain. Most of all, companies should not wait to get on the bandwagon because time is the one resource in short supply, and the solutions which already exist provide a good head start.

Depending upon the stakes, which differ from business to business, efforts will be focused on informal written exchanges, management information, technical vocabulary, etc.



1997 – "Gnossienne II" – Mark Goodman (Galerie Selmersheim)

What is most important is to work within a "launch and learn" philosophy, to the extent that current technologies allow. This means:

- designers equipped with different CAD systems working on the same product long-distance;
- managers making real-time decisions via a portal integrating market data, progress reports and simulation;
- work groups deploying collaborative tools far and wide with an "intuitive" interface for recreating a familiar physical environment, and without the benefit of previous user training,

#### ■ Collaborative tools as catalysts for in-depth transformation

Companies which are reaping the most benefit from their ERP projects are the ones which rolled out the tool and reengineered key processes simultaneously.

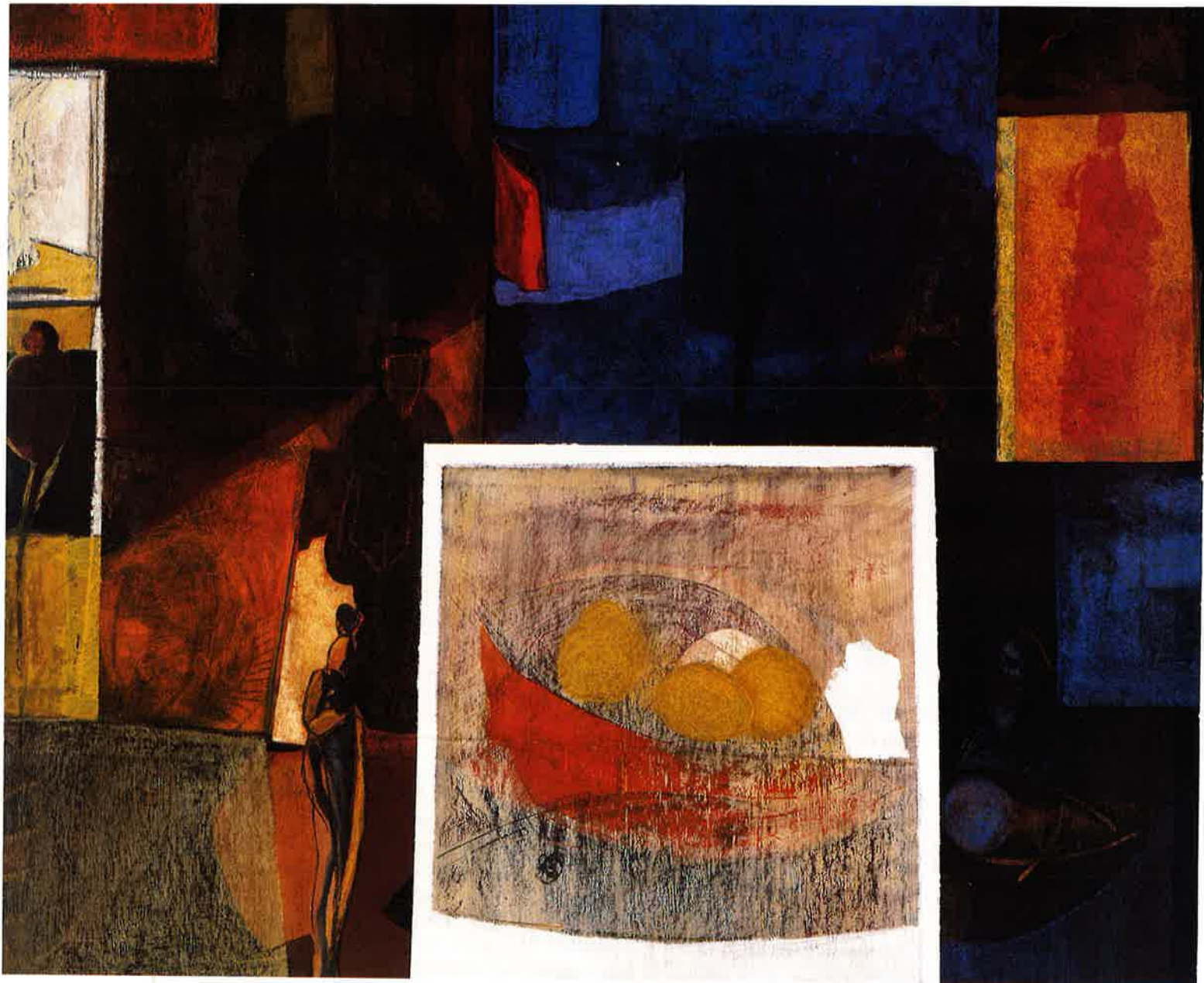
These projects represent an invaluable opportunity to assure a clear return on investment. The same is true for innovation. Unlike the preceding generations of tools, however, the new solutions offer enough flexibility to adapt to an inherently unstable environment. They can accompany the increasing formalism of the design stage right through to commercial launch and also manage, without undue burden, the endless modifications to specifications or solutions.

In and of themselves, however, these tools are not the open sesame to good performance. The way a business functions, the interactions between it and its customers and suppliers have to be revised in order to gain the most advantage. The implementation of modeling and simulation tools must be accompanied by a rethinking of trial criteria, which have been traditionally based on the acceptance of physical prototypes. The impact of such a change on the skills of the project team will be considerable.

Only a coherent transformation program will lead to lasting, indisputable competitive advantage. This means a program supported by tools designed to innovate and structure; that goes without saying. But it also means tools which activate the levers of management, organization, processes, competencies and practices. The program will succeed if it creates a "client-oriented" environment, stimulating to innovation and entrepreneurship. It will succeed if it eschews "restricted creativity" – i.e., limited to a few individuals or functions – in favor of "generalized creativity" which takes in the entire enterprise and its ecosystem.

**Marc Péran**  
Strategy & Transformation





1995 – Untitled – Hervé Desaché (Galerie Got)

## FROM HR TO PEOPLE RELATIONSHIP MANAGEMENT

**In a world in which attracting and retaining talented individuals is the lifeblood of nearly every company, and with the battle for this talent heating up over the last year, it is becoming more and more apparent that what is needed to succeed is talented leadership – every bit as talented as the individuals it is hoping to attract and retain. Human Resources (HR), which has been going through continuous change in the recent past, now needs to take the next big step: to get behind this leader/talent relationship.**

During the year 2000, the media was full of headlines relating to "the talent market" and the changing nature of work. The "battle for talent" has been a rallying call for many companies as they have watched, or been involved with, the dot-com phenomenon. This phenomenon proved a challenge to attracting talent – if you were not able to offer shares and the chance to become a millionaire through an IPO, then you were not a

company worth considering. And job seekers were drawn by the pull of working in a "cool" company, where their demands were taken seriously.

So what are the lessons to be learned from the last year? Mainly that people with talent have greater expectations than ever before. And due to the practical reality of the demographics, the talent pool is not expanding in line with the

demand. In many countries where competition is fierce, companies have been taking wider regional and global approaches to their recruitment strategies to try and win the talent they need. The most critical challenge, however, is keeping the talent you already have.

### ■ **Entrepreneurship and the new leader**

The key to talent acquisition and retention is leadership – these leaders being men and women who can create the right environment in which people are encouraged to perform well and enjoy what they do. The hallmark of a talented leader is someone with genuine passion, a desire to make an impact, an understanding of when to lead and when to step back and empower a team to deliver. True leaders are easily approachable. They have mastered the art of relationships. They understand the power of networks. It goes without saying that companies which recognize leaders who understand the difference between management and leadership – and that people are at their best with strong leadership – already have a head start.

Another vital asset in the "leadership profile" is diversity. Companies have awakened to the need for diversity in their leadership whether diversity of age, gender or ethnicity. Real talent knows no age barriers and so career development opportunities and progression must be based not on tenure but on capability – "If I am good and I demonstrate that I can deliver, I want it now!"

A corollary to the above suggests that the right environment is non-bureaucratic, supports risk-takers, provides constant intellectual challenges, is fun and fast. Entrepreneurial environments give individuals the chance to get involved in many aspects of the business. In today's world slow is riskier than wrong – great leaders turn mistakes into opportunities.

Finally, while good leadership and the right environment are fundamental, so are "the basics" – setting realistic expectations, giving timely feedback, having meaningful career discussions, delivering against the promises of learning opportunities and new experiences. A little real attention may mean more than a hundred hours of process. The basics are about helping talented individuals to set their goals and develop, to enable them to build their networks, to connect with others, to learn, to coach and to stretch themselves at the same time.

### ■ **Making work / life choices easy**

Having identified certain criteria for the new, enlightened leadership, how do these qualities impact on a company's day-to-day operations? First of all, the traditional 9-5, Monday to Friday work week rarely is applicable any more; technology and globalization have changed us into a 365/24/7 world in which people can be accessible anywhere, anytime. This requires re-assessing the changes in our working lives and adopting new approaches; not by gimmicks and trendy offerings, but by the fundamental realization that human beings have expectations and desires both from their work and their private lives – not one at the expense of the other, nor one to the exclusion of the other.

Leaders who understand the work/life balance argument need to move beyond an intellectual grasp or paying lip service to the issue. They need to understand what it really means. Most importantly, they need to lead by example. The issue is not about dividing time between work and private life; it is more about empowering people to choose when to work and when to live their private lives. Balance implies having to choose between, whereas what really needs to be created is the ability for individuals to navigate around the conflicting priorities and demands on their time. It is about being flexible with one's own life, thereby giving others flexibility with theirs. What this means for sensitive leaders and their teams is that it's all right to put a personal priority above work. Again, the issue is about changing the relationship, changing the climate, creating a different, looser, more flexible alliance, one based on trust.

Young people today watch their parents struggling with the work/life balance and are determined not to travel the same route. This does not mean they do not want to work hard. On the contrary, they welcome a challenge. But they want to be in the driver's seat as to when and how they work. If they are allowed to choose how they spend their time, and if they have clear objectives as to what they need to deliver, and by when, then best just to let them get on with it. The company's responsibility is to help them by supporting them: by using technology to provide flexibility; by making moves within the company easier; culturally, by leadership actions, setting objectives and providing the freedom to deliver against those objectives.

The older worker is another issue that many companies are overlooking: how to use the older





1998 – "Venetian night" – Joël Rougié (Galerie Célia B. Guedj)

worker who still has much to give, who wants more personal time but who also wants to continue to be involved and stimulated? Creating the environment in this knowledge economy for these seasoned and experienced workers to coach and mentor younger colleagues can bring many benefits.

### ■ People Relationship Management

All of these concerns have resulted in what is hinted at in the title of this article: namely, the shift from Human Resources Management, as we know it, to the more inclusive mission of People Relationship Management (PRM). A CEO can set the strategic vision of a company, but it is the leaders in that company who deliver the vision, who create the culture for attracting and retaining talent. The PRM community has the chance to drive the changes needed. How? By communicating both internally and externally. By being a conduit to the marketplace. People Relationship Managers need to work hand-in-hand with the teams responsible for brand management, for getting the messages right. They help the company's leadership to understand new trends and how to take best advantage of them. And, most importantly, they need to break down preconceived

ideas, old ways, and open up management's mind to what it really takes to retain talent. This requires strong leadership development programs; a culture that will not tolerate "bad" people management; a strategy that will dismiss managers who have delivered their numbers but have not delivered on their people promises.

If we agree that the environment in which we operate as employers has changed dramatically, can we say the same about human nature? The war being waged for talent is happening. The demographic changes, they're happening, too. But are we suffering from a lack of leadership to meet these issues head on? Are we burdened with managers so driven by the bottom line that they have become emotionally disabled and fail to understand the link between talent retention and that very bottom line that drives them? The battle, if not the entire war, will ultimately be won by those leaders who wake up to the personal impact they have on the people they were hired to lead.

**Carolyn Nimmy and Jean-Pierre Durant des Aulnois**  
*People Relationship Management*

# THE MARRIAGE OF INTERNET AND CORPORATE EDUCATION

The combination of the Internet and corporate education seemed to be a fortuitous, if not unlikely, union at the start. Since the 12th century, the prevailing model for education in any institution had been based on the classroom relationship of instructor and student. Evolutions of the model served to broaden the interaction, but rarely changed the parameters. Even the advent of telephone, radio, and television produced only minor adjustments. These media connected people to people and place to place using new technology, but old methods. The prevailing belief remained that to teach someone something – and to have this person really learn it – required dynamic, synchronous interaction.

Enter the Internet. And, as it has changed everything from books to buying, the Internet is managing to do what centuries of innovation could not: It is revolutionizing the way people manage, deliver, access, and use knowledge education through the phenomenon of e-learning.

## ■ Learning in the connected economy

Unlike its traditional classroom counterpart, e-learning leverages computer and Internet technology to offer a myriad of new educational opportunities – from self-paced asynchronous courses to virtual classes to vast knowledge systems and networks – with the convenience and attractive cost benefits of ensuring that neither the educators nor the students ever need leave their respective offices. Since the notion of distance learning first appeared via interactive television more than a decade ago, it has been an attractive proposition for companies, educators, and individuals eager to share more knowledge in less time. But Internet-based e-learning programs have fueled a massive explosion in the education market due largely to corporate investment in these real-time technologies.

Today, according to analysts Morgan Keegan & Co., organizations' expenditures on all forms of education have topped \$2 trillion worldwide, with 26 percent of learning expenditures tapped for e-based programs – but this is just the tip of the proverbial iceberg. According to IDC, revenues from corporate e-learning are expected to increase from \$550 million in 1999, to \$11.4 billion in 2003, an 83 percent compound annual growth rate. Researchers at

Cisco Systems point to "relentless market drivers," such as the rapid obsolescence of knowledge, the need for real-time delivery, and cost and human development pressures as the fuel for this expansion.

Given such factors, the rush to the new technology is understandable. Still, as amazing as the e-learning explosion has been, its implosion in some instances has been equally remarkable. As e-intelligence expert and Bucknell University Professor of Management Paul Shrivastava points out, "There is a vast expansion in offerings and technologies, but... there is little coherence in pedagogical models, and the learners are simply not there in the numbers predicted." In fact, most computer-based training (55 percent) is actually used solely to teach computer-based skills and 72 percent of learning opportunities continue to be delivered by traditional means—in a classroom setting, led by a live instructor. Businesses, academics and providers alike have "built" a world of e-education, but the learners aren't yet coming en masse.

The reasons are plentiful. In some cases the early hype about e-learning solutions led some institutions to assemble courses quickly that were little more than traditional content converted to HTML text on intranet sites. Further, even as applications advanced, often the emphasis in development was on the delivery system rather than on the participant or outcomes, thus the user experience was diminished. Additionally, in the quest to try new models and develop specialized applications, few standards and measures for



pedagogy emerged. Thus, e-learning has suffered perception problems and remains regarded by many as a second-tier substitute for traditional education (consider the perceptual difference of online *versus* traditional degree programs, for example).

Not surprisingly, following the initial euphoria, early predictions that e-learning would eventually and entirely take the place of traditional methods have softened substantially. Clearly, while Internet-based technologies have broadened the tools and demographics for learning, the technology has not been consistently applied to ensure that people can use e-based solutions effectively. Even when the content and the technical solution are effective, some e-learning strategies can still miss the mark by failing to take into account the human dimensions – some individuals (particularly those who have not grown up next to a keyboard) are not comfortable with asynchronous, technology-laden methods and others miss the interactive group experience of the classroom. The move is now on to discover the optimum in blended solutions – that is, the right combination of virtual and physical interactive learning solutions.

Experts predict that corporate training programs will eventually combine about 60 percent traditional and 40 percent e-based programs, while providing 100 percent interactive solutions. Research by Global Learning Partners recognizes that adults learn best when they feel respected, when their learning relates to life experiences, and when it has immediate usefulness. Their studies indicate that students retain 20 percent of what they hear, 40 percent of what they hear and see, and 80 percent of what they do and discover for themselves. In short, the memo to corporate educators reads: "It's the experience, stupid." Traditional distance learning is best suited to situations of basic "information transfer" but when trying to build skills or competencies that mix theory and know-how, interactivity is required.

#### ■ The soul of the classroom with the speed of e-learning

Today's optimum e-learning solutions are those that marry the soul of the classroom experience—the face-to-face interaction that provides people an opportunity to explore with one another in a safe environment—with the speed

and freedom of e-learning technologies that facilitate rapid access and transfer of information as well as long-term connections among communities. At Cap Gemini Ernst & Young's University the focus on experiential, interactive learning leverages both traditional and technological learning platforms, and actually helps participants to see and understand what the next step in their corporate development looks and feels like—for real—by living it. Similarly, many of today's leading corporate university programs are stepping out of the business-school model that fueled a bevy of buzzwords on organizational development (from "learning organization" to "continuous learning") and into new experiential methods that provide a "hands-on" taste of what it is like to take on higher-level capabilities not by listening or watching, but by doing and performing. The best of these corporate programs are also significant for the companies they serve because they enable the real-time application of new skills and capabilities to concrete deliverables related to the practice of an employee's job.

Indeed, the future of learning in the connected economy is likely to move even well beyond the e-tool and interactive experience focus driving it today. As having Internet components in a corporate education curriculum becomes as commonplace as having a CD-ROM drive in your PC, businesses can expect the e-learning trends to shift away from systems and technical services into the provision of new content and methods. In particular, businesses should watch two connected learning trends closely in the short-term: network coaching and online community learning.

Personal or executive coaching has been popular among the senior management ranks in many international businesses for the past decade, but with the advent of the Internet and real-time access to knowledge and expertise, businesses can expect network coaching to take on greater importance. Already, informal network coaching is becoming a source of learning and mentoring for individuals at all levels in all businesses. One current example is the Fast Company "Company of Friends" network. More than 25,000 business people, thought leaders, and change agents have signed up in more than 150 urban areas around the world. "Company of Friends" networks have gone beyond discussion groups and moved to real-time networked advice, mentoring,



1998 – "Veronica's veil" – Lionel (Domaine des Hayes - 49250 Brion)

knowledge-exchange, and creative problem-solving activities.

Related to networked coaching is the as-yet-untapped potential of online community learning. Few Internet-generated concepts may be as powerful as the notion of the online community. Leading businesses, from Cisco to Hewlett Packard to Microsoft, are looking to community management services to connect customers, business partners, and employees on the Internet. At the same time, a handful of academics and business leaders are already exploring the power of community learning—connecting groups of learners who communicate via the Internet across all imaginable competitive and demographic boundaries to come together to learn and teach one another interactively about subjects of mutual interest. When a group of independent programmers came together over the Internet to test theories and exchange code that would later become famous as the Linux operating system, few labeled the activity as real-time community

learning, but that's what it was—an e-based educational experience that created a market-making product. There is real upside potential for the businesses that can tap into such learning power.

Ultimately, as the focus of the network economy shifts to valuing individuals for the intellectual capital and knowledge they deliver, rather than for the products they make or even the services they provide, innovative strategies for developing talent will become ever more critical. The companies that win the race to develop the best learning systems simultaneously with the optimum content and applications, will be well positioned to win the wars for intellectual profit. Clearly, the marriage of Internet and corporate education is a permanent and potentially fruitful union in this regard. The challenge remains to understand and fully leverage its developing offspring.

**Crystal Schaffer and Steven Smith,**  
Cap Gemini Ernst & Young University





2000 – "Perfect agreement" – Nile Jade (Opera Gallery)



# SOME OUTSTANDING EVENTS OF 2000

## January

### ■ Usinor ready for the euro

With a workforce of more than 64,000, Usinor is a French industrial group with a worldwide presence. Its ambition is to achieve global leadership in steel production.

Usinor is heavily mobilized for transition to the single currency – an absolute necessity since 73 percent of its revenues are earned within the euro zone. To prepare for the changeover, as of January 1, 1999, the company began doing business with its partners in the euro, and since January 1, 2001, it has been the operating currency of the entire group.

To reach this point, however, Usinor had to adapt all its IT systems and set up an organizational structure in which each of its operating units (27 in all) had an appointed "Mr. euro," in charge of assuring a smooth transition to the new currency.

A team of consultants from Cap Gemini Ernst & Young was brought in to assist the head euro officer at Usinor in building a methodology and tools to be applied in all units in a project that involved more than 10,000 man-days. The project has evolved along three lines: building the euro work teams, defining and implementing a communications plan and managing risks.

## March

### ■ Global roll out of Shared Services and SAP

BHP is a global resources company with headquarters in Melbourne, Australia. It employs 35,000 people in 30 countries including the U.S., U.K., Canada, Chile, Algeria, Venezuela and Indonesia.

Cap Gemini Ernst & Young has been engaged by BHP to roll out Shared Services and Global SAP (GSAP) across the organization. The focus of the assignment is on supporting BHP's three business streams: Minerals, Upstream Petroleum (10 locations) and Steel (manufacture and distribution across Australia, New Zealand and Asia) as well as corporate activities.

The project officially got under way in March 2000. Cap Gemini Ernst & Young currently has about 90 people on the assignment, which includes reengineering of the finance and accounting, HR, supply and maintenance processes; roll out of SAP to 75 percent of BHP's operating assets and corporate activities by the end of the first quarter of 2002; and the establishment of Shared Services Centers in Adelaide (Australia) and Houston (Texas), which are already operational. Process reengineering and detailed design of GSAP have been completed with the first assets/corporate activities scheduled for transition from April 2001.



## April

### ■ Leading Dutch retail group combines "clicks and bricks"

De Bijenkorf – member of the Vendex/KBB group, which also owns the Vroom & Dreesmann and HEMA chains – has become the first Dutch retail group to launch an Internet store. Since October 2000, customers have been able to order goods electronically and access special services.

At the beginning of last year, de Bijenkorf asked Cap Gemini Ernst & Young to formulate an e-commerce strategy based on vision, mission and concepts. The project consisted of two phases. In the first phase, management consultants from Cap Gemini Ernst & Young worked with de Bijenkorf to draw up an integrated Internet strategy, defining the role of e-commerce and analyzing the structural implications. The second phase involved creation of the site and the establishment of an appropriate organization in the new sales channel.

The fact that de Bijenkorf wanted a specific look and feel, reminiscent of the actual stores, constituted an additional challenge. The stylish interiors and eye-catching displays which are characteristic of the department stores were successfully translated into an attractive Web design. Despite the enormous time pressure, and the dynamic environment in which the client operates, the project was completed on schedule.

## May

### ■ Accelerated Solutions Environment helps Heineken

The Heineken group – which includes the Amstel, Heineken, Murphy's and many local brands – is active in over 170 countries, making it the world's most international brewery and second in the world in terms of volume.

In order to share best practices and promote transparency and consistency within its decentralized structure, Heineken initiated a worldwide project at the beginning of 1998, involving the development of joint processes and the building and implementation of a core system based on SAP R/3. Cap Gemini Ernst & Young has been involved right from the start, working jointly with Heineken to ensure the successful development and roll out of the core system in several countries including the Bahamas, Ireland and Hungary.

At the beginning of 2000, as a result of developments in the market and within Heineken itself, a review of the project strategy became necessary – a process also supervised by Cap Gemini Ernst & Young. After thorough preparation, the new strategy was mapped out in an Accelerated Solutions Environment (ASE) design session.

The project provides a sound basis for roll out in about 35 countries, including France, where Cap Gemini Ernst & Young has recently been contracted to handle a combined BPR (Business Process Redesign)-SAP engagement.





2000 – "Morning in the Marais" – Mark Kaplan (Opera Gallery)

## June

### ■ Environmental support system at Swedish Board of Agriculture

At the same time that the European Union is changing legislation for environmental support to farmers, Cap Gemini Ernst & Young was selected by the Swedish Board of Agriculture to develop the case management system.

Users of the system are mainly employees at the County Administrative Boards around the 21 Swedish regions. The system will facilitate the administration of applications, decisions and payments of financial subsidies; it also includes a new IT architecture.

Due to EU regulations, it is very important that the project be delivered on time (in June 2001). This means a very tight schedule.

On-time delivery is a very critical issue and Cap Gemini Ernst & Young has thus far kept to the timetable as well as the budget. Likewise, the cooperation on the project has been good, according to the Swedish Board of Agriculture's Deputy Director.

This project represents a total of 80,000 man-hours, 50 percent of which will be carried out by Cap Gemini Ernst & Young consultants and a principal part by the Board's own personnel, all of whom are working together as one team. To ensure that the system is delivered on time, Cap Gemini Ernst & Young's Iterative Application Design method is being used. The system will be built as a client-server solution on an Oracle platform.





2000 – "Hillside village" – Ivlița Moudjiri (Galerie Romanet)

#### ■ Zed: a spin-off from Sonera

Zed is an international pioneer in mobile communications and leads the field in personal wireless information services for consumers. The company is a wholly-owned subsidiary – and jewel in the crown – of Sonera Corporation, an international forerunner in mobile-based services.

Established in 1999, zed provides information, communications and entertainment mobile services to meet individual customers' needs. Unlike Internet- and WAP-focused portals, zed services place content within a context appropriate to a customer's lifestyle in an easy-to-use format, both in text messaging and WAP

services. For example, zed services can help to avoid traffic jams, provides movie and concert schedules, or the latest international soccer scores.

Zed is already available in Finland, the Netherlands, Singapore, the Philippines and Turkey and will be available in Germany, Italy, the U.K. and the U.S. during the first half of 2001. This gives zed a potential customer base of more than 90 million. Telecom Media Networks, a global industry sector of Cap Gemini Ernst & Young, has been working with zed on architecture consulting and systems integration and cooperating with them in establishing delivery centers.

### ■ Enabling TotalFinaElf Germany

The merger of Totalfina and Elf Oil has created the world's fourth largest oil company and one of one of the largest in Europe. Moving beyond the purely legal aspects of the merger in all the national entities, the company will also be merging its processes and IT architectures.

In Germany, for example, the company decided to use the former Elf Oil Germany's existing IT system as the basis for its new integrated system which must conform to the requirements of the new organization.

Within a record time of only seven months, key users from all the divisions of the new TotalFinaElf Germany, together with Cap Gemini Ernst & Young consultants, designed or reengineered all processes and implemented the necessary changes in the existing IT system. More than 30 consultants and developers from Cap Gemini Ernst & Young are working together with staff from TotalFinaElf and other partners to redesign an IT architecture with the SAP R/3 IS Oil & Gas solution as its core component, which went operational on January 1, 2001.

Now all the supply and distribution processes for refineries, fuel depots, airports, 1,150 service stations, etc., as well as TotalFinaElf Germany's accounting, are handled using SAP R/3 and its connected partner systems.

## July

### ■ E-procurement project for Aventis CropScience

With 13,000 employees located in all countries, Aventis CropScience is currently a world leader in the life sciences sector.

The e-procurement project initiated with Cap Gemini Ernst & Young was the culmination of a global strategic study of all Aventis CropScience's information and e-business systems. Having selected the SAP B2B (Business-to-Business) solution, the company is now benefiting from a fully integrated electronic system, first launched in Germany and scheduled for roll out to other countries. As a result of this deployment, the company expects to eliminate between 50-70 percent of its administrative costs and to achieve additional gains related to the selection of catalogue items.

These savings in cost and time will enable Aventis CropScience buyers to concentrate on their real jobs: marketing, purchasing, choosing suppliers. They are connected electronically to several suppliers and can negotiate the best prices and the best conditions.

Likewise, with the implementation of this e-procurement solution, anyone who needs equipment for a research laboratory, for instance, simply has to place the order from a workstation. No other intervention is required until payment; it's all handled electronically.



#### ■ Contract with U.K.'s Ministry of Defence to cut procurement costs

The U.K.'s Ministry of Defence (MoD) signed a contract with Cap Gemini Ernst & Young to design, implement and run a new e-commerce service called DECS (Defence Electronics Commercial Service). This new electronic procurement system, including online catalogues of products and automatic transactions, will transform a largely paper-based system. DECS will provide the MoD with a single view of all the armed services' procurement needs and transactions.

DECS will be the MoD's e-business gateway to defense contractors and other trading partners. It will help the Defence Logistics Organisation, which has an overall annual budget of over £4.5 billion, to achieve 20 percent cost savings over the next five years.

The U.K. Minister for the Armed Forces believes that this project is blazing a trail in the development of e-business systems within government and that the technology now exists which will enable it to make the whole process of supporting the Armed Forces faster, more responsive and cheaper.

The DECS solution is based on the Cap Gemini Ernst & Young Adaptive Architecture which has been successfully deployed in a number of different markets.

#### ■ Quality, service and innovation for Kimberly-Clark

Cap Gemini Ernst & Young's "Growth Works" approach was used to assist Kimberly-Clark in the creation of a dynamic growth strategy for its consumer business. A collaborative team of clients and consultants identified, then designed and built, several growth platforms, providing numerous market opportunities for Kimberly-Clark to launch highly differentiated products.

In addition, Cap Gemini Ernst & Young assisted Kimberly-Clark in an SAP implementation, which included projects in Asia-Pacific, North America, and Western and Eastern Europe. Although globally coordinated, the implementation accommodates regional differences. For example, to enable Kimberly-Clark to fulfill the needs of rapidly expanding markets in Eastern Europe, an Internet Transaction Server was installed to provide a smooth and secure interface to third-party warehouses, and to allow customer service representatives to enter and display orders from the field.

In Western Europe, the SAP implementation is the cornerstone of a transformation program to standardize business processes across countries, including a new mobile sales design. Key drivers of the implementation work in Asia-Pacific included improving service quality and reductions in cycle time and operating costs. Efforts in the United States included the design of a total asset life cycle management template based on Kimberly-Clark's quality enhancement philosophy.

Kimberly-Clark creates quality products with famous trademarks in manufacturing facilities in 41 countries, and markets them in more than 150 countries.



2000 – "The convoy" – Hocine Ziani (Opera Gallery)

## September

### ■ Ciberion: a joint venture with British American Tobacco

In September 2000, Cap Gemini Ernst & Young and British American Tobacco (BAT) created a joint venture called Ciberion to design, build, implement and support leading-edge CRM solutions.

Ciberion will initially develop and deploy Siebel CRM solutions to BAT's 35 companies worldwide.

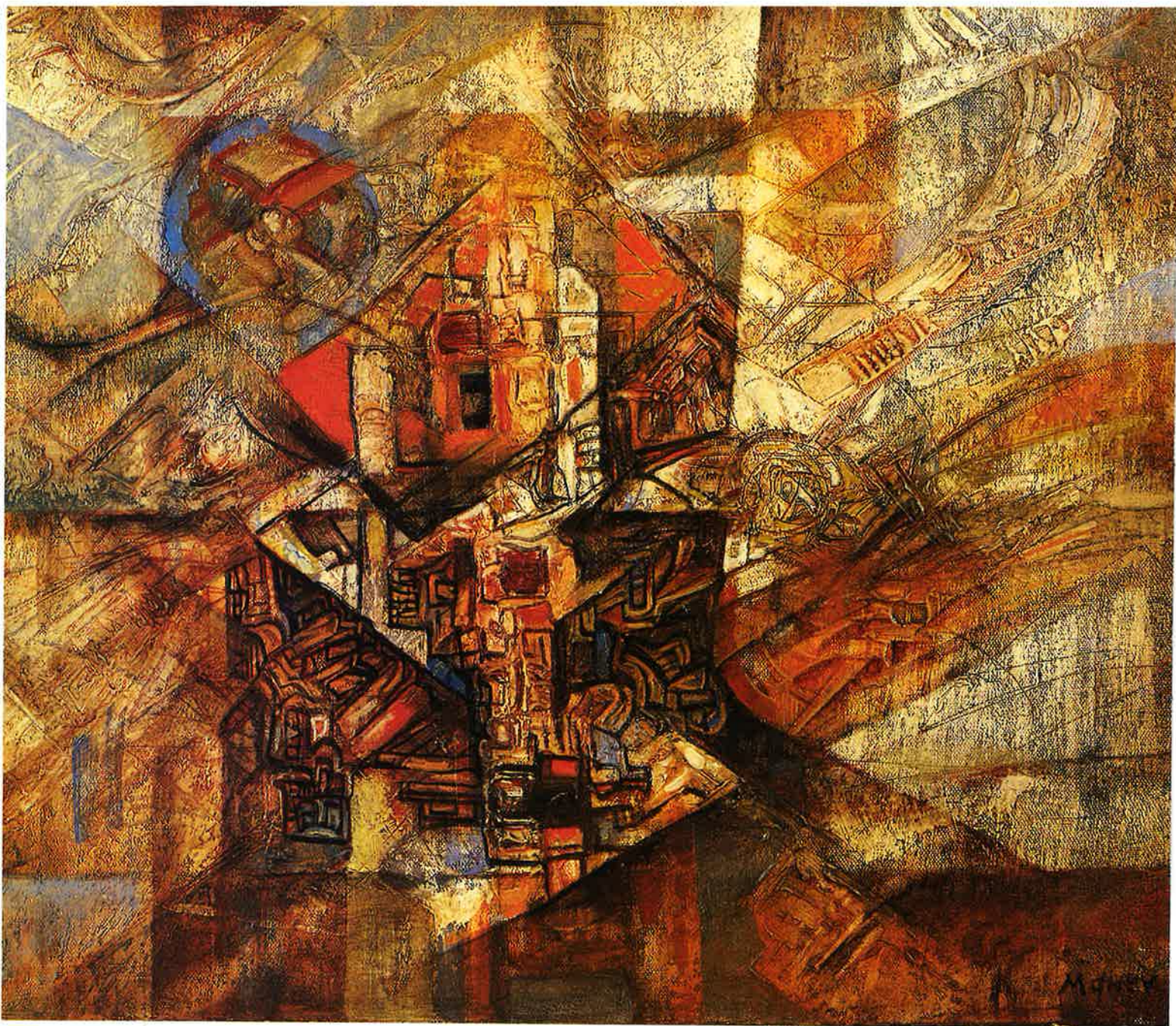
In a second phase, Ciberion's new range of Trade Marketing & Distribution (TS&D)

solutions will provide consumer products companies with an integrated view of their customers while supporting their trade marketing, account management, retail execution and distribution processes.

The joint venture is now fully operational offering the new Siebel-based TM&D solutions and a full range of business readiness and implementation training programs. Ciberion is also providing a complete range of third-level Applications Management services to support the existing and new solutions.

Cap Gemini Ernst & Young is one of Siebel's largest consulting partners.





1992 -- "Totem" -- Nicolas Manev ([www.manev.com](http://www.manev.com))

#### ■ Agri-coop Norway open 24 hours

Agri-coop Norway is currently launching its country's largest digital marketplace for agricultural, garden and pet products.

Just by pressing a few keys – [www.fk.no](http://www.fk.no). – farmers all over the world can buy feed concentrates, replace tractor parts, and purchase machines and 340,000 other agricultural products from the Internet. Agri-coop Norway has created this digital marketplace in conjunction with Cap Gemini Ernst & Young.

The success of Agri-coop Norway is backed by its infrastructure, its stores and its service organization. This digital marketplace integrates four logistic systems. In addition to the

catalogue, the site contains editorial news and useful information contributed by Agri-coop Norway writers. The sites are tailored to the needs of different users who can easily check previous orders and access areas of interest. Said one enthusiastic farmer from Nannestad: "I have tried [www.fk.no](http://www.fk.no). for about a week and I am very satisfied. No doubt that it simplifies my life as a farmer. I can work all day and purchase products and find information in the afternoon and evening."

It is also possible that in future Agri-coop Norway's suppliers will be integrated into the marketplace.



## October

### ■ E-vision for executive organization in Denmark

With 81,000 members occupying high-level, well-paid positions in many of the country's businesses and public agencies, the Organization of Executive and Managerial Staff in Denmark has become a tool for ensuring a stable business foundation.

To maintain a high profile, the organization decided to develop an e-vision and turned for help to Cap Gemini in Denmark. The first phase in this Internet project included the implementation of a new IT architecture, and the relaunch of the Organization's website, [www.lederne.dk](http://www.lederne.dk), with a new design and the transfer of all new and existing information to a new content system.

Moreover, several new applications were added to provide members with additional possibilities on the website (wage estimates, access to special data, etc.) and, in a later phase, the creation of a management portal.

The Organization of Executive and Managerial Staff will invest a considerable amount over a two-year period for the creation and development of its e-vision.

## November

### ■ B2B digital marketplace for answork

On November 7, 2000, Cap Gemini Ernst & Young, BNP/Paribas, Crédit Agricole and Société Générale unveiled their e-commerce platform called answork; France Telecom has since joined the original shareholders.

answork is a "neutral" digital marketplace operator designed to facilitate business-to-business exchanges. It provides a global and professional technological solution enabling buyers and vendors to optimize their Internet exchanges under conditions of total security and confidentiality. Initially dedicated to the purchase of goods and services for businesses, answork covers all aspects of the procurement process: from implementation and consultation of online catalogues, to purchase-order management, delivery, invoicing and payment follow-up.

Cap Gemini Ernst & Young, which took part in the original design of this digital marketplace, is currently responsible for integrating and hosting the IT infrastructure and contributing its expertise in purchasing and sales processes. With the answork project, Cap Gemini Ernst & Young affirms two of its key objectives: accompanying its major clients in their move toward e-procurement, and solidifying its leadership role in the development of digital marketplaces.



### ■ Landmark deal with Ontario Power Generation

Showcasing the capabilities of the new Group, Cap Gemini Ernst & Young's Americas region won a 10-year, \$1 billion outsourcing agreement with Ontario Power Generation (OPG) to launch a joint venture that will deliver full information technology services to one of North America's largest energy utilities. The joint venture, called New Horizon System Services, is owned 51 percent by Cap Gemini Ernst & Young Canada (through its subsidiary Business Transformation Service, Inc.) and 49 percent by OPG.

Under the terms of the agreement, a team of about 700 full-time and contract staff will perform infrastructure management, application development, application support and maintenance, network management, data center operations and help desk support in areas such as commercial systems, work management, finance, human resources and supply chain.

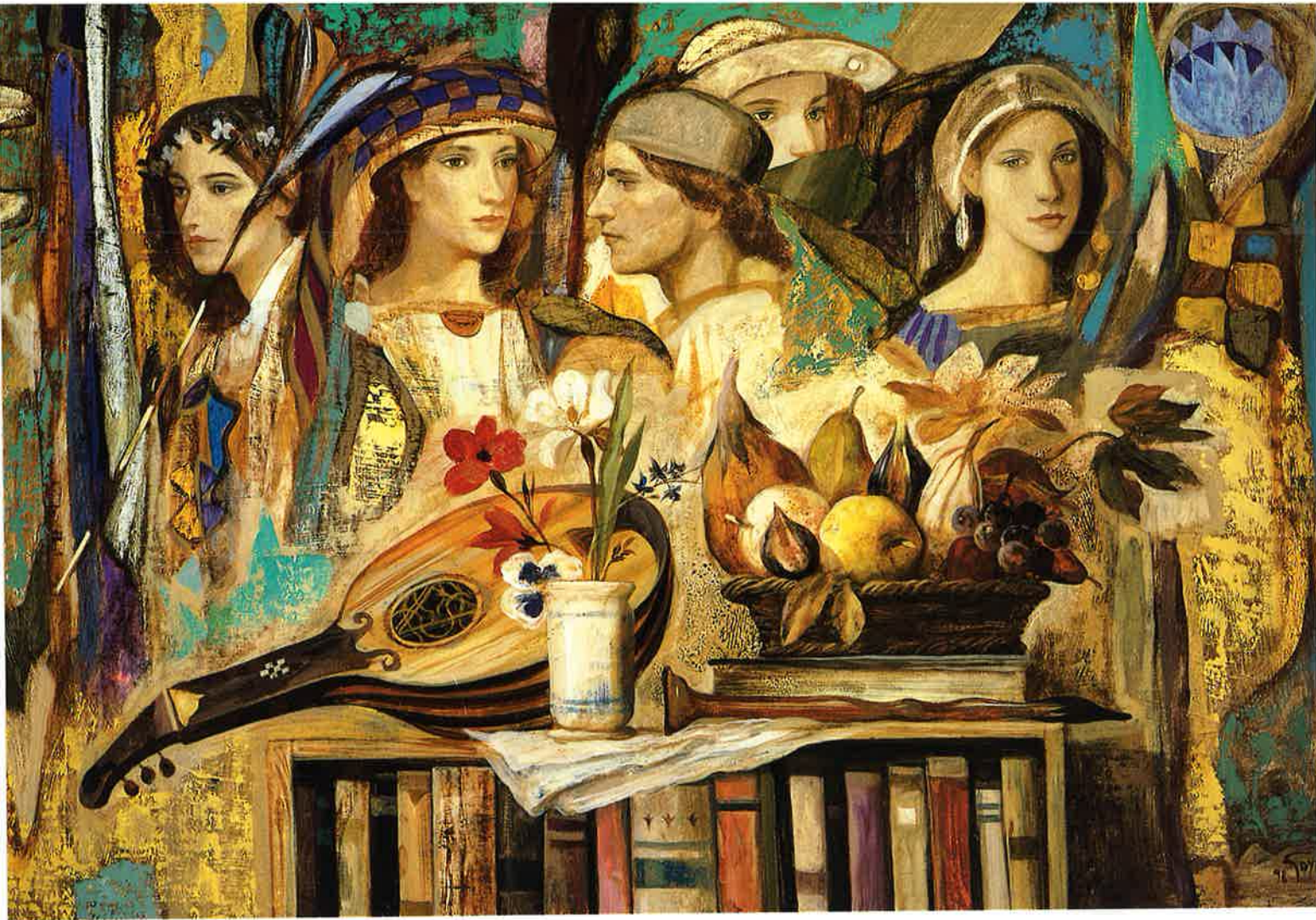
New Horizon merges the technology services of OPG with the outsourcing and energy expertise of Cap Gemini Ernst & Young to deliver powerful solutions in the fast-moving deregulated markets and networked economy.

### ■ A multi-million contract with NEMMCO in Australia

Cap Gemini Ernst & Young has won a multi-million dollar contract to develop a Market Settlement and Transfer Solution (MSATS) for the national electricity market. The system will allow consumers to choose and switch between electricity suppliers and enable settlements between suppliers as the industry moves to full deregulation.

The system is an important milestone in the move towards full and open retail competition in the electricity industry from the end of 2001, and aims to increase competition and reduce prices for electricity consumers throughout Australia.

As a leader in the Energy and Utilities sector, Cap Gemini Ernst & Young can now leverage its experience from Europe and the U.S. to grow its utility business significantly in the Asia-Pacific region, and deploy innovative technology and global capability to ensure client deadlines and objectives.



2000 – "Bodega with mural" – Goyo Domínguez (Galerie Célia B. Guedj)

#### ■ Internet Data Centers for Teleglobe

Teleglobe is a Bell Canada Enterprises company. Its network reaches more than 240 countries and territories with a global Internet backbone that is utilized by over 200 ISPs in nearly 100 countries. Its video network is one of the largest in the world, and is currently used by over 50 broadcasters worldwide including most of the major networks. The firm selected Cap Gemini Ernst & Young to assist in developing a network of Internet Data Centers (IDCs) across the globe.

Against fierce competition, Teleglobe chose Telecom Media Networks (TMN), a global industry sector of Cap Gemini Ernst & Young, basing its choice on the global presence, systems architecture experience, systems

integration capabilities, stringent design and implementation processes, and unmatched partnership network of this dedicated sector unit. Specifically, the mission is to design and build IDC sites in North America, Europe, Asia, and Latin America over the next two to five years.

Multinational teams are currently at work in Advanced Development Centers in Mississauga (Ontario) and McLean (Virginia), designing and building the first deliverables of this exciting project.





1999 – "Venetian banquet" – Patrick Le Flohic (Opera Gallery)

## December

### Alcatel builds a global, customer-oriented organization

In a market where increased high technology and globalization of clients' businesses are the overriding trends, Alcatel is evolving its organization around Customer Relationship Management (CRM). Henceforth, all its commercial entities will be led by account managers.

The projects currently underway indicate how the marketing strategy of an industrial group can take advantage of the new technologies. For example, implementation of tools such as Siebel's "sales force automation" system enable every account manager to "view" the business

generated by every client on a worldwide scale. Likewise, the availability of information gathered on a transnational client makes it easier to develop and keep track of that client's business. These tools also help to improve customer service, as accessibility to information promotes reactivity and quality throughout the sales process thereby strengthening the relationship with the customer.

Cap Gemini Ernst & Young has been working with Alcatel on the implementation and deployment of an IT solution, as well as on the various change management phases of this global project.

In December 2000, 1,300 users were connected in 44 countries and it is anticipated that there will be 12,000 users worldwide by 2002.

#### ■ E-business and more at Bayer

For global chemicals and health-care giant, Bayer – with more than 120,000 employees worldwide – Cap Gemini Ernst & Young has implemented reengineering measures, ERP systems and e-business strategies at Bayer's Chemicals Business Groups.

In a visionary response to ongoing globalization and the rising influence of digital marketplaces, Bayer has been planning an ambitious new orientation of its business processes and control across the entire organization. Since 1998, Cap Gemini Ernst & Young has been working together with Bayer's Basic and Fine Chemicals, Specialty Products, and Central Logistics Business Groups on issues covering the entire value chain. Since the end of 2000, Bayer has been managing its supply chain activities in selected business units using the new optimized processes and ERP systems.

In the e-business area, Bayer's Specialty Products Business Group established the first of a series of e-commerce platforms. "SolutionsforPaper.com" assists Bayer's customers quickly and effectively in their purchasing decisions by providing up-to-date information about paper products and services. Other similar initiatives are under way.

#### ■ "Reach and Trust" at U.K. Post Office improves access to government

Cap Gemini Ernst & Young signed a contract with the U.K. Post Office to help it provide access for all U.K. citizens and visitors to government information and a range of e-enabled services. The contract is to assist in the design, development and implementation of services throughout nearly 300 post office branches within a pilot area, with the aim of proving the viability of the concept so that it may be rolled out to the entire network of 18,000 post offices.

Post Office staff will be on hand to help consumers with a range of government services,

which will also be available on kiosk-based applications. These services will help people seeking jobs, those entitled to benefits and, more generally, anyone wishing to have better access to local services. The Post Office will also play a role in educating the public in the use of technology and access to Internet learning opportunities – a key component of the government's "information society" policy. Funded by the U.K. government, the project is seen as a major aspect of the Post Office's modernization strategy.

The contract was won against stiff competition from other leading multinational players. A combination of skills in areas such as public sector consulting, change management and innovative deployment of e-commerce technology was a crucial factor in winning this engagement.

#### ■ Building a "common language" for Group CUF

Group CUF is Portugal's leading private chemical company, involved in the production and marketing of organic and inorganic chemicals. Comprised of more than 20 companies, the group operates in several European and African countries.

Among CUF's main objectives is the implementation of common processes, concepts and systems, to create an environment which will enable it to optimize the capabilities of its people, explore opportunities to increase efficiency, cut costs and reduce cycle times of several processes within each company.

The implementation of SAP R/3, using Cap Gemini Ernst & Young's approach – which combines process redesign, systems and technology implementation – and an effective change management program, have become fundamental building blocks of CUF's vision. Thirty-five CUF professionals, teamed with more than thirty Cap Gemini Ernst & Young consultants, are facing the challenge of implementing changes that will ultimately affect the work of more than 400 users in all areas and cover all the processes of each company.





1995 – "November" – José Antonio Díazdel (Galerie Lisette Alibert)

**Cap Gemini Ernst & Young is one of the largest management consulting and IT services companies in the world. It is dedicated to the development, transformation and evolution of its clients' businesses at every level of their organization and value chain. The Group employs close to 60,000 people throughout Europe, North America and the Asia-Pacific region. For the year 2000, pro forma revenues were about 8.5 billion euros.**

*For further information: [www.cgey.com](http://www.cgey.com)*

## MAY 2000: ACQUISITION OF ERNST & YOUNG CONSULTING

The year 2000 was dominated by Cap Gemini's acquisition of Ernst & Young Consulting Services. The subsequent merger which resulted from this transaction is the most notable single event to date in the history of the Group, certainly the one with the most far-reaching repercussions on its business.

Two major motives guided this decision. First, the need to strengthen the Group's global presence, especially in the vital North American market, which will now account for 35 percent of its total business – i.e., nearly the equivalent of this region's worldwide market share. The second consideration was the desire to gain a stronger foothold in management consulting, a market which has become indivisible from the Group's traditional computer services business. From this perspective, the merger with Ernst & Young Consulting may be seen as the culmination of a management consulting strategy undertaken more than twenty years ago – in 1976 – with an investment in the French Bossard Group.

The new Cap Gemini Ernst & Young Group combines three key components in the service of its international clients, confronted as they are by the challenges of today's connected economy: strategy formulation, business transformation and technological expertise.

By uniting Cap Gemini, Ernst & Young Consulting and Gemini Consulting within one family, this merger has given birth to the only truly multicultural global enterprise benefiting from an ideal balance between top-level technological and management consulting skills.

## WHAT THE GROUP DOES

Cap Gemini Ernst & Young's range of services extends from management consulting to the implementation of large business information systems.

The Group helps its clients to face, and successfully master, the strategic challenges of our times. This means:

- assisting clients to target and manage their business;
- mobilizing resources to improve their organization;

- advising them on the choice of information systems, building the systems, and then running them;
- enabling clients to take advantage of the connected economy.

Within this new, continually evolving environment, Cap Gemini Ernst & Young approaches its clients armed with a comprehensive service offering and specific methodologies (see the Service Offering presentation, page 68), aimed at increasing their competitiveness and delivering concrete, measurable results quickly.





1999 – "Railroad country" – Jean-Louis Magana (Galerie Alain Blondel)

### ■ Management consulting

As a result of their professional expertise, their knowledge and experience in IT strategy formulation, operational processes, and implementation of the most advanced technologies, Cap Gemini Ernst & Young consultants play a major role in improving their clients' performance. They help businesses to adapt to rapid developments in their markets by calling upon the vast resources of the Group to formulate strategy, transform organizations and develop skills and products.

### ■ Systems transformation

Cap Gemini Ernst & Young offers a complete range of services from which it selects – according to the individual needs of its clients – the most advanced architectures based on the latest technologies and proven methods, gathered and standardized within **PERFORM**, an ISO 9001 certified methodology used throughout the Group.

The goal of most IT projects is to make significant improvement in a client's business and thereby open the door to new opportunities for that client. These projects generally fall into three categories:

- customized software development, tailored to a specific client;

- systems integration projects, in which design, architecture, development and implementation result from the involvement of several players (hardware manufacturers, software package vendors, etc.);

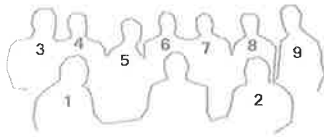
- adaptation of processes and behaviors to meet the demands of a new business environment.

### ■ Systems management (outsourcing)

Information Systems Management (ISM) responds to clients' expressed wishes to concentrate on their core business and to reduce the costs related to the operation and maintenance of their existing systems. Cap Gemini Ernst & Young has developed a range of services directly tailored to these concerns, assuming management responsibility for all or part of a client's IT resources: Applications Management (AM), Distributed Computing Services (DCS) and Central Computing Services (CCS).

# MANAGEMENT TEAM

Introducing the Group



*Serge Kampf (seated center) and the Group Management Committee: Geoff Unwin (1), Paul Hermelin (2), Terry Ozan (3), Dale Wartluft (4), Hubert Giraud (5), Pierre Hessler (6), Mark Hauser (7), Berend Brix (8) and Frédéric Lemoine (9)*

## General Management

Executive Chairman	Serge Kampf*
Chief Executive Officer	Geoff Unwin*
Chief Operating Officer	Paul Hermelin*
Group Managing Directors	Pierre Hessler*
	Terry Ozan*
Group Vice Presidents	Berend Brix
	Hubert Giraud
	Mark Hauser
	Frédéric Lemoine
	Dale Wartluft

## Regional Managers

North America	Terry Ozan
U.K./Ireland	Maurice Abell
Nordic	Björn-Erik Willoch
Benelux	Henk Broeders
Germany and Central Europe	Antonio Schnieder
France	Jean Rochet
Southern Europe	José Luis Gali
Asia-Pacific	Tom Manning

## Sector Managers

Telecom Media Networks	Alexandre Haeffner
Consumer Products/Retail/ Distribution	Fred Crawford
Energy and Utilities	Colette Lewiner
Financial Services	Keith Stock
High Technology & Automotive	Kevin Mahanay
Life Sciences and Chemicals	Stephen Phillips

## Central Functions

Financial Management	Frédéric Lemoine
Human Resources	Jean-Pierre Durant des Aulnois
Risk Management	Hubert Giraud
Innovation & New Technologies	Jean-Paul Figer
Communications	Florence Mairal
University	Jacques Collin

\* Member of the Board of Directors



# HOW THE GROUP IS ORGANIZED

The merger of Cap Gemini and Ernst & Young Consulting, and the commitment of the new Group to adapt to the ever-changing needs of its clients, has resulted in significant changes in its transnational organization. The new structure is designed to assure always better client satisfaction. Among its building blocks:

- **strong sector specialization**, accompanied by in-depth knowledge of the client's business and high value-added service offerings;
- **geographic proximity** to clients' local decision-making centers through a vast network of worldwide subsidiaries;
- **a range of services** combining IT consulting and infrastructure management;
- **a broad palette of skills** grouped around six professions, providing an environment that encourages 60,000 employees around the world to expand their knowledge and improve their competencies.

In addition to these specialists and their skills, available on a global scale, Cap Gemini Ernst & Young also offers its clients access to an ecosystem of technology alliances with most of the major players in the field enabling them to confront the challenges of an economy in constant flux.

## ■ Worldwide geographic coverage

Cap Gemini Ernst & Young is a global player with critical mass in most of the world's key markets. Balanced geographic coverage is represented by the Group's latest revenue figures: 35 percent earned in the Americas, about 60 percent in Europe. The remainder is generated in the growing Asia-Pacific region which stretches from South Korea to New Zealand. The Group's six European regions take in 20 countries; the Americas includes Canada and Mexico along with the United States. All in all, Cap Gemini Ernst & Young is present in 32 countries.

## ■ The Professions

At a time when recruitment and employee loyalty have become issues central to the long-term health of most enterprises, Cap Gemini

Ernst & Young has implemented several measures to help win "the battle for talent." A key element in this "campaign" revolves around the Professions – the creation of "communities" of employees with related skills and experience. Thus, every Cap Gemini Ernst & Young employee is a member of one of the global Professions which enables them, through local and international networks, to share, exchange and develop knowledge and expertise endemic to their fields.

Introduction of the Professions into Cap Gemini Ernst & Young's organizational structure not only provides a framework for individual career development, but also makes it easier to assign the most qualified personnel to client engagements in any business sector anywhere in the world.

## THE SECTORS

**Cap Gemini Ernst & Young now has six global sector units, all of which can operate on an international, industry-focused scale to provide specific management consulting and IT solutions.**

### ■ **Telecom Media Networks (TMN)**

In this most thoroughly integrated of all global industry sectors, Cap Gemini Ernst & Young now ranks second among the leaders and continues to expand its solutions and service offerings. In 2000, an estimated 70 percent of the world's top telecom businesses called upon the services of the Global Business Unit. At the same time, TMN helped many greenfield service providers to create and launch their new enterprises.

TMN currently employs some 7,000 professionals worldwide and has one of the richest business communities of partners in the marketplace. The key to this worldwide ecosystem is Cisco which, in October 2000, finalized a strategic alliance and became a 4.6 percent shareholder in TMN. As the acknowledged world leader in IP-based networking systems, Cisco is a key player in moving more and more business users to the new, connected economy.

TMN is continuing to develop solution sets dedicated to telecom service providers and media content owners for creating and transforming their business: managing the relationship with customers, billing services, operating communication and content-based services. In addition, TMN integrates all corporate capabilities for delivering, with Cisco, advanced network infrastructure solutions.

### ■ **Consumer Products, Retail and Distribution (CPRD)**

Cap Gemini Ernst & Young's CPRD Global Sector Unit has developed innovative approaches to meet the specific challenges faced by CPRD global companies.

For example, the Consumer Relevancy<sup>SM</sup> strategic framework was developed following the completion of studies of more than 10,000 customers conducted by Cap Gemini Ernst & Young. The research found a new customer emphasis on values over product and service value, and a substantial gap between consumers' expectations and the companies in

the sector trying to meet them. When the Consumer Relevancy<sup>SM</sup> framework was applied to the problems of global companies, they improved their connections with customers and competitive positioning.

CPRD also teamed with SAP and a global consumer products manufacturer to create the first beverage industry specific pre-configured SAP solution.

And Ciberion is our joint venture with a global consumer products manufacturer focused on designing CRM solutions to solve the CRM problems specifically faced by CPRD companies.

The noteworthy projects carried out in 2000 include work with Kimberly-Clark, Danone, Ahold, Carrefour, Deutsche Post, and Geodis.

### ■ **Energy and Utilities**

From oil and gas companies seeking critical mass, to publicly-owned utility companies unbundling their value chain to prepare for deregulation, the Energy and Utilities (E&U) sector continues to evolve rapidly. These industries have had to acquire new skills and know-how in order to deal with such a diverse set of new challenges.

Cap Gemini Ernst & Young is playing a major role in bringing about this transition. Now one of the top three global energy specialists, the Group has about 5,000 professionals working regularly on projects related to the E&U industries. The new Group has developed and rolled out cutting-edge, industry-specific service lines such as Trading and Risk Management and advanced e-business solutions. One example: the E&U Global Sector Unit is working with Equiva Services, the Shell-Texaco-Saudi Aramco joint venture, to help establish a powerful position across the full breadth of e-business services.

Cap Gemini Ernst & Young's strength in digital marketplaces proved crucial to the successful launch of Enporion. This U.S. marketplace links nine major electric and gas utilities to over 50 suppliers for online procurement and dynamic commerce.

In Australia, the Group is working with NEMMCO, the authority charged with setting



up the open energy technology market, and in Canada, on a massive outsourcing venture with Ontario Power Generation.

### ■ Financial Services

With the increasing sophistication of capital markets, the emergence of global investing, continued industry consolidation, the mounting importance of e-business applications, a heightened focus on customer relations and the proliferation of financial institutions entering the market, the Financial Services sector is a very attractive market for Cap Gemini Ernst & Young.

In 2000, the Group achieved a leadership position in Financial Services and now counts among its clients 35 of the world's 50 largest financial institutions.

This privileged position is supported by a comprehensive service line, from strategy through implementation. Moreover, local delivery, backed by readily accessible global expertise, has earned the Group a reputation for superior client service in this sector as in others.

To consolidate its emerging leadership position in the sector, Cap Gemini Ernst & Young has embarked on a multi-dimensional development effort, unifying its capabilities and its going-to-market efforts across the traditional industry lines of banking, insurance and securities. At the same time, it is elevating its focus on client relationship management and sector-specific service offering development.

Among the noteworthy contracts during 2000 was an Internet portal executed for three major French banks (Crédit Agricole, BNP Paribas and Société Générale). And for this same partnership, Cap Gemini Ernst & Young has just launched a B2B digital marketplace called "answork".

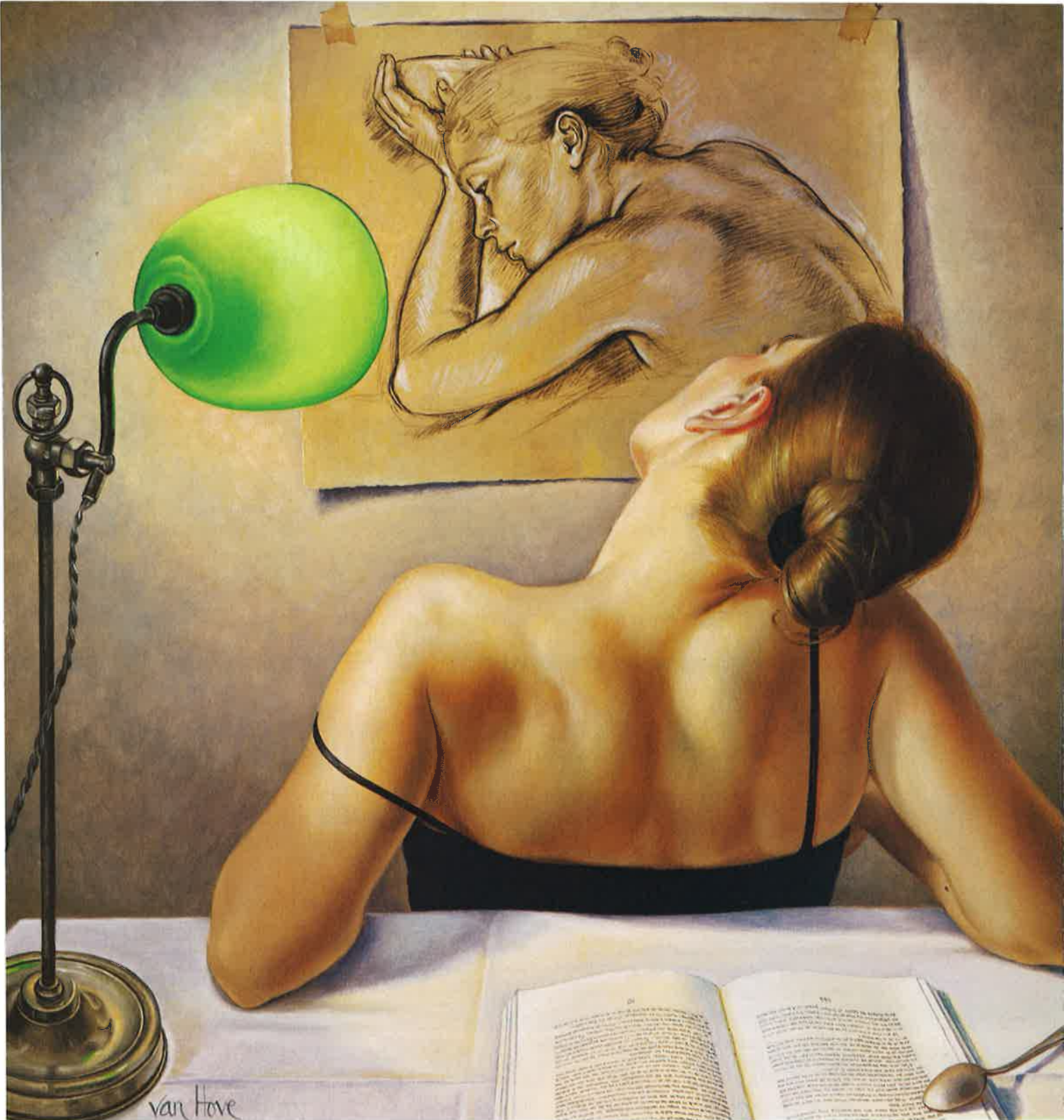
### ■ High Technology & Automotive

During 2000, the full power of Cap Gemini Ernst & Young within these global sectors resulted in the signing of several important agreements.

In the automotive sector, for example, the Group's second generation e-business services led to "Covisint", the world's largest digital marketplace, created by four of the industry's top manufacturers (GM, Ford, DaimlerChrysler and Renault/Nissan) to link them virtually to their many partners and suppliers. This online collaboration will provide greater speed, more choice, and safeguard innovation and quality, while ensuring the most competitive prices possible. Cap Gemini Ernst & Young was selected to develop this project in close cooperation with Oracle and Commerce One, two of the Group's best established alliance partners.

Turning to High Technology, Cap Gemini Ernst & Young's unique combination of strengths is much in evidence in the aeronautics sector. At Airbus Industrie, the Group has been instrumental in developing the APLS (Airbus On Line System) extranet, making it possible for airline companies to access a broad range of information – flight plans, specifications, service bulletins, spare-parts availability – securely and in real time.

This latest example illustrates how such high technology projects can translate into true competitive advantage both for Cap Gemini Ernst & Young's clients and, in turn, for their clients.



1996 – "Halo" – Francine Van Hove (Galerie Alain Blondel)

#### ■ Life Sciences and Chemicals

Based on its strong industry know-how and on long-standing partnerships with many of the leading players in the field – Aventis, Basell, Baxter and Elemica, to name just a few – the Life Sciences and Chemicals Global Sector Unit brings a very high value-added profile to its clients in this field.

The range of its related service offerings is also very strong: pharmaceutical CRM, Life Sciences R&D, Chemicals B2B marketplaces, process supply chain management, among others.





2000 – "Honey night and day" – Anton Molnar (Opera Gallery)

## A SELECTION FROM THE SERVICE OFFERING

### ■ Customer Relationship Management (CRM)

The major goal of Cap Gemini Ernst & Young's CRM business is to help clients implement and optimize their own customer relationships.

These solutions apply to the areas of marketing, sales and customer service, with particular competencies in Real Time

Marketing Automation, Contact Center Services, Sales Force Automation/Effectiveness, and Multi Channel Integration. They have brought the Group recognition as one of world leaders in the field.

The Cap Gemini Ernst & Young approach includes a number of important differentiators: rapid needs diagnosis and solutions development through the Centric Group technology



showcase, Advanced Development Centers (ADC) and Accelerated Solution Environments (ASE), and the new CRM Index<sup>SM</sup>. This Index provides a comparative overview of several hundred American and European companies and where they stand on the critical issue of CRM.

In addition, the Group has forged outstanding alliance partnerships with leaders in the field, including Siebel, Nortel/Clarify, Oracle, Cisco, SAP, Broadvision, ATG and Exchange. Among the major agreements signed in 2000, particularly noteworthy are those with Alcatel and Walt Disney World.

### ■ Applications Management

It is a known fact that the costs of maintaining heavy, complex legacy systems is high and the skills needed to support them in short supply. Managing existing applications often monopolizes a company's time and resources and deflects it from its core business.

Credited with a 19 percent share of the European market\*, Cap Gemini Ernst & Young has made AM one of its key offerings for several years. The Group has developed a framework, skills, resources and tools designed to provide its clients with permanent, high-quality, customized management of their legacy systems.

One of the key elements in this approach is a global network of Applications Management Service Centers. The AMSCs are centralized, multi-customer facilities which combine industrialization of AM-specific processes, mutualization of resources across AM contracts and automation of key processes and activities.

Clients thereby benefit from increased service reliability and flexibility. They can also engage Cap Gemini Ernst & Young in an ongoing partnership which goes beyond applications maintenance to include the development of new applications (e-business applications in particular).

Among several important contracts signed in 2000, the one negotiated with Mercedes Benz in the U.S. is especially noteworthy. Cap Gemini Ernst & Young is taking charge of the applications management for the client's Warranty/Service/Engineering division, replacing out-of-date technologies and implementing new warranty procedures.

### ■ DareStep – the interactive agency

Originally created to provide interactive services within the Business-to-Consumer (B2C) marketplace, DareStep currently employs more than 700 people ready and able to help clients create and build online user experiences.

DareStep is a distinct unit within Cap Gemini Ernst & Young, collaborating closely on a daily basis with the Strategy and Transformation, CRM and B2B Marketplace teams, while providing essential input to other service line, sector and regional teams wherever a creative approach to the user experience is required.

Key services include branding and interactive marketing strategies, based on a deep understanding of the key attractors to a client's online presence. In addition, DareStep is in the process of developing next-generation e-business services and concepts.

DareStep is becoming an increasingly valuable differentiator for the Group, both in adding creative depth to its offerings, positioning it at the vanguard of e-business developments, building alliances with new emerging players and in attracting key personnel.

Among DareStep's many prominent clients: Ontario Power Group, Air France, De Bijenkorf, McGraw-Hill Companies, Toshiba Farmers Insurance and Amplifon.

### ■ Strategy and Transformation

Among the perpetual changes facing large global companies is the recent challenge of the network economy, which is rapidly destabilizing their traditional markets and bringing new players into the field. These enterprises must be equipped to act quickly, flexibly, creatively and in ways heretofore unimaginable.

To help them achieve these goals, Cap Gemini Ernst & Young has designed six new service offerings devoted to strategic transformation and leading to the deployment of specific, adaptable solutions, in record time:

- *2nd generation e-business* helps companies select the best opportunities on offer

(\*) Source: IDC, October 2000



within the net economy (e-commerce and m-commerce in particular);

- *Growth Works* targets and activates the growth levers available to a company to help it expand faster and better than its competitors;
- *Adaptive Organization* takes advantage of new types of intra- and extra-company collaboration (e-procurement, knowledge management, digital marketplaces, e-commerce, etc.);
- *Merger-in-a-Box* or how to achieve a successful merger in six months or less;
- *Collaborative Innovation* enables a company to organize and provide the tools and processes needed for innovation using Collaborative Design techniques;
- *Accelerated S&T* consists of procedures, methodologies and specific environments designed to speed up the decision-making process of management teams and help them prototype their chosen solutions within a few weeks.

### ■ Supply Chain Management

Supply chain strategy is now a boardroom issue since this area is frequently the single largest opportunity for increasing shareholder value. Today, many companies are initiating a comprehensive transformation program to create an "adaptive supply chain" built on a network-based technology foundation.

Cap Gemini Ernst & Young is a recognized global leader in supply chain consulting. The Group offers clients a suite of breakthrough services including Supply Chain Transformation, Sourcing & e-Procurement, Logistics & e-Fulfillment, and Adaptive Manufacturing. These offerings are built on a proprietary supply chain solution framework called Networked Value Chain<sup>SM</sup> (NVC), which incorporates the latest technologies and approaches.

### ■ B2B Marketplaces

One of the most dramatic business developments of 2000 – for Cap Gemini Ernst & Young and for virtually everyone else – was the explosion in the development of large-scale digital marketplaces. This phenomenon has implications for the ways in which many, if not most, large enterprises work, as it offers the potential for huge cost savings in the supply chain, more effective relationship building with clients, and a higher level of connectivity within the company's own workforce.

Cap Gemini Ernst & Young achieved an extraordinary breakthrough in this field during the year, developing more than 40 of the largest, most prestigious digital marketplace projects. Key factors in this success story include an extraordinarily broad range of capability, backed by a rich alliance ecosystem with the top players in the field (Oracle, Commerce One, Hewlett Packard, Vodafone, etc.), original and proven methodologies (e.g., Accelerated Solutions Environment or ASE, which enables clients involved in complex operations to speed up their decision-making cycle), and dedicated resources and solutions.

Projects carried out during 2000 include Covisint, the world's largest digital marketplace; Coface (integration of the @rating solution), and Elemica, the chemical industry's digital marketplace leader.

### ■ EEA / ERP

The ERP market has experienced exponential growth over the past decade, and industry analysts still consider this a market with great potential. According to their estimates, 70 percent of companies have yet to implement all their management software applications.

In addition, organizations are looking for solutions to help them evolve into "collaborative" enterprises in the new economy – linked to their management, partners, suppliers and customers, online and in real-time. Cap Gemini Ernst & Young's new EEA (Extended Enterprise Applications) solutions are the answer to these revised market conditions. EEA combines both a technical architecture and business process approach to using ERP as the backbone infrastructure.

In this way, EEA solutions extend clients' existing or planned ERP systems, either by integrating with best-of-breed solutions (SAP with Siebel for CRM, for example; Oracle with i2 for Supply Chain Management), or by extending an ERP solution to include a full suite of applications (e.g., mySAP.com, Oracle's e-business set; PeopleSoft 8; or J.D. Edwards OneWorld XE).

The cornerstone of the Cap Gemini Ernst & Young EEA solutions offering is E<sup>3</sup> (Extended Enterprise Effectiveness), a diagnostic tool which provides a roadmap on how to get from ERP to e-business.



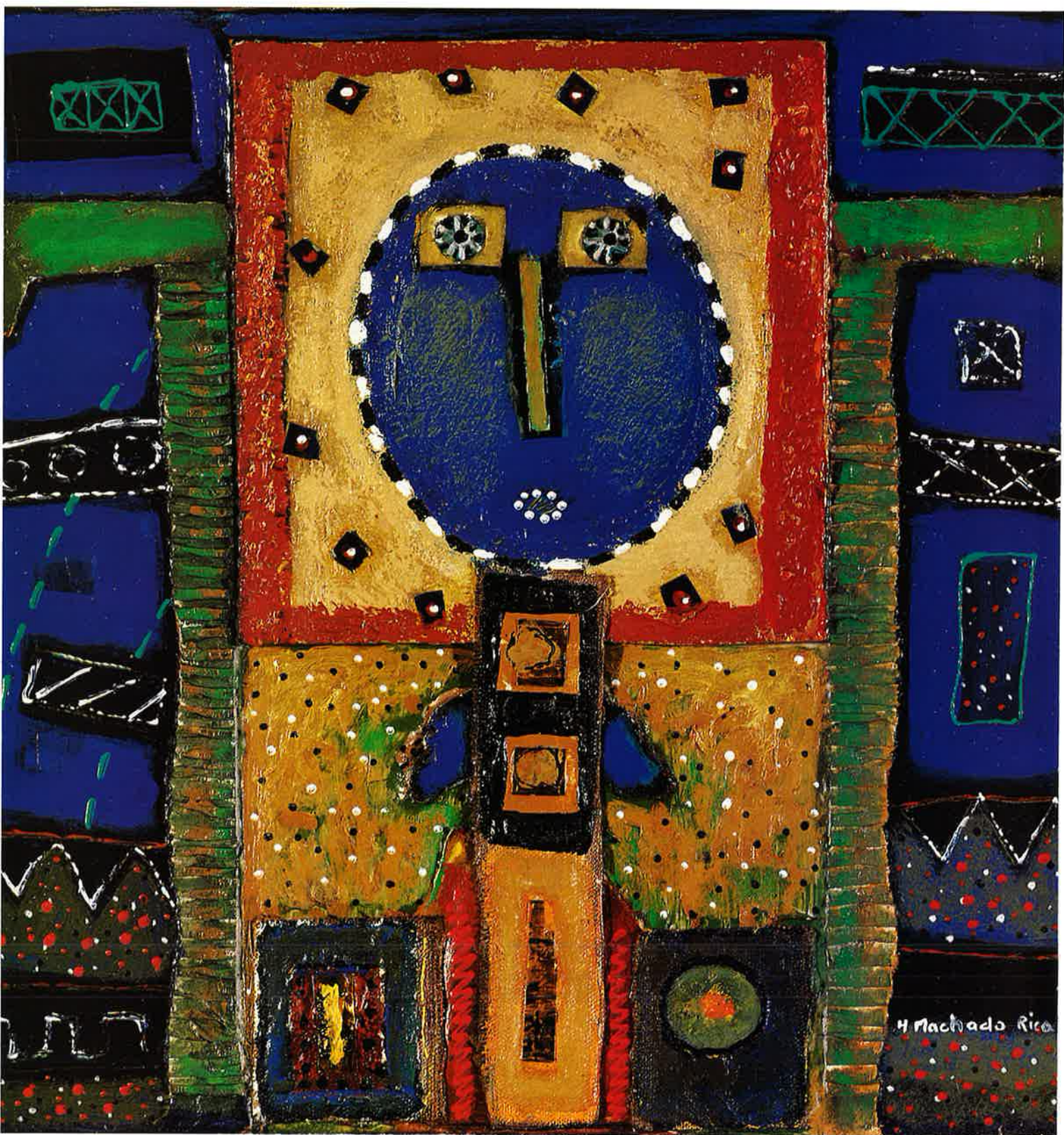


2000 – "The essential Saint-Exupéry" – Ernesto (Opera Gallery)

The EEA/ERP service line also offers traditional ERP services such as package evaluation and selection, program management, global or regional ERP implementation, change management, migrations and upgrades.

For all of these services, Cap Gemini Ernst & Young is the partner of choice among the world's leading software vendors: SAP, Oracle, PeopleSoft and J.D. Edwards.





1998 - "The eccentrics no.12" - Huguette Machado-Rico (frico@club-internet.fr)



# CONSOLIDATED FINANCIAL STATEMENTS

The summarized financial information presented below is extracted from the "2000 Financial Report"

## Summarized consolidated statement of income for years ended December 31, 1998, 1999 and 2000

(in millions of euros)	1998	1999	2000
<b>Operating Revenue</b>	3 955	4 310	6 931
<b>Operating Income</b>	406	469	703
Net income before amortization of goodwill	218	294	453
<b>Net Income</b>	188	266	431
including dividends paid	58	78	149
<b>Net Margin</b>	4.8 %	6.2 %	6.2 %
<b>Earnings per share</b>			
* Adjusted average number of shares	71 082 273	77 261 741	107 920 778
* Diluted earnings per share (in euros)	2.65	3.44	3.99

	1998	1999	2000
<b>Number of employees</b>			
Total number of employees as of December 31	38 341	39 626	59 549
Average number of employees	34 606	39 210	50 249

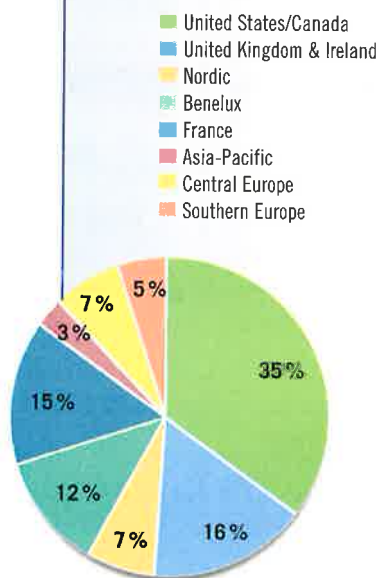
## Summarized consolidated balance sheet as of December 31, 1998, 1999 and 2000

(in millions of euros)	1998	1999	2000
<b>Assets</b>			
Intangible assets	1 281	1 589	1 646
Other assets	342	361	545
<b>Total non-current assets</b>	1 623	1 950	2 191
Long-term deferred tax assets	53	86	786
Accounts and notes receivable (net)	941	1 063	2 312
Other current assets	1 131	932	1 456
<b>Total assets</b>	3 748	4 031	6 745
<b>Liabilities and shareholders' equity</b>			
<b>Shareholders' equity, including minority interests</b>	2 248	2 638	4 223
Long-term liabilities	332	322	302
Short-term liabilities	1 168	1 071	2 220
<b>Total liabilities and shareholders' equity</b>	3 748	4 031	6 745
<b>Net debt</b>	(577)	(508)	(849)

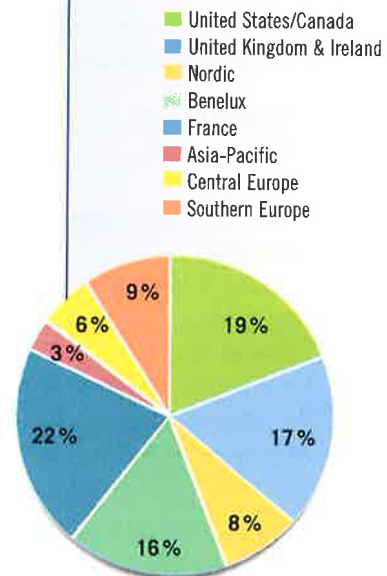


# ACTIVITY ANALYSIS

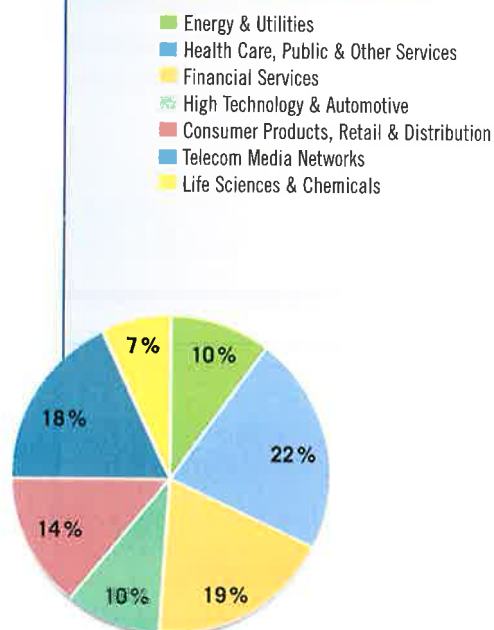
**2000 pro forma revenue breakdown by region (all service lines combined)**



**Employee breakdown by region at December 31, 2000  
(based on workforce of 59,549)**

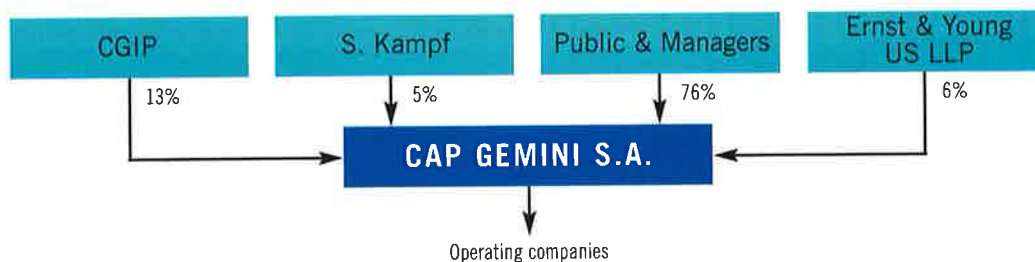


**2000 pro forma revenue breakdown by sector**



# STOCK EXCHANGE OVERVIEW

## Distribution of capital on December 31, 2000

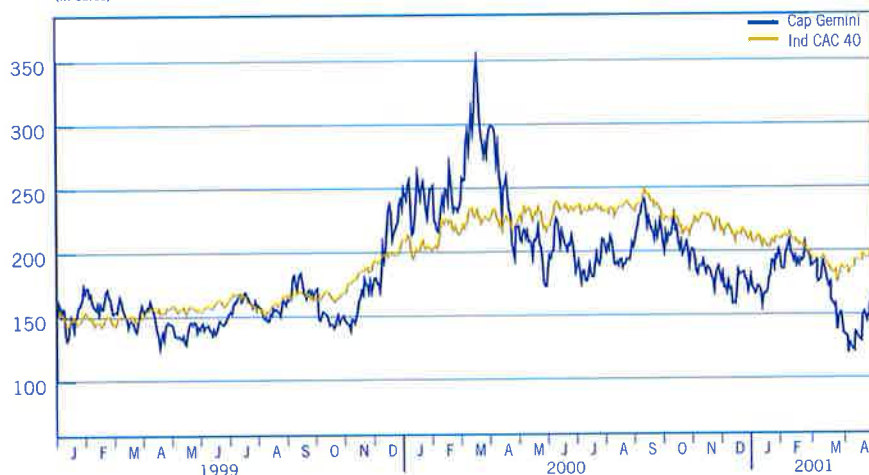


Financial summary

## Dividends

Year ended December 31	Total dividend (in millions of euros)	Number of shares	Dividend per share
1997	33	61 198 877	FF 3.5
1998	58	69 130 658	FF 5.5
1999	78	77 945 108	1 euro
2000	149	124 305 544	1.2 euro

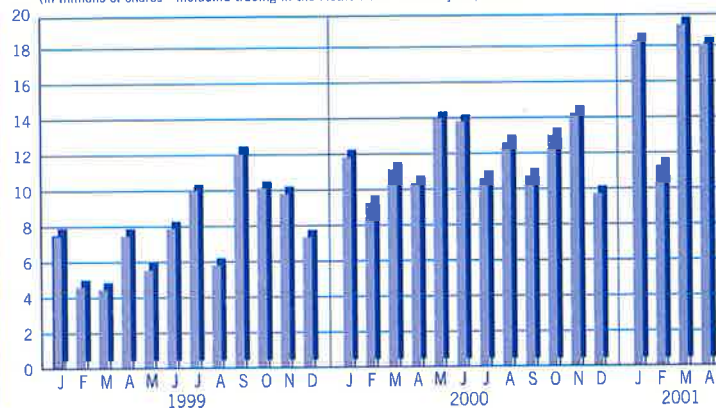
Share price from January 1, 1999 to April 30, 2001  
(in euros)



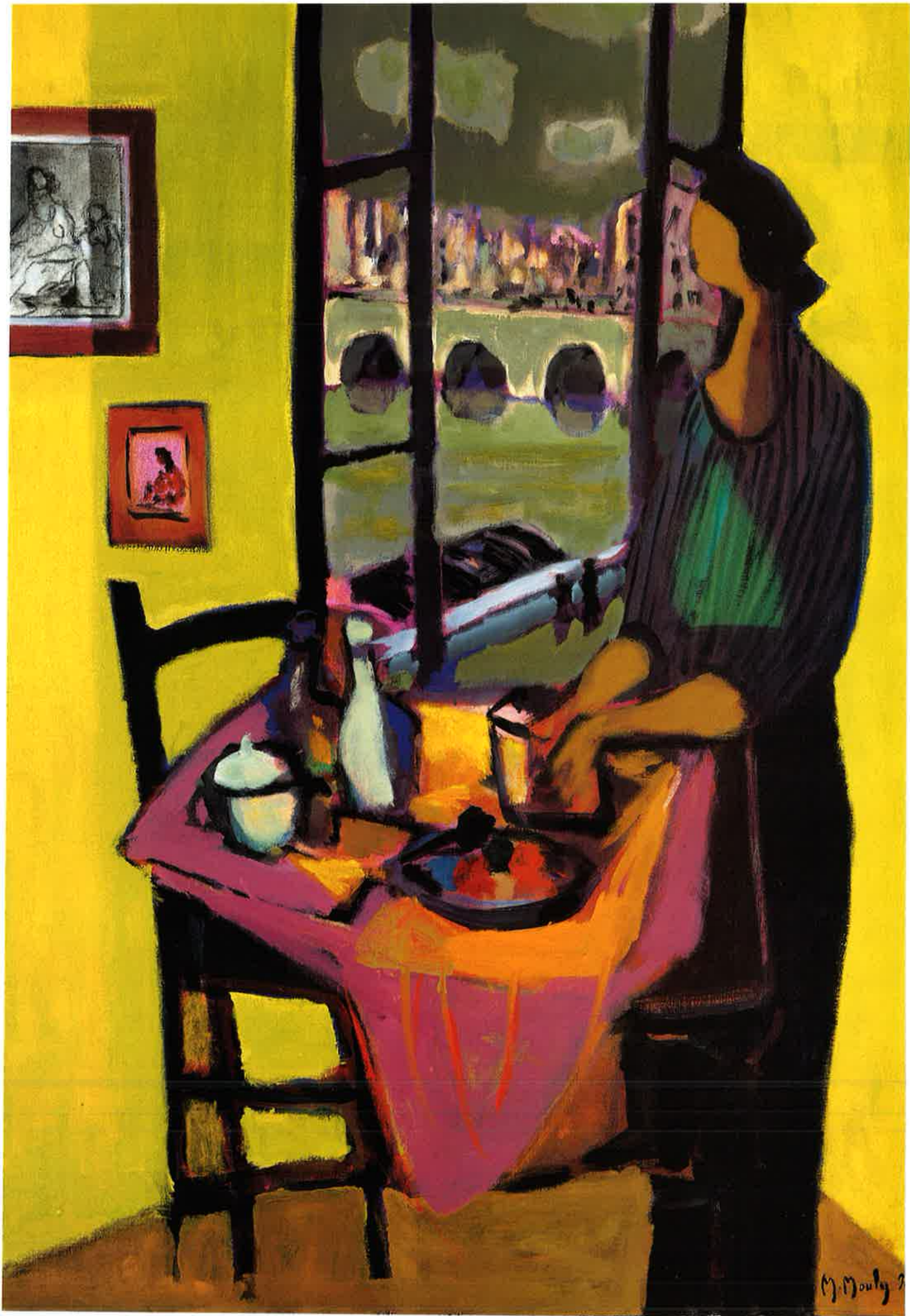
Market capitalization: January 1, 1998 to April 30, 2001  
(in billions of euros)



Monthly trading volume from January 1999 to April 2001  
(in millions of shares - including trading in the Netherlands since July 20, 1999)







1998 - "A bridge afar" - Marcel Mouly (Opera Gallery)

# MAIN LOCATIONS

## Cap Gemini Ernst & Young - Corporate Headquarters

Place de l'Etoile - 11 Rue de Tilsitt - 75017 Paris - France

Telephone: 33 (0)1 47 54 50 00

Internet: [www.cgey.com](http://www.cgey.com)

### Cap Gemini S.A.

Paris 33 (0)1 47 54 50 00  
Grenoble 33 (0)4 76 59 63 00

### Cap Gemini Ernst & Young

Paris 33 (0)1 47 54 50 00  
University  
Béhoust (Yvelines) 33 (0)1 30 88 38 38

### Sector Management

**Telecom Media Networks**  
Paris 33 (0)1 47 54 52 00  
**Consumer Products/Retail/Distribution**  
New York 1 (212) 773 58 40  
**Life Sciences & Chemicals**  
London 44 (207) 340 30 00  
**Energy & Utilities**  
Paris 33 (0)1 47 54 52 00  
Houston (Texas) 1 (713) 982 17 00  
**Finance**  
New York 1 (212) 773 58 40  
**High-Technology & Automotive**  
Rosemont (Illinois) 1 (312) 879 25 00

## France (33)

(Note: If dialing these numbers within France, add a 0 before the first digit.)

Paris	<b>Corporate Headquarters</b>	<b>1 47 54 50 00</b>	Lyon	NIS (Network Infrastructure Services)	4 72 74 03 26
	NIS (Network Infrastructure Services)	1 49 24 53 00		Rhône-Alpes	4 72 75 48 60
	Finance	1 53 64 44 44	Marseille	South East	4 91 16 57 00
	Industry	1 49 01 80 00	Montpellier	South East	4 67 20 92 92
	Institute	1 44 74 24 10		Banking Systems	4 67 20 64 90
	Infogérance	1 41 26 51 00	Mulhouse	North East	3 89 36 33 66
	ISM (Information Systems Management)	1 41 26 51 00	Nancy	North East	3 83 95 85 85
	Public Services	1 49 01 70 00	Nantes	Exploitation	2 51 84 95 02
	Tertiaire	1 49 01 70 00		West	2 51 17 35 00
	Telecom	1 49 00 40 00		West (Training Center)	2 51 17 35 01
Aix en Provence	NIS (Network Infrastructure Services)	4 42 97 17 43	Nice	South East	4 93 72 43 72
Bayonne	Industry	5 59 25 34 00	Niort	West	5 49 06 84 30
Bordeaux	Exploitation	5 57 92 70 50	Orléans	West	2 38 24 01 01
	South	5 56 46 70 00	Pau	South West	5 59 84 12 23
Brest	West	2 98 30 46 30	Rennes	Exploitation - Tertiaire	2 23 35 40 10
Caen	West	2 31 94 51 20		West	2 99 12 55 00
				Telecom	2 99 27 45 45
Clermont-Ferrand	Rhône-Alpes	4 73 28 23 81	Rouen	Exploitation	2 35 76 41 80
Grenoble	Rhône-Alpes	4 76 52 62 00		West	2 35 12 20 20
Le Mans	West	2 43 57 45 00	Strasbourg	North East	3 90 22 86 10
Lille	Exploitation	3 28 36 30 20	Toulouse	Exploitation	5 34 60 60 40
	North East	3 28 36 31 31		South West	5 61 31 52 00
			Tours	West	2 47 60 67 60



## Europe (outside France)

<b>AUSTRIA (43)</b>		
Vienna	(1)	21 163 0

<b>BELGIUM (32)</b>		
Brussels	(2)	774 92 22
<b>Diegem</b>	<b>(2)</b>	<b>708 11 11</b>
Gent	(9)	240 15 11
Hornu		65 715 211
Wavre		10 23 66 11

<b>CROATIA (385)</b>		
Zagreb		1 481 12 30

<b>DENMARK (45)</b>		
<b>Gentofte</b>	<b>70 11 22 00</b>	
Viby, Jylland	(87)	38 70 00

<b>FINLAND (358)</b>		
<b>Espoo</b>	<b>(9) 452 651</b>	
Helsinki, Infrastructure Management	(9)	188 5388
Helsinki, Strategic Consulting	(9)	7251 7251
Oulu	(8)	551 51 99
Tampere	(3)	214 64 44
Turku	(2)	251 26 66

<b>GERMANY (49)</b>		
Bad Homburg	(6172)	485 0
<b>Berlin</b>	<b>(30) 885 94 20</b>	
Cologne	(221)	91 26 44 0
Dresden	(351)	478 13 0
Düsseldorf	(211)	470 68 0
Frankfurt	(69)	15 20 8 02
Hamburg	(40)	4 600 190
Heilbronn	(7131)	939 0
Munich	(89)	559 85 5
Russelsheim	(6142)	60 34 0
Stuttgart	(711)	50 50 5 0
Waldorf	(6227)	73 39 00

<b>HUNGARY (36)</b>		
Budapest	(23)	506 800

<b>IRELAND (353)</b>		
Belfast	2 (890)	51 12 30
Dublin		1 661 3266

<b>ITALY (39)</b>		
Genoa	(010)	595 83 03
La Spezia	(0187)	98 48 11
Milan	(02)	42 261
Naples	(081)	787 98 94
Padua	(049)	823 5874
<b>Rome</b>	<b>(06) 231 901</b>	
Syracuse	(0931)	463 565
Turin	(011)	65 38 11

<b>LATVIA (371)</b>		
Riga	(7)	50 32 50

<b>LUXEMBOURG (352)</b>		
Luxembourg		440 49 81

<b>THE NETHERLANDS (31)</b>		
Utrecht	(30)	689 89 89

<b>NORWAY (47)</b>		
Oslo		24 12 80 00

<b>POLAND (48)</b>		
Warsaw	(22)	528 77 77

<b>PORTUGAL (351)</b>		
<b>Lisbon</b>	<b>(21) 412 22 00</b>	
Porto	(22)	834 98 90

<b>SLOVAKIA (421)</b>		
Bratislava	(7)	444 556 78

<b>SLOVENIA (386)</b>		
Ljubljana	(1)	568 05 70

<b>SPAIN (34)</b>		
Barcelona	(93)	495 86 00
<b>Madrid</b>	<b>(91) 432 81 00</b>	

<b>SWEDEN (46)</b>		
Borlänge	(243)	922 00
Eskilstuna	(16)	17 23 40
Fagersta	(223)	418 00
Gävle	(26)	63 28 00
Göteborg	(31)	335 46 00
Helsingborg	(42)	17 60 00
Hudiksvall	(650)	357 00
Jönköping	(36)	34 85 00
Kalmar	(480)	49 66 60
Karlshamn	(454)	32 59 50
Karlskrona	(455)	568 50
Karlstad	(54)	14 63 00
Linköping	(13)	24 81 00
Luleå	(920)	24 26 00
Malmö	(40)	607 72 10
Örebro	(19)	17 32 00
Östersund	(63)	14 86 00
Oxelösund	(155)	25 50 00
Skövde	(500)	42 79 60
<b>Stockholm (Bromma)</b>	<b>(8) 704 50 00</b>	
Sundsvall	(60)	59 47 00
Umeå	(90)	10 81 00
Uppsala	(18)	18 52 30
Västerås	(21)	10 58 00
Växjö	(470)	74 79 60

<b>SWITZERLAND (41)</b>		
Basel	(061)	685 27 27
Geneva	(022)	879 52 00
Lausanne	(021)	310 43 63
<b>Zürich</b>	<b>(01) 437 93 93</b>	

<b>UNITED KINGDOM (44)</b>		
Bedford	(1234)	328 111
Billingham (Winyard Park)	(1740)	645 500
Birmingham (Aston)	(121)	333 3536
Birmingham (Gravelly)	(121)	328 8200
Bristol (Aztec)	(1454)	626 626
Bristol (Toltech)	(1454)	612 211
Corby	(1536)	385 205
Dingwall	(1349)	860 500
Edinburgh	(131)	339 9339
Glasgow	(141)	331 0414
Greenford	(20)	8578 5571
London (Docklands)	(207)	537 0926
London (Knightsbridge)	(207)	235 6776
<b>London (Shaftesbury Avenue)</b>	<b>(207) 434 2171</b>	
London (South Bank)	(171)	735 0800
London (Wardour Street)	(207)	734 5700
Manchester (Sale)	(161)	969 3611
Newcastle (Wynard)	(1912)	472 500
Rotherham	(1709)	710 071
Swansea	(1792)	353 253
Watford	(1923)	211 311
Woking	(1483)	764 764

## North America

### CANADA (1)

Calgary	(403) 206 5600
Montreal	(514) 874 4488
Toronto	(416) 943 3232
Vancouver	(604) 899 3535

### UNITED STATES (1)

Atherton (California)	(650) 306 7575
Atlanta (Georgia)	(404) 677 3520
Austin (Texas)	(512) 703 7000
Bala Cynwyd (Pennsylvania)	(610) 668 4626
Baltimore (Maryland)	(410) 581 5022
Bellevue (Washington)	(425) 990 6800
Birmingham (Alabama)	(205) 458 7666
Boston (Massachusetts)	(617) 375 2300
Cambridge (Massachusetts)	(617) 491 5200
Centerville (Ohio)	(937) 433 3334
Charlotte (North Carolina)	(704) 331 1900
Chicago (Illinois)	(312) 879 6700
Cincinnati (Ohio)	(513) 563 6622
Clark (New Jersey)	(732) 382 5400
Clayton (Missouri)	(314) 259 7600
Cleveland (Ohio)	(216) 583 3300
Colorado Springs (Colorado)	(719) 593 7034
Columbus (Ohio)	(614) 898 3044
Costa Mesa (California)	(714) 436 4000
Cupertino (California)	(408) 861 1800
Dallas (Texas)	(972) 776 5600
Denver (Colorado)	(720) 931 4900
Des Moines (Iowa)	(515) 282 4802
Detroit (Michigan)	(313) 628 7540
Edina (Minnesota)	(952) 830 6969
El Segundo (California)	(310) 727 8400
Englewood (Colorado)	(303) 796 4000
Fort Lauderdale (Florida)	(954) 776 5144
Freehold (New Jersey)	(732) 358 8900
Hartford (Connecticut)	(860) 524 3300
Honolulu (Hawaii)	(808) 535 6820
Houston (Texas)	(713) 307 7800

Hudson (Massachusetts)	(978) 562 0330
Hudson (Ohio)	(330) 528 1562
Indianapolis (Indiana)	(317) 681 7100
Irvine (California)	(949) 440 3500
Irving (Texas)	(214) 303 7600
Iselin (New Jersey)	(732) 516 4300
Jacksonville (Florida)	(904) 296 0441
Kansas City (Missouri)	(816) 480 5546
Los Angeles (California)	(213) 240 7000
Louisville (Kentucky)	(502) 585 6444
Lyndhurst (New Jersey)	(201) 872 4100
McLean (Virginia)	(703) 747 0500
Miami (Florida)	(305) 415 1515
Milwaukee (Wisconsin)	(414) 273 3321
Minneapolis (Minnesota)	(612) 371 8300
Morristown (New Jersey)	(973) 285 9000
<b>New York</b>	<b>(212) 944 6464</b>
Omaha (Nebraska)	(402) 492 8877
Orlando (Florida)	(407) 660 8833
Overland Park (Kansas)	(913) 451 9600
Philadelphia (Pennsylvania)	(215) 448 3800
Phoenix (Arizona)	(602) 452 5900
Pittsburgh (Pennsylvania)	(412) 644 0600
Portland (Oregon)	(503) 295 1909
Richardson (Texas)	(469) 330 1100
Richmond (Virginia)	(804) 782 0120
Rosemont (Illinois)	(312) 879 2500
San Francisco (California)	(415) 951 3200
Seattle (Washington)	(206) 624 4600
Southfield (Michigan)	(248) 350 8088
St. Louis (Missouri)	(314) 259 1000
Tampa (Florida)	(813) 225 4747
Tarrytown (New York)	(914) 345 6041
Walnut Creek (California)	(925) 287 2323
Washington D.C.	(202) 327 5600
Westchester (Illinois)	(708) 531 1300
Westlake Village (California)	(818) 735 8300

### MEXICO (52)

Mexico City	52 83 14 04
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## Asia-Pacific

### AUSTRALIA (61)

Sydney	(2) 9248 4414
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### CHINA (86)

Hong Kong	(852) 2918 7300
Shanghai	(21) 6841 9696

### INDIA (91)

Mumbai	(22) 518 7000
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### JAPAN (81)

Tokyo	(3) 3279 9210
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### MALAYSIA (60)

Kuala Lumpur	(3) 2163 6800
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### NEW ZEALAND (64)

Auckland	(9) 377 1440
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### SINGAPORE (65)

Singapore	484 3188
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### SOUTH KOREA (82)

Seoul	(2) 761 2600
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### TAIWAN (886)

Taipei	(2) 8780 0909
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