CENTER FOR RESEARCH ON INFORMATION TECHNOLOGY AND ORGANIZATIONS
University of California, Irvine
3200 Berkeley Place
Irvine, California 92697-4650

AUGUST 2000

European E-commerce Report

Authors:

Kenneth L. Kraemer and Jason Dedrick

European E-commerce Report[1]

Kenneth L. Kraemer and Jason Dedrick
Center for Research on Information Technology and Organizations

The year 1999 was the year in which e-commerce is said to have received large investments in Europe and 2000 is expected to bring evidence of the first fruits of those investments. Europeans, ever leery of dominance by the Americans, have tried to put their own brand on e-commerce. One symbol of this branding is "eCommerce " which is used rather than the U.S. versions such as e-commerce or e-business. Some Europeans are claiming that e-commerce, however you spell it, might be passé. It is "M-commerce" for mobile-phone-based eCommerce that they say is the future of electronic commerce and the Internet. And it is here that Europeans believe they will take the leadership in the future because Europe already has the leadership in mobile phone technology through its innovative companies Nokia and Ericisson.

A banner year

Media banners and consultant report titles have heralded the coming of e-commerce to Europe:

"Talk of eCommerce turned to action in 1999"
"Europe enters eCommerce hyper growth"
"eEurope takes off"
"Europe: the sleeping giant awakens"

European academics have yet to be heard from in a big way, but several new e-commerce research centers have been started such as the Center for E-commerce at the Copenhagen Business School. Particularly interesting is the innovative Global E-commerce Masters degree which is being offered by a consortium, including the Athens University of Technology and Business (Greece), Copenhagen Business School (Denmark), Erasmus University, Rotterdam School of Management (The Netherlands), Georgia State University (U.S.), Norwegian School of Economics and Business Administration, Bergen (Norway), and University of Cologne (Germany).

What made e-commerce appear big in 1999 was that some companies began to show new eCommerce sites for the first time, and these included both traditional companies and new dot.com companies. Interestingly, by the second quarter 2000, questions were already being raised about the viability of some of the start-ups, the strategies of traditional companies, and the whole notion of M-commerce and wireless e-commerce. A big part of the questioning was stimulated by the poor performance

[1] This report is based on participation in conferences, secondary research and interviews conducted over roughly a three-month period while one of the authors was on sabbatical in Europe. Future reports will provide more detailed analyses as the research continues.

of dot.com companies in the U.S. and the continuing pandemonium in the NASDAQ.

Analyst assessments

Many consultants and business analysts provided positive assessments of the potential of e-commerce but with reservations about resistance to change. Two examples, from Forrester's Therese Torris and Andersen Consulting's Vernon Ellis respectively, illustrate the trend:

> "Europe has the potential to reach Eu 1.6 trillion in online trade by 2004."[2]
>
> "When I talk to business leaders outside Europe.they are more than a little surprised to hear the real story of eCommerce in Europe. There are some exciting start-ups, led by innovative European entrepreneurs, but many leading-edge practitioners of European eCommerce are quite different. They are well-respected names, whose involvement in eCommerce simply has not been fully recognized or understood. The picture which emerges is of leading European firms embedding eCommerce strategies in their everyday business"[3]

Resistance to change was cited as the key threat to realizing the potential of e-commerce by both analysts:

> "Fulfilling its promise won't come easy. The region must build eCommerce networks to help overcome social fears and resistance to change." [Torris].
>
> "…the biggest threat, I believe, is a cultural one. For, despite deepening pockets of technical excellence and proof of success in key areas, we remain risk-averse, not willing to embrace wholeheartedly the entrepreneurial spirit that is taken for granted across the Atlantic" [Ellis].

A state-of-the-practice assessment, with the same concern about barriers to Internet and e-commerce adoption, was provided by IDC about the same time.[4] It reported that although Internet adoption by businesses in Europe had grown slowly but steadily since 1995, it mostly involved basic web site deployment and e-mail to create a presence on the Web and foster communication among employees, partners and customers. The broader process of aligning business models to the opportunities that the Internet is creating appears to be just now getting under way in some companies in Europe.

The European Market

Europe is following in the wake of the U.S. with the Internet and e-commerce - about 30 to 60 months behind. Interestingly, consultants say 30 months behind, but the executives they survey say 60 months (Andersen Consulting, 1999). And as expressed by one especially dour observer we interviewed, Europe is making the same mistakes that U.S. companies made instead of learning from their experience.

[2] Therese Torris, "Europe: the sleeping giant awakens," The Forrester Report, December 1999.

[3] Vernon Ellis, Managing Director for EMEA. In "eEurope Takes Off" Andersen Consulting, November 1999.

[4] IDC, "European Internet and eCommerce Services," 1999.

Market Size

The European market is 386 million people, which is somewhat larger than the U.S. market of 280 million. Forrester predicts that because of its larger size and predicted "hyper growth" in the market for online business and consumer trade, e-commerce in Europe[5] will grow at triple digit rates, from Eu$36 billion in 1999 to Eu$1.6 trillion by 2004, growing to more than 50% of the U.S. e-commerce market.[6] In terms of online users, the forecast looks like this:

1999 > 72M online > 9% buy online
2004 > 202M online > 65% buy online

Growth is expected to be higher in northern European countries like Denmark, Sweden, Finland and Norway and slower in southern European countries like Italy and Greece. France, Germany, the UK and the rest of middle Europe are expected to be in between.

E-commerce readiness

The indicators of e-commerce readiness that we compiled in Table 1 show that there are basically three groupings among the 17 selected countries. This indicates that there is no "European" pattern. Rather, the patterns differ from country to country. Our groupings also are similar to those reported by Forrester and support the claims about which countries might be future leaders in e-commerce based on the current diffusion of PCs, Internet hosts and mobile phones.

However, there is some doubt about the predictions regarding the number of people, or buyers, online. To put the e-commerce forecast in perspective, it is important to realize that Europe's household penetration of the Internet in 1999 was 9% compared with 40-45% penetration in the U.S.[7] Moreover, comparison of penetration over time indicates that the gap between the U.S. and Europe is widening rather than narrowing in terms of both PC penetration and Internet penetration. Thus, it is difficult to see how e-commerce might grow at triple digit rates between 2000 and 2004.

Market drivers and barriers

The drivers of the market in Europe are basically the same as those in the U.S. There is the belief that the Internet represents a paradigm shift to a new economy wherein markets have no borders and first movers can gain tremendous advantage in a winner-takes-all high stakes competition. Also, there is the fear that if European companies do not wake up to the strategic potential of e-commerce and use it to revolutionize their own business and industry, they may find that others do it without them.

On the other hand, European policymakers and business executives are not particularly sanguine about the high cost, high-risk game that the Internet and e-commerce seem to be.[8] In

[5] "Europe" as used in this report includes the 17 countries of Western Europe.

[6] There isn't much agreement among the forecasters other than that the market is going to be bigger. For example, in contrast to Forrester, Andersen Consulting estimates that the online marketplace in Western Europe will grow to $430 billion by 2003 and that Europe will have 170 million internet users.

[7] Morgan Stanley Dean Witter, "The European Internet Report," June 1999.

[8] For example, the European Union's competition commissioner, in commenting on the rise in electronic markets in Europe, said that "What we must watch for is whether they are used for the exchange of sensitive information

fact, whereas the drivers of e-commerce are similar, the barriers are different and help to explain the low level and rate of adoption of the Internet and e-commerce in Europe to date.

Table 1. Indicators of e-commerce readiness

Country	PCs/ 100 people (1998)b	Internet hosts/ 1000 people (2000)a	Internet users/100 people (2000)c	Mobile phones per 100 people (1999)b	Price of 20hr peak internet access in US$ (2000)a
Top tier					
Denmark	38	93	35	44	62
Finland	35	148	49	60	33
Norway	37	120	46	56	56
Sweden	36	114	48	50	42
Switzerland	42	76	35	30	38
Middle tier					
Austria	23	50	19	38	62
Belgium	29	49	23	22	73
France	21	30	15	24	35
Germany	30	34	27	22	40
Ireland	27	36	18	28	51
Netherlands	32	85	27	32	46
UK	26	60	29	28	30
Lower tier					
Greece	5	10	6	28	33
Italy	17	19	13	42	25
Portugal	8	13	9	38	55
Spain	14	23	13	28	37
Comparisons					
OECD 27	24	59	N/A	30	44
U.S.	46	142	49	28	33
Japan	23	26	16	40	61

Sources: a. OECD, 2000 “Local Access Pricing and E-commerce"; b. OECD, "A New Economy?" 2000; c. AEA and NASDAQ, Cybernation v.2

between competitors or to exclude certain competitors from the virtual marketplace,”

First, the cost of Internet use in many European countries is very high because charges are based on time usage rather than fixed-rate local calls (Table 1). The cost of 20 hours of Internet time is around $40 on average in Europe compared to $33 in the U.S. But, the cost in Denmark, Norway, Belgium and Austria is from $56-$73 for 20 hours—about double the U.S. average. In addition, the European Internet infrastructure is dominated by local PTTs, which are only slowly being opened to price competition. And, government taxes add about 10% on average to the cost of Internet time. Therefore Internet costs are expected to remain high out to 2004 and in some cases as far out as 2006 based on published rate reduction plans.

Some ISPs are providing free access (Freeserve and Virgin in the UK, Mannesmann with Yahoo! in Germany and World Online with TF1 in France) as a way to stimulate greater individual and small business use, but the stiff charges that users face make them reluctant to sign on. And, when users do sign on, they seldom do more than e-mail because of the high cost. Moreover, the viability of the free access model is hotly debated. Freeserve, which provides free Internet access and has attracted 1.5 million users, has a dark side in that it is now up for sale by its owner—Dixon department stores in the UK—which cannot afford the continuing lack of profitability of the Internet service company.

Second, the PC is currently still the major means of accessing the Internet and Europe simply lacks the PC and Internet penetration rates of the U.S., which are 46 PCs per 100 population and 142 Internet hosts per 1000 population. Scandinavian countries and Switzerland are nearly on a par with the U.S. (Table 1), but the European average hovers around 24 PCs per 100 and 59 Internet hosts per 1000.

Third, credit cards are not as widely used as in the U.S. and consumers are leery of using their more widely used debit cards without greater assurances of the security of financial transactions over the Internet. [Among professionals interviewed in Germany, Holland, the Czech Republic and Italy, most had never bought anything over the Internet—not even a book from Amazon. No one in a 75-person class of business school undergraduates in Milan had ever bought anything over the Internet. Professionals who used the Internet frequently at work reported they seldom used it at home because of cost.]

Fourth, business executives in Europe are not convinced of the payoffs from e-commerce. They are concerned that it may simply become a cost of doing business. They are not convinced that it will lead to reduced capital requirements and operational costs, expanded geographic or market reach, extended customer service or the other benefits claimed for e-commerce. They view the claims as suspect in part from lack of hard evidence of payoffs and in part because the claims come from European transplants of U.S. companies such as Microsoft, Amazon, and Cisco and by a few of the European technology pioneers such as Ericsson and Nokia. All of these have a vested interest in promoting e-commerce.

European e-commerce companies

There are various lists of companies, which are reported to be using the Internet and e-commerce in innovative ways and to have benefited greatly as a result. A few of these are illustrated

below to give a sense of the general character of these innovations in contrast to U.S. innovators such as Dell Computer, Cisco Systems, Amazon.com, E-bay, Priceline.com, Charles Schwab, E-Trade and others.

- **Bol.com** is Bertelsmann's answer to Amazon.com. Its web site offers search functions, gift ideas, reviews, and recommendations for native and foreign language books to consumers in Germany, France, the U.K, and the Netherlands.
- **Chateau-online** is an online supplier of fine wines that operates in France, the U.K. and Germany and focuses on providing editorials and wine recommendations to corporate clients.
- **Lastminute.com** provides low-cost travel and entertainment services, including flight bookings, hotel reservations, theatre tickets and gifts in the U.K.
- **TotalFina** gives its refinery customers direct access to service and delivery systems information and reportedly has generated 20-30 percent reductions in the cost of order management.
- **Lloyds Insurance** of Italy has used the Internet to penetrate new markets and is reportedly doing 22 percent of sales via the Internet.
- **Telenor Mobil** of Norway is using the Internet to link customers and dealers and to improve service delivery, increase speed to market and reduce costs.
- **MIGROSBANK** of Switzerland has used multimedia kiosks, a specially recruited staff and Internet marketing to increase its market reach.
- **Libri**, a book wholesaler, offers a web platform to 200 resellers representing 450 bookstores.
- **Egg**, is Prudential Insurance's Internet-only bank founded in the U.K., which offers high rates on deposits and free Internet access and cheap PCs for those without Internet access.

As suggested earlier, most of these are traditional companies that have developed an e-commerce presence rather than pure Internet companies. Most focus on using the Internet and e-commerce for cost savings rather than revenue or market growth.

As for the dot.coms, one of the first and flashiest European internet companies was Boo.com and it is also the first to go bankrupt after blowing through over $135 million of investor's money in a mere two years. Boo.com sold clothes over the web with a virtual changing room and 3D graphics that let customers examine clothes from any angle. It also showed prices for 18 currencies and in seven languages.

Initially, it sold clothes at retail prices, but when sales failed to materialize, cut prices by 40% in an effort to increase sales, which were running at only one tenth of expenses. That strategy and other efforts to shore up the company were unsuccessful and a bankruptcy liquidator terminated the staff and sold off the web site in May, 2000.

The saga of Boo.com, which was led by two under-thirty-something's, promoted by the venerable banker J.P. Morgan, and invested in by the likes of Luciano Benneton of Italy and Bernard Arnault of France (Monet-Nennessy Louis Vuitton) is chronicled in the *European Wall Street Journal* (Tuesday, June 27, 2000).

M-commerce

M-commerce doesn't seem to be faring much better than the dot.coms--at least not yet. Heralded as Europe's secret weapon against the U.S.'s technology hegemony, WAP (wireless application protocol) phones are supposed to allow people with advanced mobile phones access a subset of Internet functions and web sites. However, WAP phones are running into their own troubles. First, there are not enough phones available to meet demand. Second, WAP applications are limited in number and functionality—so much so that the joke in Europe is that WAP stands for "Where are the applications?" Third, WAP services are not available in all areas as they are currently focused on large urban markets. Fourth, the WAP services that are available are reportedly clunky to use and often busy when users try to access them.

Conclusion

The bottom line on e-commerce in Europe is that it seems to be getting off the ground in 2000. As might be expected, both the traditional companies and the new dot.coms are experiencing the same kinds of difficulties with generating profits as companies in the U.S. Some will undoubtedly go the way of Boo.com in the future and as yet there is no purely European star performer among the traditional or dot.com companies.

European countries clearly lag the U.S. in e-commerce readiness. Various indicators shown in Table 1 provide support for this conclusion. An even better indication is provided by looking at the lag in e-commerce readiness (indicated by the number of internet hosts per 1000 population) between the U.S. and European countries (Table 2).[9]

Overall, the results suggest that there is a 30-month lag on average between the U.S. and Europe in terms of Internet diffusion—a measure of e-commerce readiness highly correlated with other measures such as the number of PCs or Internet users.

More interesting, however, is the fact that there is no real "European" pattern to e-commerce readiness. Rather, there are three different groups in Europe (Table 2). The Scandinavian countries are roughly on a par with the U.S. The U.K., Ireland,

Table 2. Lag in e-commerce readiness

Country	Lag with US on hosts/1000 (months)
Austria	24
Belgium	24
Denmark	12
Finland	0
France	36
Germany	36
Greece	60
Ireland	30
Italy	54
Netherlands	18
Norway	6
Portugal	60
Spain	48
Sweden	6
Switzerland	18
UK	24
OECD 27	24
U.S.	0
Japan	42

Source: Calculated from Network Wizards survey taken for Internet Software Consortium. Reported in OECD, 2000, *Local Access Pricing and E-commerce*.

[9] Taking each country's Internet hosts per 1000 for January 2000 and comparing that with the time when the U.S. was at that level results in the lag time in months.

Germany and France are about 2-3 years behind. And, Greece, Italy, Spain and Portugal are 4-5 years behind. These numbers correlate rather well with the estimates made by industry analysts.

At a more general level, Europe can be said to be following the pattern of the U.S. in e-commerce. The main reason is that innovation is coming primarily from a small group of U.S. startups and early adopters such as Yahoo, Dell, Cisco, Amazon, Charles Schwab and E-trade with some refinements by traditional companies that are fast followers, such as Wal-Mart.com, Barnesandnoble.com, VictoriasSecret.com, etc. Europe has not had many dot.com innovators, so its companies are starting to do e-commerce after the patterns have been established, just as they did with earlier computer innovations (with the notable exception of SAP's enterprise resource planning system).

Europe does have innovators in wireless, which will give them an edge in m-commerce. But there are a number of unresolved questions. What is the difference between e-commerce and m-commerce other than a different access device? Will the reduced functionality of wireless phones stymie diffusion? Where will the innovation occur to make m-commerce work—on the mobile side or on the Internet side? A combination of such innovations would give the Europeans a distinctive place and chance for leadership in m-commerce (and maybe Japan too through its i-mode).

We would anticipate that m-commerce will develop down the road, but as indicated earlier by some of the problems, it will be later rather than sooner. And the road will be rocky for users, as analysts predict that users will need to change phones about every six months to keep up with the coming innovations. There is a question about how long corporations and users are willing to pay the price for all this innovation.

There are many questions to be answered about how e-commerce will evolve in Europe. We will address these in future reports as we continue our research in the region.