The information superhighway: an on-ramp to global markets for Austrian corporations?

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Abstract

Global networks and the Internet in particular are major drivers for the globalization of markets and new types of organizations. User-friendly services transform the Internet into a viable business place and cause impressive growth rates in the numbers of users as well as access and service providers. This paper discusses how the Internet as a business place has developed in Austria over the last years and outlines various possibilities to take advantage of the Internet for international business purposes. International market research, communications and coordination with business partners and customers abroad, public relations, advertising, and on-line sales stand out as the most promising business uses of the Internet in a global context. Finally we show how the Internet evolved in Austria and present the first results of a survey of Austrian Web sites to outline how Austrian businesses are preparing for electronic commerce on the Internet.

Keywords

Information Superhighway, Internet, global markets, business strategy, electronic commerce, Austria

1 INTRODUCTION

Although global business is still mostly associated with multinational enterprises, global competition is changing drastically. E.g. in the US small and medium-size enterprises already account for more than

half of the \$548 billion in exports of manufactured goods (Business Week, 1995a). Information technology can and will be an important factor in helping smaller firms overcome many obstacles they experience in competing with their large multinational counterparts.

Especially global telecommunications, namely the Internet, is regarded as an enabling technology for the global marketplace. Besides being used as a fast and cost-effective means for competitive intelligence it enables new business processes, on-line marketing and sales opportunities, as well as new types of flexible, networked organizations that would not be possible otherwise.

In this paper we will first give a brief overview of relevant Internet demographics and usage trends. We will then discuss how businesses use the "Information Superhighway" in general and especially with regard to the global marketplace. Finally we will present a short survey how Austrian corporations are using the Internet for global electronic commerce.

2 INTERNET DEMOGRAPHICS

The government initiatives in the US or the EU show that the construction of the Information Superhighway is well under way. However, while the basic telecommunications infrastructure exists in industrialized nations, multi-gigabit links that are needed for multimedia applications between households and businesses, government agencies, and other organizations are still far away in the future. The concept closest to the intentions of the Information Superhighway today - in terms of its global reach, its openness, its heterogeneous user groups, and the enormous business expectations - is the Internet. In contrast, on-line services (e.g. America Online, or Prodigy in the US) or public videotex systems (e.g. Minitel in France) mostly target national audiences. Furthermore all major on-line services either provide Internet access already or are in the process to do so. We therefore assume that the distinction between on-line services and Internet services will further diminish and will focus our discussion solely on the Internet.

The numbers of Internet participants rise exponentially and open up enormous business opportunities. In January 1996 Network Wizards (1996) reported that the number of Internet hosts reached 9.4 million, compared to 2.2 million hosts in January 1994. While this number can be determined quite accurately, experts disagree on the number of Internet users. Estimates vary from 30 million active users worldwide to 10 users per host, which would account for more than 90 million users.

After several years of use mainly within the scientific community, businesses already run more than half of the networks connected to the Internet. Enhanced user-interfaces for basic network services like telnet, ftp, or electronic mail and new navigational, indexing and search tools were able to broaden the interest. Aside from many other improvements the one service that profoundly changed user demographics on the Internet, is the World Wide Web (also called Web or WWW). Browsers such as NCSA Mosaic or Netscape Navigator allow users to access information on distributed Web servers just by clicking on predefined links. The concept of the Web allows not only to present static information of various types (text, graphics, pictures, audio, video) but also allows to attach forms, transfer files, query databases, use remote application programs and other Internet services from within the Web. Businesses and non-commercial organizations soon recognized the Web's ease-of-use. Within two years after the introduction of the Web the number of servers that could be accessed from around the world approached 30,000, while it was just 100 in mid 1993.

With these large numbers of novice users, and the many new business offers announced every day, tools that assist users in finding the "right" information become a necessity. Agent-based search engines like Alta Vista (<http://altavista.digital.com>), Web Crawler (<http://www.webcrawler.com>), Lycos (<http://www.lycos.com>), and Harvest (<http://harvest.cs.colorado.edu>) or meta-lists of Web sites such as Yahoo (<http://www.yahoo.com>), a collection of links to World Wide Web sites, allow easy access to distributed resources.

According to surveys by the Michigan Business School (Gupta, 1995) and Georgia Tech's GVU Center (Pitkow and Recker, 1995) the demographics of Web users are changing rapidly. The 1994 survey showed a mostly male US-based Web audience with high participation rates of technical professionals and the scientific community. In 1995 these characteristics shifted significantly towards affluent business and private users, typically highly educated males in their thirties. More than half of all Web users get on the Internet through access providers, the majority of them use IBM-compatible PCs. They are concerned about security and quality issues; as a result they tend to use the Web rather for browsing than for shopping on-line.

The demographic changes in the user community show that the Internet already made the transition from the predominantly academic and research setting into businesses and households. With the necessary security enhancements for business transactions and electronic payment processes and additional investments into high-capacity telecommunications infrastructure the Internet will become a global electronic marketplace that is easily accessible through all kinds of access and service providers.

3 BUSINESS USE OF THE INTERNET

Despite many inspired Internet-related projects and the impressive overall growth of the Internet most companies have not yet decided upon their strategies in dealing with the Internet. Many different ways of incorporating electronic communications into internal business processes or customer related activities are being explored in companies of all sizes, from small start-ups who find new business opportunities to large corporations that use Internet-technology for cost advantage. While the expectations are highest for on-line marketing and sales activities, many technical and security issues still have to be solved to make business transactions on the Internet reliable enough for a broad consumer base. But although on-line sales do not meet the expectations of most businesses yet, firms are already aware of the cost and time advantages of the Internet for internal use. Business Week (1996) reports that many firms already experience considerable cost reductions by distributing internal documents, directories, manuals, or newsletters to employees worldwide via Web servers.

Kambil (1995) identified six categories of Internet use for cost or competitive advantage:

1. for process reengineering or enterprise-wide information systems, to reduce the costs of software distribution, gain more hardware independence and make information available throughout the firm via "intranets",
2. for customer support and product information on Web sites,
3. for creating electronic marketplaces and bypassing traditional intermediaries through electronic shopping malls and direct on-line sales via Web sites,
4. for new business opportunities, e.g. information brokers like Yahoo,
5. for easier market segmentation and information targeted at specific user groups,

6. for access to worldwide resources without geographical constraints and with lower barriers for small businesses.

According to a survey by the Yankee Group (Business Week, 1995b) the main reasons for corporations to use the Internet are communications purposes. 30% of all firms surveyed use the Internet for internal communications, and 49% for external communications, especially with suppliers and contractors who can track inventory or project schedules. But the biggest growth rates in Internet activities are expected in advertising and selling products on the Internet. While only 8% of the firms currently advertise on the Internet, 33% have plans for the future. Direct selling to consumers is expected to rise from 5% today to 35% of all firms in the near future.

Recent studies by Maier and Traxler (1995) and Kiessling, Schweeger and Sporn (1996) show that many of these expectations are shared by Austrian corporations currently on the Internet. In an on-line Web survey done by Maier and Traxler (1995) cost savings and competitive advantage through fast and cheap worldwide communication with business partners, reduction of geographical constraints, international cooperation, internationalization of research and development, and better and cheaper customer service were mentioned as the most important objectives for Austrian businesses in joining the Internet community. Kiessling, Schweeger and Sporn (1996) report that more than half of all firms not yet on the Internet plan their presence within the next three years, their main objective being marketing reasons and reaching new customer segments rather than high expectations in soaring on-line sales. It is not surprising that small and medium-size enterprises are the ones most interested in electronic commerce. They can expect better and cheaper access to global markets while at the same time they are able to react faster to market and technological changes and are more flexible in implementing new organizational structures.

Similar developments are reported for Germany and Switzerland by Bohr (1996) and Sieber (1995). Most businesses regard the Internet as a valuable tool to access and disseminate information, and to communicate with customers. On-line sales and revenue growth are not seen as immediate benefits whereas firms hope that the Internet will become an important new marketing channel and will allow them to attract new customer segments.

New technologies for the Internet - according to Kambil (1995) especially software agents inexpensive cost settlement and payment processes, and transaction templates ("EDI over the Internet") - will have a major impact on business processes and will be able to lower transaction costs considerably. At the same time consumers become more powerful since they can use the same media as firms to express their discontent with products and services. For businesses this means that they have to find appropriate strategies for communications with customers on the Internet.

4 INTERNATIONALIZATION VIA THE INFORMATION SUPERHIGHWAY

MCI chairman Bert Roberts predicts that on the Information Superhighway "...you can have access to millions of customers. Products and services can be sold 24 hours a day. And since transactions are handled electronically, sales and distribution can be done much more cost-effectively" (Edupage, 1995). This statement describes not only the domestic opportunities that businesses have on the Internet, but includes an international business perspective that has not been widely exploited yet. A survey of German firms on the Internet shows that they still regard Switzerland and Austria as their preferred

foreign markets (Bohr, 1996). It can be expected that in the future electronic commerce on the Internet will increasingly cross country borders. We will therefore now take a look at the Internet from an internationalization perspective and discuss, in which ways the Internet can be used for the entry in a new market.

4.1 The Internet as a global information source

The Internet can provide firms with information about a variety of issues important to the entry into new markets, such as general information about foreign countries, regulatory information about exports and imports, Internet characteristics of foreign markets, consumer demographics, industry-specific information, information on foreign competitors and products, potential business partners, distributors, and customers etc.

Given its roots in the academic setting the Internet provides a strong knowledge base especially for the *IT industry* and other technology-rich disciplines such as biology or medicine. The computer industry is one of the most visible business sectors on the Internet, and computer science and information systems researchers discuss all kinds of issues in worldwide mailing lists and newsgroups. *Internet-specific information* covers the most recent developments and ideas and is indispensable for businesses considering to apply new Internet-based technologies. Companies interested in on-line business with foreign customers can directly observe how the Internet is used in the target countries and directly investigate the usage characteristics, cultural differences, attitudes towards security issues, data privacy, transborder data flow issues, and much more. Research projects such as Hermes (Gupta, 1995) regularly survey Internet users and gather this type of information. They help to identify shifts in usage patterns, give insight into attitude changes towards critical issues of electronic commerce as the usage of the Internet progresses and provide Internet demographics. So far, most surveys concentrate on US Internet users and may therefore not be directly applicable to other regions of the world.

The Internet also provides potential exporters with *general and import/export oriented information* about foreign markets. Newsgroups discussing foreign countries or regions, Web sites of government agencies, foreign trade associations, international organizations like the OECD or the UN, or foreign news services on the Web provide country-specific information from which further investigations can be made. Specific information for exporters and importers is increasingly being made available on the Web. Several institutions provide links to sites with information on legal and administrative issues, such as export permissions, import quotas, export/import procedures, legal responsibilities, financial support for exporters, customs declarations etc., all issues that have to be thoroughly researched before making strategic decisions about an engagement in a foreign market. An example for such a server is "David", the Web site of the Austrian Foreign Trade Commission for their Austrian members. It contains an extensive database on the Internet with country profiles, economic statistics, export control lists, market reports etc. While basic information is freely accessible, offers or inquiries from foreign firms and calls for tenders are restricted to registered members.

Although the Internet will certainly not replace personal contacts and traditional market research it is a valuable additional information source that can be accessed anytime and at low cost. Access to most of the information mentioned so far is provided through different Internet services: newsgroups, Web or ftp servers, freely accessible databases, on-line publications and archives, library information systems, gopher servers, and WAIS servers all over the world are possible sources. Locating relevant information

within reasonable time is therefore becoming increasingly important. "Right now it is like an enormous library with no card catalog. People look around and leave." (Forbes, 1995) is a common observation. An impression of the amount of information available on the Web gives Alta Vista, the powerful Web agent by Digital that was already mentioned earlier. It provides a full text index of 21 mio. Web pages and handles approximately 5 mio. HTTP requests daily. To make these amounts of information available to interested users, personalized software agents and Internet directories will become even more important.

4.2 The Internet as an international marketing and sales instrument

Its global reach makes the Internet an ideal tool for international marketing and sales activities beyond traditional sales channels in an information society. The rapid deployment of commercial Web sites all over the world shows the importance of this cost-effective possibility for businesses to present themselves in a global marketplace.

Despite this embrace by many industries on-line business is still in an early evolutionary stage. Many innovative ideas how to take advantage of the Information Superhighway are being tested and firms of all types and sizes are setting up Web sites and develop applications for electronic commerce. The earliest and most active industry sectors to become involved (beyond the computer and telecommunications industry) were the entertainment sector, the publishing industry, the financial sector, and the retail industry.

But even with extraordinary investments into application development for electronic commerce actual on-line sales lag far behind expectations. "People don't want to pay for anything. I guess it's all part of the culture", a disappointed on-line book vendor expresses the feelings of many (Forbes, 1995). Besides this "everything for free" attitude that will change gradually as the number of business participants and consumers grows, firms also have to take into account different consumer attitudes towards distance shopping in foreign countries. A recent study of European consumer behavior indicates that Europeans show very different shopping interests than US customers, especially in "...what are considered 'precursor behaviors' to interactive television use, such as video rental, mail-order purchasing and home delivery of take-out food" (Wall Street Journal, 1995). Another reason for consumers to use Web sites for browsing rather than shopping are the security and privacy concerns associated with transferring sensitive data over the Internet.

While most money on the Internet is currently made by Internet access and service providers, the hardware and software industry, and Internet consultants, industry analysts have no doubts about the future of electronic commerce. Blanning and King (1995) report that on-line shopping did not play a significant role in 1994 with sales of only \$200 million, but forecasts for 1998 predict this market to grow to \$4.8 billion. Another analysis by Goldman, Sachs & Co. (Business Week, 1995) estimates the Internet market - including software, hardware, and services - to rise to \$4.2 billion until 1997.

Because of the media interest in on-line shopping the Internet is often perceived mainly as *the* tool for on-line sales. But the possibilities of the Internet also encompass pre-sales activities such as public relations and advertising, and post-sales customer service. Corporations will therefore have to examine at what stage of their customer contacts the Internet can be used successfully.

Public relations and advertising

The prospect of reaching millions of potential customers worldwide at very low cost and with relatively little effort by sending advertising messages over the Internet may be tempting at first thought. But according to the Internet etiquette advertising messages by e-mail to individuals or newsgroups ("spamming") are considered offensive. Firms therefore have to use other ways of communicating their products and services to Internet users.

The most subtle approach is to *participate in discussions* that relate to a firm's products, services, or other areas of expertise. Examples in the computer industry show that these activities can help to build a positive image for a firm, e.g. by participating in discussions, offering solutions for customer problems, answering questions, reporting about new developments, or providing some other sort of information. A corporation that addresses customer problems fast and effectively, and offers useful and up-to-date information is certainly leaving a positive impression on the newsgroup's subscriber base. On the other hand incompetent or rude behavior on the Internet is likely to fire back, since many Internet users communicate their experiences with firms to relevant newsgroups.

Advertising and image-building through participation in on-line discussions and by providing informal on-line support offer good chances for international recognition. Newsgroups are distributed to many countries and most of them use English as the common language. Nevertheless firms will often find additional local discussion groups in their target markets and should therefore carefully observe the newsgroups available and join them according to their internationalization plans.

For many products or services this type of interaction with the public is not a viable alternative. The most common alternative to attract immediate attention is to set up a virtual storefront on the Internet. Since Internet users are very technology-minded word about new interesting sites is spreading rapidly within the Internet community. Many sites maintain links to "cool" places on the Web and new design ideas are often discussed in traditional news media as well. While extraordinary design is one way to attract attention, unique information - even if it is not directly business-related - is another reason for visiting a Web site frequently. For a bookstore that might be links to foreign language magazines and newspapers available on-line or to on-line dictionaries, while a hotel chain might provide links to weather forecasts, foreign currency exchange rates, airline or car rental information, museums, city information, etc.

To get the desired public attention businesses have to plan their Web presence as thoroughly as any other advertising or public relations campaign. They have to decide which user groups the Web site should address, if the Web presence should be designed for a local user community or as a first step into international markets, and if it should serve as an advertising medium only or offer on-line shopping possibilities. Furthermore the layout and the contents have to be professionally designed. From what we can observe the first prototypes of Web sites are often set up by interested individuals who experiment with new technologies and give more thought to the technical details than to the potential domestic or international impact. Eventually those Web sites become the firm's electronic link to the public without getting the same attention as other forms of advertisements. We frequently find Web sites carrying notes that they are still under construction and what to expect in the future. This may not have posed problems in early experiments with the Web, but meanwhile the Internet is too mature to allow an unprofessional attitude or serious flaws in Web-based advertising. While the Internet is surely a more informal medium than traditional TV or newspaper, a halfhearted Web presence certainly creates a negative image of a firm and will not attract users to check the site again.

Direct marketing and on-line sales

Using the Internet for direct marketing and on-line sales is an interesting opportunity beyond the domestic market. In the home market the Internet as an additional distribution channel enables firms to address new customers and to offer extended shopping hours while at the same time speeding up the ordering and shipping process. In an international setting the Internet can further expand a firm's reach to theoretically more than sixty countries without the cost of setting up subsidiaries abroad.

As exciting as this may sound, not every product can be successfully sold over the Internet - or at least not yet - as many businesses are currently experiencing. While advertising and public relations seem to get immediate attention, for many firms the numbers of on-line sales are far from meeting even modest expectations. The examples of 1-800 Flowers which reported about 30,000 daily hits of its Web site, but only 25 on-line orders, or a small German translating service that did not receive a single on-line order within three months from setting up a Web site show that the Internet may not be the right medium for a number of products.

But there are also encouraging examples from the retail as well as the service industry: record stores are selling CDs on-line, publishing houses offer books and magazines, especially technology-related literature, home shopping networks and mail-order businesses offer consumer electronics products, computer companies sell hardware and software, car rental companies accept on-line reservations, international express delivery services enable tracking of parcels over the Internet, and banks offer on-line banking over the Internet. It may be questioned if fast food orders via the Internet have any advantage over telephone orders and if customers will really order jewelry over the Internet, but in general self-explaining, standardized and relatively low-priced merchandise is considered well suited for being sold on the Internet. Mail-order merchandise typically meets these criteria well. We already see several examples of mail-order firms opening up Internet branches where customers can browse catalogs on-line and place orders via the Internet. So far, most firms explicitly exclude international sales or refer browsers to customer service representatives for further inquiries about foreign shipping.

To achieve an *immediate presence* in a foreign market, businesses should consider joining well-established electronic shopping malls abroad that attract many visitors or to join forces with other businesses that offer products and services for similar consumer segments and build specialized *international shopping malls*.

Another approach for *linking international business partners* electronically is to offer specialized services for international business operations. A few such services like the Trade Point Network and World Trade Center Network are already in use. Another service, the International Business Exchange (IBEX), has been announced by the US Chamber of Commerce in September 1995. IBEX is a joint effort of AT&T who provides the network, Dun & Bradstreet as the database provider, SHL Systemhouse who builds the systems, the Global Business Alliance who distributes IBEX, and GE Information Services, who provides the electronic data interchange component (Information Week, 1995). IBEX will eventually offer intelligent agents to match buyers and sellers automatically throughout the world.

To stay technologically ahead of the competition firms could join research projects about the Internet as a marketplace like CommerceNet, a consortium sponsored in part by US government research grants but also by its industry members. Its members are leading Internet proponents who are actively involved in all kinds of electronic commerce projects, from transaction security to design-to-manufacturing integration.

While the capabilities of the Internet for on-line selling to consumers are enthusiastically explored many features to *support traditional business procedures* do not get the attention they deserve. Businesses can use the Internet's communications capabilities to establish and to maintain long- or short-term alliances and business networks, to work with local distributors and/or to communicate with subsidiaries in foreign countries. Quick solutions for a single purpose might rely on basic Internet services like e-mail and file transfer for non-standardized communications, while in a long-term business relationship access to the partner's order processing and logistics systems, or EDI can be added as needed. Web-based groupware like the new version of Lotus Notes will enable firms to even better coordinate their internal operations as well as their cooperation with foreign partners, international customers, distributors, international and local carriers, customs authorities and other government agencies.

Post-sales customer support

A 1994 IDC survey of the computer industry reports significant changes in customer service. Respondents named customer contact, especially technical support for their customers (87%), and software updates and patches (59%) as the most important reasons for on-line access by their companies (Levitt, 1995). While the computer industry has been a pioneer in electronic communications, the Internet now offers the same potential for more industries and a growing number of private customers. The growing numbers of private homes and businesses with access to the Internet slowly makes on-line customer support an alternative to traditional means in a growing number of industries.

High-quality customer support for consumers usually has high manpower requirements that can often not be met by small firms on an international basis. Especially for companies with worldwide customers who cannot afford a local support structure electronic mail is an excellent communications tool, both in terms of costs and timeliness. Services and products that need scheduled maintenance, need to be upgraded regularly, or manuals and technical documentation - in general technical products and services - are good candidates for on-line support. Services can remind customers of scheduled maintenance intervals, or offer databases with frequently asked questions about products. As mentioned earlier participation in discussion groups with prospective buyers and actual customers is an effective way of combining customer support with advertising. Many companies offer ftp-servers for downloading software upgrades or even make new hardware and software accessible on the Internet for benchmarking (Jarvenpaa and Ives, 1994).

Firms can make all kinds of existing support applications available for customers to increase their responsiveness without worrying about hardware platforms and installation procedures of dial-in solutions. Always an excellent example of innovative IT use is Federal Express who in 1995 launched a Web-based application where customers can track the status of expected deliveries (<http://www.fedex.com>). Similar applications such as querying replacement parts inventories, (re)scheduling deliveries or maintenance appointments, and many other tasks can be offered to customers over the Internet. These applications can be cost-effective and easily accessible alternatives to common practice.

5 AUSTRIAN CORPORATIONS ON THE "HIGHWAY" TO GLOBAL MARKETS?

After discussing the business use of the Internet in general and in an international setting we will now concentrate on Austrian corporations and their use of the Internet. We will first give an overview of Austria's present telecommunications situation and the most recent Internet statistics, and will then present a survey of Austrian Web sites and their focus on an international clientele.

5.1 Telecommunications infrastructure

The telecommunications sector in Austria is still regulated by the federal government and will remain largely under government control until 1998. By then EU law requires the full liberalization of telecommunications services in all member countries. The Austrian government is starting this process in 1996 by transforming the Austrian PTT into a separate business entity that will remain 100% government-owned until 1998. For many years telecommunications has been the only profitable business division of the Austrian PTT, while mail services and the public bus transportation system are both heavily subsidized.

During the last years there have been considerable investments into fiber trunks and digital technology by the PTT. By the end of 1994 the PTT had switched about two thirds of all telephone lines to digital service, in urban areas the availability is almost 100%. Although ISDN is now available on a broad basis, the actual number of users in December 1995 was less than 16,000. While the monthly ISDN surcharge of approximately \$30 for a private customer is rather low, the high overall tariffs prohibit intensive Internet usage.

Table 1 compares regular Austrian calling rates (rates are displayed in ATS) internationally:¹

Table 1 Telephone rates in selected countries

<i>Country</i>	<i>Local calls</i>	<i>Long-distance calls, nationwide, >100 km</i>	<i>Intercontinental calls to USA</i>
	<i>(per hour)</i>	<i>(per minute)</i>	<i>(per minute)</i>
Austria	40.0	5.3	12.6
Germany	16.5	4.7	14.1
Switzerland	31.0	12.6	8.5
Great-Britain	36.3	1.6	9.5
USA	1.0	2.1	7.5
	<i>(per call)</i>		

¹ The current exchange rate for 1 US-\$ is app. ATS 10. All data except the calling rates for the US are from Profil (1995). The US data were taken from the author's Nynex and AT&T telephone bills in January 1995 and reflect the average cost of local calls within New York City, long-distance calls to Boston and international calls to Austria.

Table 1 shows that on average European telephone rates are considerably higher than in the US. Austria is in the top ranks of the countries listed: it has not only the highest rates for local calls, but also ranks second in the other two categories. These high rates are the most important reason why the use of telecommunications services in Austria, and in Europe in general, is notably lower than in the US.

A similar situation as shown above for the more casual user exists for leased line needed by businesses that want to provide services on the Internet. Leased lines are priced according to capacity and distance: a 64 Kbps line costs about \$80 per kilometer and month within a local calling area, but in rural areas rates run much higher, creating considerable cost advantages for urban areas. As an Internet access provider, Telecom, a partnership between the PTT and industry partners founded in 1994, charges \$2,700 per month for a 128 Kbps leased line (\$5,400 for 256 Kbps), if the line is within 5 km of an access point, which is usually the case in urban areas. In contrast the US consortium CommerceNet charges \$150 per month for a 128 Kbps line (Bayer, 1994). For high capacity networking the Austrian PTT offers a 34 Mbps country-wide Metropolitan Area Network connecting all nine state capitals in Austria. Since fall 1994 the PTT also uses an ATM network to link the three largest Austrian cities, Vienna, Graz, and Linz (155 Mbps), as well as Austria with Germany, Switzerland, and Italy.

Austrian state-owned utility companies that already have an extensive terrestrial infrastructure in place, and the Austrian Railroad have intensified their exploration of new business opportunities, especially by providing telecommunications services through their already existing networks.

Domestic and international joint ventures are working on projects to provide terrestrial telecommunications services, mobile telecommunications services in the upcoming European GSM network, cable TV, interactive TV, and other services. One of two GSM network licenses in Austria was acquired by ÖCall, a joint venture of Austrian and mostly German telecommunications equipment manufacturers and media corporations. Cable and satellite TV infrastructure already reaches 67% of all Austrian households and cable companies may therefore become additional competitors in urban areas.

In 1994 several state governments together with the PTT and future telecommunications providers started projects to build regional fiber-optic "data highways" that will connect businesses at low cost to world-wide networks. One recent project in Salzburg aims at attracting businesses to rural areas by providing network access at local calling costs for about 80% of all private and commercial customers in the state of Salzburg. These improvements to the infrastructure of rural areas are supposed to attract high-tech companies and the service sector that do not have particularly high traditional infrastructure requirements.

5.2 Austria's presence on the Internet

Austria's Internet activities started in the late 1980's with universities and other research institutions forming a nation-wide research network (ACOnet). Since 1994 the strong international media attention for the Information Superhighway and the Internet made Austrian entrepreneurs and managers increasingly aware of new business opportunities and attracts a growing number of private users.

Reports of the number of computers connected to the Internet vary somewhat: For January 1996 the RIPE DNS host count² reported 60,320 Internet hosts in Austria, while Network Wizards reported 52,728³. The latter report puts Austria in the 17th place worldwide as shown in Table 2.

² Source: <ftp://ftp.ripe.net/ripe/hostcount/RIPE-Hostcount>, March 10, 1996

Assuming five to ten users per host the current number of Internet users in Austria is somewhere between 250,000 to 500,000. Under the most favorable conditions this means that as of spring 1996 17% of all Austrian households have access to the Internet.

Table 2 Host distribution by top-level domain name (Source: Network Wizards)

<i>Rank</i>	<i>Domain</i>	<i>Hosts</i>	<i>Domains queried</i>	<i>Percent missed</i>	<i>Country</i>
	TOTAL	9,472,224	240,520	34%	
1	com	2,430,954	132,216	45%	US Commercial
	edu	1,793,491	10,081	8%	US Educational
	net	758,597	9,054	24%	US Networks
	gov	312,330	1,873	16%	US Government
	org	265,327	11,823	23%	US Organizations
	mil	258,791	866	15%	US Military
2	de	452,997	6,302	6%	Germany
3	uk	451,750	9,979	16%	United Kingdom
4	ca	372,891	5,909	11%	Canada
5	au	309,562	5,608	6%	Australia
6	jp	269,327	7,584	6%	Japan
7	us	233,912	5,405	18%	United States
8	fi	208,502	1,337	8%	Finland
9	nl	174,888	1,808	6%	Netherlands
10	se	149,877	3,007	9%	Sweden
11	fr	137,217	2,439	6%	France
12	no	88,356	2,084	1%	Norway
13	ch	85,844	1,401	4%	Switzerland
14	it	73,364	2,669	6%	Italy
15	es	53,707	1,255	4%	Spain
16	nz	53,610	804	5%	New Zealand
17	at	52,728	1,169	9%	Austria

Table 3 compares the Austrian numbers with other European countries and the US. It shows that Austria's Internet usage is certainly comparable to other countries within the European Union. While Switzerland comes closest to US standards within our comparison, Austria has almost the same penetration rate as the UK and a higher Internet density than Germany. Still the overwhelming percentage of users (experts estimate more than 50%) are associated with research institutions, but business and private users are the fastest growing segments.

³ Source: <http://www.nw.com/Zone/WWW/report.html>, March 10, 1996

Table 3 Internet density in selected countries (March 1996)

<i>Country</i>	<i>Internet hosts</i>	<i>Households (in mio.)</i>	<i>Population (in mio.)</i>	<i>Hosts/households (in 1000)</i>	<i>Hosts/population (in 1000)</i>
Austria	52,728	3.0	7.9	17.6	6.7
Switzerland	85,844	2.6	7.0	33.0	12.3
Germany	452,997	35.7	81.0	12.7	5.6
UK	451,750	23.0	58.1	19.6	7.8
US	5,819,490	97.6	260.7	59.6	22.3

Together with increasing user numbers new Internet access and service providers joined the one pioneer corporation that is in the market since 1992. In March 1996 more than 30 Internet service and access providers offer a broad range of services. Few of them have their own national/international network infrastructure in place, most are resellers and specialize in Web site design, shopping malls, consulting, etc. The service range starts with limited access by e-mail only, targeted at the private customer market, and includes full Internet access mostly for corporate clients. Prices for limited Internet access by e-mail start at \$10 per month, and run higher for full Internet access (starting at \$60 per month plus volume charges above a certain limit). While the number of Internet access and service providers grew rapidly the number of on-line service providers is still very small (CompuServe and Europe Online).

Businesses on the Internet

Subsidiaries of multinational corporations were the first commercial users in Austria. The second notable user segment are Austrian multinational corporations like OeMV, Zumtobel, AVL List, or VOEST who use the Internet mainly for internal communications purposes (Trend, 1994). But lately the user-friendly graphical browsers for the World Wide Web attract new business and private users to explore the Internet. There are still few commercial Web sites in use that are beyond the experimental stage, and seem to be professionally designed and maintained.

Table 4 Austrian commercial Web sites (March 1996)⁴

<i>Area of business</i>	<i>Sites</i>	<i>Percentage</i>
Tourism, entertainment, lodging, culture	119	20%
Providers, web agencies	37	6%
Broadcasting, publishing	64	11%
Banking, insurance	20	3%
Commerce	360	60%
All commercial Web sites	600	100%

In the first half of 1995 about 20 new Austrian Web sites were announced on the Internet per month⁵ with the total number of Web sites estimated by the author as of May 1995 below 200. Until March

⁴ Source: <http://harvest.Austria.EU.net/Server-in-AT/commercials.shtml>, March 23, 1996

1996 the most comprehensive list of Web sites in Austria showed considerable growth, especially in the commercial sector, as can be seen in Table 4.

5.3 International marketing and sales activities on the Web

We will now discuss how Austrian corporations make use of the international business opportunities on the Internet. We will concentrate on marketing and sales activities via the Internet that are visible to prospective clients (business and private users) who are "surfing the Web". We will not comment on the use for information purposes, communications, and collaboration via e-mail, mailing-lists, and other more informal means of communicating, as this requires more in-depth knowledge about a firm's internal usage characteristics. This question is part of an Internet survey currently under way in all Austrian corporations that are present on the Internet. There we ask businesses in detail about their intra- and interorganizational use of various Internet services.

For our purpose we looked at Austrian WWW sites (top level domain ".at") from the perspective of a potential international firm or private customer. We checked all commercial WWW servers that we found in the most complete list of Austrian commercial sites available on the Web as of January 29, 1996.⁵ This list distinguishes four groups of Web sites: (1) computers and telecommunications, (2) media and publishing, (3) shopping and business (commerce), and (4) tourism. Within these Web sites we concentrated on groups (3) and (4). We excluded group 2 (media and publishing) because of the limited interest of German-language publications for international readers. Group 1 was excluded from our survey because of the special status of this industry in an IT-related context.

Within the two remaining groups there were 223 Web sites. 43 sites (19%) were unreachable, even when tried at least 3 times within one week. This leaves 180 sites that we could include in our further analysis.

We used the following three criteria to characterize a Web as targeted towards international customers:

1. We determine *language* (German, English, others) to be a major factor in addressing global markets. We therefore examined every site for the languages that could be chosen from the home page. We use the home page, because it does not seem reasonable to offer this choice later.
2. Another indicator for internationalization efforts of businesses on the Web are the *areas of operation* of Web sites and the customer groups that are explicitly or implicitly addressed. To figure out the targeted customer group (domestic, international, or both) we looked at (a) the home page for specific statements, and (b) additional information such as price, payment, or delivery information.
3. We measure the *commitment* towards electronic commerce on the Internet by distinguishing sites that offer information only, with or without the possibility of sending e-mail for additional information, from sites that allow on-line ordering.

⁵ The data were gathered by the Vienna University's Computing Center and can be accessed at <http://www.ifs.univie.ac.at/austria/new.html>. While it can be assumed that organizations are interested to announce their Web-servers on this page, this listing is not necessarily complete.

⁶ Source: <http://www.public.co.at/public/dir/sbt.html#ShopBusiness> (February 29, 1996).

In addition we checked all Web sites whether they were offering goods and services of domestic firms or if the Web sites were set up by foreign firms using the Internet as a marketing and sales instrument for reaching Austrian customers.

Language

Although Web sites in German offer sales and marketing possibilities beyond the Austrian home market, additional information in other languages can open up international market opportunities. Table 5 shows the distribution of languages offered on Austrian servers:

Table 5 Languages of Austrian Web sites

<i>Reachable sites</i>	<i>All sites 180</i>	<i>Commerce 145</i>	<i>Tourism 35</i>
German only	62%	66%	46%
English only	15%	14%	20%
German and English	18%	15%	28%
Multiple languages	5%	5%	6%

The overwhelming majority of all Web sites uses German as the only language (62%). The other important language is English; 15% of all Web sites are presented only in English, another 18% offer a choice of German and English. Only 5% of the sites give more than these two choices, not one site is presented solely in languages other than German or English, and no combinations of German with some other language could be found.

In the tourism industry the number of servers that support more than German is higher than average. Although almost half of all tourism-related servers are available strictly in German, 28% are available in both English and German, 20% are available only in English, and 6% (which is only 2 servers) offer additional languages. It does not surprise that in the tourism industry foreign language support is higher than on other commercial servers, since Austria's travel industry is an important economic factor. It surprises for the tourism sector that languages other than German and English are so far not well established. Additional offers in Italian, Spanish or French might be interesting, while the overall telecommunications infrastructure and the Internet availability in Eastern European countries will for some more time not justify additional offers in those languages.

Areas of operation

Besides the language being used, Web sites sometimes contain explicit statements, in which areas they operate. For a local grocery with delivery service or a Pizza shop that maintains a Web site for on-line ordering this policy certainly makes sense. In many other cases such a statement is missing and a potential customer needs to check several Web pages to figure out that a product is only sold domestically or that the firm might be willing to ship goods abroad.

In most cases foreign languages and other indicators for international business transactions coincide, but not always. Tables 6 and 7 show in some more detail how the surveyed Web sites position themselves on their Web pages.

Table 6 Areas of operation of Austrian Web sites

<i>Reachable sites</i>	<i>All sites</i>	<i>Commerce</i>	<i>Tourism</i>
	180	145	35
Domestic business	66%	72%	40%
Domestic and foreign business	34%	28%	60%

Table 7 Areas of operation of Austrian Web sites and languages offered

	<i>All sites</i>	<i>Commerce</i>	<i>Tourism</i>
Domestic and foreign business	62	41	21
German only	15%	15%	14%
English or German/English	70%	68%	76%
Multiple languages (incl. German, English)	15%	17%	10%

Overall, two thirds of all servers are obviously designed to meet domestic needs. As already seen with the language indicator, tourism sites have a stronger interest in foreign markets. Only 40% of all tourism sites do not mention e.g. reservation procedures for foreign guests or quote rates in foreign currencies. Within the commercial group this number is much higher (72%). In both groups there is a small percentage of firms that obviously target only German speaking countries (15%), whereas most internationally oriented sites combine German pages with English (24%) and another 15% with additional languages.

Commitment towards electronic commerce

As a measure for the Internet commitment of Austrian corporations we used on-line shopping as a way to interact with customers. The assumption is that many - especially smaller businesses - can easily find a service provider or mall operator who sets up several pages that can be browsed by potential customers. In the case of on-line ordering a stronger involvement of the firm is necessary, and a strategic decision for joining the Internet beyond a mere "trial period" can be assumed.

Table 8 On-line ordering versus browsing

<i>Reachable sites</i>	<i>All sites</i>	<i>Commerce</i>	<i>Tourism</i>
	180	145	35
On-line ordering	19%	20%	14%
Information only	81%	80%	86%
On-line ordering for international customers	4%	3%	11%

The data for on-line shopping on existing Web sites seem to emphasize the general ambiguity against transferring sensitive data over the Internet and distance shopping in general. Across all surveyed Web sites on-line shopping is only offered by 19% of all firms and almost non-existent for foreign customers.

There seems to be no big difference in the attitude of the tourism sector: we could argue that tourism is rather consulting-intensive and therefore most customers will not book hotel rooms over the Web, but in many other tourism-related areas customers and firms are simply not ready for on-line transactions.

Incoming business

While not directly a part of our main question we were also interested in incoming business, namely foreign firms that present services or goods via Austrian Web sites to potential customers. While this somewhat contradicts the Web's general design approach it can be useful for businesses who want to enter a foreign market by acting as a local firm. Another reason - at least for some more years - could be the mere technical advantage of faster access to graphics-intensive Web pages. While we are lacking the direct comparison of Austrian firms presenting themselves abroad (e.g. in foreign electronic shopping malls), the number of firms that offer goods and services directly on Austrian servers is minimal. In the tourism industry we found only one site that combined Austrian and foreign offers. For the commercial sites the numbers were slightly higher: 10 foreign Web sites (7%) offer goods and services to Austrian customers and seven sites (5%) combine Austrian and international offers.

6 CONCLUSION

Business opportunities on a global scale have developed rapidly as improved services on the Internet become available and the numbers of commercial and private Internet participants explode. Nations all over the world are initiating infrastructure programs to improve their competitive position in the global marketplace.

In this paper we discussed a broad range of possible Internet uses for international business activities. The Internet's communications capabilities combine cost-effectiveness and productivity gains with open accessibility by business partners worldwide. While the Internet already supports distributed intra- or interorganizational teamwork with simple solutions like e-mail or mailing lists, the future use of groupware on the Internet will enhance the coordination of dispersed workgroups further.

Using the Internet for international marketing and sales offers the greatest opportunities but also the biggest challenges. For small countries like Austria with mostly small and medium sized enterprises the Web can be an excellent opportunity to export goods and services at a cost-advantage. Our survey of Austria shows that the number of Internet business participants is rising fast. So far the typical Austrian Web site is designed to advertise goods and services to German-speaking, mostly domestic Internet users. On-line electronic commerce is still in its infancy and businesses and consumers are skeptical about security and privacy issues. Especially on-line business with foreign customers is almost non-existent yet. While the languages of Web servers indicate interest in foreign markets, we can assume from the overwhelming use of English that businesses tend to target foreign markets in general, and do not specifically set up Web sites for customers of a certain nationality. Beyond the numbers about international Web activities in Austria it was noticeable when we accessed all the sites that most foreign language Web sites seemed to have a foreign-language complement rather than being designed specifically for non-German speaking customers.

This survey does only provide descriptive data about some international characteristics of Austrian Web sites. To help businesses plan their internationalization strategies via the Information Superhighway

we will have to investigate in more detail which Internet services work for Austrian firms internally, externally, in a domestic or international setting, which products or services can be marketed successfully on the Internet, or which countries offer the most interesting on-line business perspectives. Since the pioneer days of the Internet are over, Austrian firms have to make a conscious choice for international activities on the Internet, and clear objectives about the role of the Internet within the international operations of a firm have to be set - ranging from the use as a strategic weapon in international competition to the use as a productivity tool. These objectives have to be part of the company's strategic IT and business plans and need the full commitment and support of top management.

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8 BIOGRAPHY

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