# INTERNET ENHANCED CORPORATE COMMUNICATION

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**Abstract:** This paper presents the results of an e-survey that involved more than six hundred manufacturing companies in Brazil, including questions about the use of simple Internet communication tools, such as e-mail, discussion lists and news groups, chat and electronic conferencing for internal communication and the relationship with business partners. The authors analyzed the level of penetration of such services in the manufacturing industry and, in case respondents still didn't use them, asked them about their intentions for the near future (next 3 years). The research project allowed the authors to have an idea of current use of the Internet for business communication (survey was applied early in 2004) and also to anticipate possible changes in the scenario, based on the review of the literature and the responses of participating organizations. Potential benefits and pitfalls of the technology are also discussed.

**Key-words:** e-mail, discussion lists, chat, e-conferencing, corporate communication.

# INTRODUCTION

Internet provides several simple communication tools, which can be used by companies to communicate with business partners, but also to exchange information among the company's employees. Some of them are synchronous, i.e., they demand real time interaction of those involved, which allows for problems to be immediately discussed and solved. Others are asynchronous, not requiring both parties to be available at the same time, which can also be interesting, for situations that are more efficiently processed in "batches", preventing other important activities to be interrupted.

This paper discusses the main Internet communication tools and evaluates the level of use by industrial companies of Sao Paulo, the most industrialized state in Brazil.

# METHODOLOGICAL APPROACH

The structured questions used in the questionnaire followed a Likert scale. Respondents could choose one of the possible graded answers from a drop-down menu, which made selection easy, increasing the speed of filling in the form. The authors wanted the questionnaire to be simple enough to be filled-in at the time the respondents were checking their e-mail. If it were left to be answered at a later time, the authors believed chances of obtaining an answer would dramatically decrease.

The questionnaire was pre-tested, with respect to the content, having been presented to a group of executives working in the field, who conveniently happened to be taking a course where the authors were instructors. They gave important contributions in order to make the questions more accessible and understandable to the "actual" participants in a later stage. With respect to the format, the authors randomly separated one per cent of the whole database and sent the questionnaire to those companies a month in advance. No changes in format were found necessary, after the pre-test answers arrived and, by the time the larger group of companies was invited to participate in the survey, the researchers already had a reasonable idea of the return rate that could be achieved, based on the return rate of the pre-test sample.

Respondents belonged to a convenience sample formed by those companies that answered the questionnaire. Demographic data of the companies comprising the convenience sample were roughly compared to data for the population of manufacturing companies contained in FIESP's database, as a whole. The authors have no reasons to believe that the sample they obtained is not representative of the population.

# INTERNET COMMUNICATION TOOLS

Some of the communication tools made available by the Internet will be discussed her, in order to present the potential gains they can provide to companies that decide to use them.

**Electronic messages (e-mail)**

E-mail messages are usually text messages that are sent from one person to another by means of a computer network. They can be sent to just anywhere in the world and are delivered in very little time, depending on the network's current conditions[1].

Although e-mail messages are usually just text, they accept the attachment of any other computer file, which significantly increases the functionality of the means, allowing for the transmission of graphs and images, sounds and any other information that may be stored in electronic media.

Although e-mail messages can be a powerful means of communication for co-workers or business partners, it is so easy to send messages to large numbers of people at once, that it has been affecting the employees productivity, as people spend a lot of time separating electronic junk (unsolicited messages, jokes and chains) from important business related mail. According to Brightmail, an anti-spam firm, 40% of the e-mail messages that flow through the Web are spam (GARFINKEL, 2003). Another research that was carried out by

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[1]  As the e-mail was conceived to be an assynchronous tool, i.e., which doesn't depend on real time interaction, eventual delays in the delivery are acceptable, although the users are each time more demanding with respect to the expected level of service.

Cleawswirt, which is mentioned by IDG Now (2004), shows that the ranking of unsolicited messages is led by financial services, which represent 39% of the lot, followed by medical services and medicine (30%). Pornographic spam responds for 5% of the e-mails on the Web. In many cases, companies have started to install devices that intend to filter unsolicited messages, to reduce the users' effort in screening their mail boxes.

**Discussion lists**

Discussion lists are lists of e-mail addresses of people who have a specific common interest. Participants of the list send electronic messages to the list's address and it is automatically spread to all its members. The tool may be used as an efficient tool to share information with a fixed group of people.

As discussion lists are based on the use of the e-mail, which needs to be registered in order to send and receive messages addressed to the list, it is obvious that the universe of users of this resource is a subset of the group of e-mail users.

This tool also demands a higher level of familiarity with the Internet than that demanded in order to use just the e-mail, at least for those who create and manage the lists.

The use of discussion lists in the business world is potentially higher for larger companies than for smaller ones where, many times, there aren't even enough people to justify the organization of a discussion group. Other possible use of this technology is in order to allow for the exchange of information along the supply chain, or with consumers of the company's products/services.

Goldsborough (2004) reminds us that discussion lists and, more specifically bulletin boards made available in the company's web site may be an efficient way to exchange ideas and share experiences with consumers, customers, interested observers and even competitors about important issues for the company, stimulating traffic flow in the company's web site.

**News groups**

Similarly to discussion lists, news groups allow users to register their e-mails in order to receive electronic correspondence. Differently to the discussion lists though, news groups broadcast information in a single direction. Members are not allowed to send messages to the other members of the group, only to receive messages sent by the sponsor.

This tool can be used by companies to advertise their products/services, versions and updates, as well as any other useful information to the customers. Looking from a different angle, companies that are customers of others may enroll in news groups that are sponsored by their suppliers, in order to receive useful information to their businesses, related to the products/services of the other company.

**Chat**

Chat is a synchronous communication tool that allows for two or more parties to interact on the web or by means of other electronic networks. It may occur in two different formats: text and voice. One could even think of a third format, using video in addition to the audio and text resources. That is the video-conferencing, which is not usually referred to as a modality of chat, in spite of being a synchronous way of two or more people to communicate.

Text based chat programs allow users to type their messages on the computer so that they can be immediately sent and read by the other party. An important characteristic of this type of communication tool, for business purposes, is that it allows for the whole text exchange to be recorded for future reference. That means that the proceedings of a meeting, for example, can be automatically obtained, simply by keeping the log file containing the records of the interaction that took place among the parties.

When audio chat is used, the voice of the user is captured by a microphone connected to the computer and replicated by a speaker at the computer at the other side. The response may also be by means of audio, using a microphone, or text, using the keyboard.

Chat may take place within a company's private network or the Web's infrastructure. In this case, considering that many people with different objectives use the same services, it is necessary to create channels or "chat rooms", as they are called, to be assigned to those interested, following some sort of criteria. Such "chat rooms" may be assigned to private meetings, involving just a few people (obviously, at least two) or to the interaction of large groups of people with some sort of common interest.

Although chat services may become an important replacement for regular phone calls[2] due to the similarity that exists between both services, many IT managers don't like it. They consider that, being it a real time service, it is not possible to postpone the transmission of data when traffic on the network is too intense. Therefore, network resources need to be dimensioned according to the peak of demand, instead of the average demand, differently to what happens with other Internet services. That is enough for many corporate network administrators to block chat services through the company's infrastructure, which reduces its use, in spite of the great potential benefits. Ozer (2003) reminds us that the use of communication technologies such as IRC (*Internet Relay Chat*) may become very important to train sales-people or even customers, when new products are introduced, for example. In situations when intense communication is needed, such technologies may represent severe reductions in telecommunications' costs, without substantial quality loss.

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[2]  Actually, many telephone operators are migrating traditional services to VoIP (voice over the Internet Protocol), which converts voice into digital signals that flow through the Web in "packages", as if they were e-mail messages, with great cost advantages, related to the usual telephone charges for local and long distance calls (GUIMARÃES, 2004).

**Electronic conference (video-conference)**

Electronic conference is a synchronous (real time) connection with another computer user, using text, voice and/or image transmission resources through the Internet.

There are several solutions available in the market for that purpose, many of which are free of charge, including Microsoft's NetMessenger®, which ensures great availability of this kind of service. When the electronic conference is carried out by means of an Internet broad-band connection, results are good enough for the company to choose using this possibility in replacement to telephone calls, in many cases, mainly when calls are frequent and involve another party who's located in a different state or country, considering the usually high rates of long distance telephone calls.

# RESULTS OF THE SURVEY

**Access to the Web**

First, it was important to find out how companies had access to the Internet. There are many ways of doing that.

The most basic (and the cheapest) one is by means of a regular telephone connection. In order to use it, it is necessary to dial the telephone number of an Internet access provider, using a modem. Some Internet access providers provide this service for free, while others charge a monthly fee. Dial-up connections are usually slow and unacceptable for companies that make more intensive use of the Web.

Among the alternatives to dialed-up connections are xDSL, cable, radio, ISDN and, more recently, even connections via the electric network. They all provide faster connection rates, normally referred to as *broad-band*. The wider the frequency band, the higher the bit rate that can be supported by the connection and, therefore, the faster and more efficient the transmission of computer files, messages, computer screens, voice etc. will be.

Most of the companies that participated in the survey, which took place early in 2004, accessed the Web by means of broad-band connections. That is in agreement with a clear trend of adoption of faster connections in Brazil, along the last few years, in replacement of dial-up connections. According to Chiarini (2003), users of broad-band connections, who were 53 thousand in 1999, were close to a million in July 2003. More recently, late in 2004, the subscribers of such services were 2.26 million, most of whom (83,5%) used ADSL connections (TELECO, 2005). Data collected by IDC, presented by Vasques (2006), show that early in 2006, ca. 3.5 million Brazilians used broad-band Internet. In spite of the fast adoption of faster Internet connections, that figure only represents 1.9% of the country's population, a much lower percentage than South Korea's 26.2% and Holand's 24.2%, for example.

Figure 1 shows the type of connection to the Web of the companies that participated in the survey. One clear finding is that smaller companies tend to use more primitive (cheaper) types of access, while all surveyed large companies had broad band.
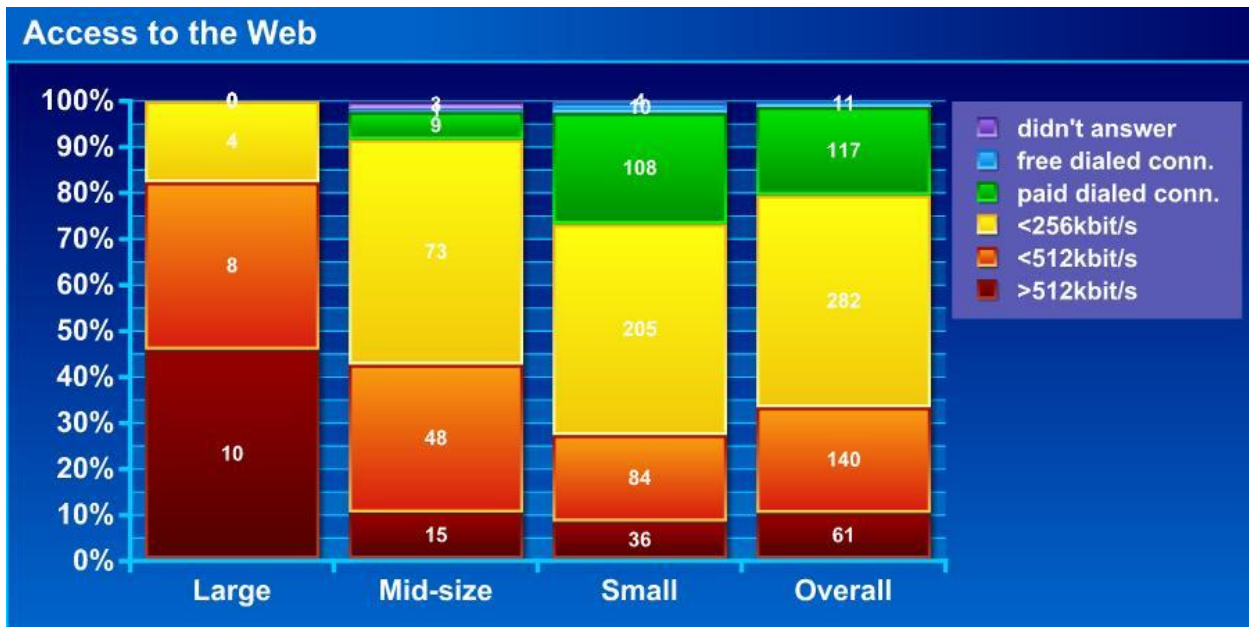


Figure 1    Access to the Web by manufacturers in Brazil, according to their size

On Figure 1, above, as well as in the other figures presented in this paper, companies with more than 500 employees were considered large, companies with more than 100 employees were considered mid-size companies and those with less than 100 employees were considered small. The numbers presented inside each of the rectangles that comprise the bars indicate the absolute number of companies of that size that provided a specific answer to the question. The vertical axis presents a percentage scale, which is used to provide a "relative" perspective to the absolute numbers contained in the boxes. That scale should be read from the bottom. For example, 10 large companies stated that they had Internet connections of 512kbit/s or faster (red), which represents 45.5% of the lot, 8 of them said that their connections were higher than 256kbit/s (orange). Together with the previous group (red + orange) they add to 81.8% of the lot, and so forth.

As one can see, all large companies that participated in the survey claimed that they used broad-band connections to the Web, with a high percentage of them in the top of the scale (actually, the bottom, if we refer to Figure 1). Small companies, on the other hand are a more disperse group. Some hired broad-band services, but there were even some (very few), which used free dial-up connections, when they accessed the Web. That kind of connection is usually slow and of questionable quality.

Now that the reader has a better idea of the kind of connection Brazilian industrial companies have to the Web, it is easier to understand the use such companies make of the several communication tools that are made available by the Internet, which were discussed in the previous section, and for which survey figures are presented next.

**E-mail**

E-mail was, by large, the Internet communication tool that companies used the most. Figure 2 shows how intensively companies consider they use e-mail in their daily activities.
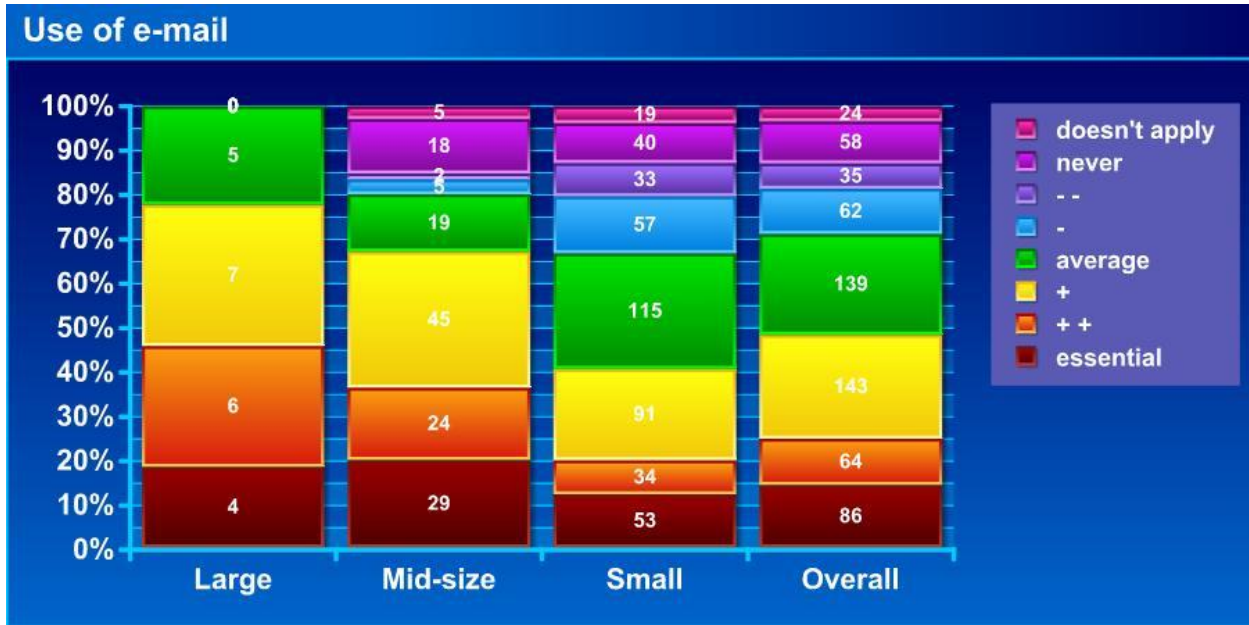


Figure 2    Use of e-mail by manufacturers in Brazil, according to their size

Note: in order to read the figure above, as well as other pictures below, refer to the explanations provided in the note to Figure 1.

Figure 2 clearly shows that large companies have a different attitude towards the use of e-mail in its daily communication than do mid-size companies and, more significantly, small ones. All large companies claim that they use the e-mail at least regularly. In fact, 45% of them consider the e-mail as a very important or essential tool for the company's business. On the other hand, 33.7% of the respondents in small companies consider that the tool doesn't apply to their business, don't use it or used it very little.

**Discussion lists**

As one could expect, the use of discussion lists is much lower than the use of e-mail (see Figure 3). Here, it was also clear that large companies are better aware of the tool and, even considering that the level of use is modest (only 27.3% of the large companies claimed to use it at least to an average extent), that result is definitively better than smaller companies (74.8% of participating small companies said that they don't use or believe it doesn't apply to their businesses).

Figure 3    Use of discussion lists by manufacturers in Brazil, according to their size

**News groups**

The pattern of use of news groups for the participating companies was similar to the one obtained for discussion lists, i.e., large companies make some use of the tool, while smaller ones practically ignore its existence (see Figure 4).



Figure 4    Use of news groups by manufacturers in Brazil, according to their size

In general (disregarding the size of the company), only 8.1% of the respondents said that they used news groups at least to an average level in their daily work.

### *Chat* and video-conferencing

Chat is a promising tool for real time communication with peers, suppliers and customers. But, for now, it is almost inexistent in the manufacturers' corporate world, as can be seen in the graph presented on Figure 5. Only ca. 10% of the manufacturers consider they make at least reasonable use of the technology.
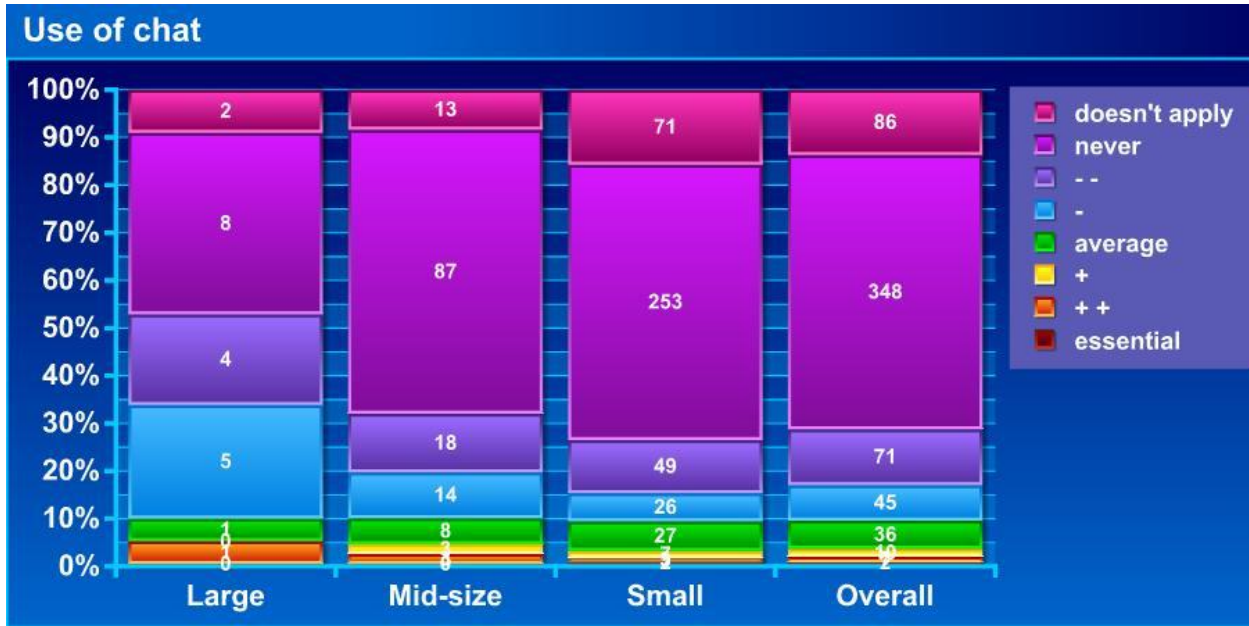


Figure 5    Use of chat by Brazilian manufacturers, according to their size

Although the authors expected more intensive use of chat and electronic conferencing by the industry, in practice, it was noticed that video-conferencing is even rarer in the corporate environment. Attitude towards this technology varries, when one compares companies of different sizes. However, disregarding size, 15% of the participating companies believe that video-conferencing doesn't apply to their business reality and 80% say that they still don't use the technology, as can be seen on Figure 6.

Figure 6    Use of video-conferencing by Brazilian manufacturers, according to their size

The authors believe that both, audio and video conferencing, will spread in the field along the next few years, as the quality of the service improves and it starts representing a good technical and economical alternative to the telephone, mainly for long distance calls.

## CONCLUSIONS AND MANAGERIAL IMPLICATIONS

For now, among all Internet communication tools that were surveyed, only e-mail has good penetration in industrial organizations in Brazil. A survey that was carried out by MessageLabs, in the United States, mentioned by Mohamed (2004), reveals that 60% of the participating companies believed that the use of e-mail in corporate communication would more than double along the next 10 years. However, the same percentage of participants said that they would easily give up e-mail in case a new feasible technology appeared, which were less susceptible to virus, spam and unsolicited messages. According to Scott (2004), more than 90% of the e-mail messages that are received by employees in their work e-mail boxes is spam. And he reminds us that spam and viruses should not be separately treated, because a large percentage of unsolicited messages is infected with viruses or carries some other sort of malicious code, such as trojans or worms.

Therefore, even the Internet communication tool that is better spread out in the field faces challenges that threaten its use for more serious applications, or even its existence in the future. More efficient ways to prevent malicious use of the e-mail need to be developed, as well as a new culture of more judicious use of the tool, in order to preserve it as a suitable means of communication. Only if that happens will e-mail be definitively considered a productivity tool, for corporate communication. Otherwise, it is more probable that the tool

be considered a productivity killer, considering the time employees need to separate important messages from electronic junk.

All other communication tools discussed here (discussion lists, news groups, chat and electronic conferences) haven't yet spread out the way they can. Even large companies, for which the best results were verified, can still improve the use of such technologies a lot. The potential of those technologies seems to be under-utilized.

The authors believe that the low cost of use of such communication tools will be an incentive to the intensification of use, in the near future. Quality improvements are still required, but it is just a matter of time for those technologies to be considered mature and reliable by the business world.

However, similarly to what happens with the implementation of any new technology, it is important to remind that there are other factors besides technical issues that interfere with the intensity and speed of adoption. IT professionals will have to "advertise" the benefits of Internet communication tools to the rest of the company, training people and making them feel comfortable with their use. Otherwise, many of those tools, in spite of being very simple and useful, will only achieve marginal use by those who are more technically oriented.

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