

**THE REAL IMPACT OF THE INTERNET IN THE INTERACTION WITH CUSTOMERS:
A STUDY OF SMALL AND MIDDLE-SIZE SOFTWARE COMPANIES**

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THE REAL IMPACT OF THE INTERNET IN THE INTERACTION WITH CUSTOMERS: A STUDY OF SMALL AND MIDDLE-SIZE SOFTWARE COMPANIES

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ABSTRACT

The Internet's fast rate of expansion during the last few years has been responsible for the growth of electronic commerce. Business among organizations and consumers (B2C), as well as among organizations and their commercial partners (B2B), has been severely affected by this trend. The use of the Web for commercial transactions and as a new channel for the communication with the company's suppliers and customers is increasing at large steps, due to its convenience and simplicity, as an alternative to the traditional ways of trading products and communicating along the value chain.

This paper will present the results of a survey that was carried out by the authors with the purpose of identifying how software companies use the Internet to leverage their business. The questionnaire was answered by 50 small and middle-size software companies in California, during the first semester of 2002.

Keywords: Internet, e-business, software industry.

INTRODUCTION

A lot has been written about what companies should and should not do, in order to deploy cost effective and value-adding Internet-based operations. Some of that proves right and some proves wrong, as time goes by. The authors of this paper don't intend here to prescribe any model they believe to be right, with respect to Internet strategies. Their sole objective with the research project that originated this paper was to discover how software companies actually use the Internet. And the only purpose of this paper is to describe their findings.

The results of the survey will be confronted with what academia seems to consider good practice for the Web, without falling in temptation of being prescriptive. The managerial implications of the transformations caused by the Internet in the software industry will be

discussed to the extent allowed by the data obtained from the survey, as well as from secondary research.

THE CHOICE OF INDUSTRY AND SAMPLE COMPANIES FOR THE SURVEY

There were two main reasons for the software industry to be chosen for this particular research project: First, the software industry, being so technologically oriented, was expected to be an early adopter of new technological trends, such as the Internet. Thus, it could depict trends that might also be experienced by other industries in the future. FINE's (1998) ideas on "fruit fly" companies were very influential to the decision. The second reason to choose the software industry for the project was based on the remark that "physical products and services do not enjoy the magical qualities" that make information products and services so well fit to the Internet, by GEOFFRION & KRISHNAN (2001). When the products and services, themselves, can be virtualized – an interesting feature of software – so do many business processes and practices, which can be severely changed to take full advantage of the Internet capabilities.

The authors didn't want large enterprises to participate in the survey, because it would be difficult to have access to the right people and, therefore, to the right information in such organizations. On the other hand, very small companies would also be problematic, because such companies are usually "fire-fighters" and not strategically focused. Their Internet use, as a consequence, may not reflect what their owners/executives believe to be important to ensure the company's competitiveness in the future, but rather what is required to survive in the present. So, only Californian software companies with sales ranging from US\$2.5 million to US\$50 million a year were invited to participate in the study. More than 500 software companies with offices in California were originally selected from the CorpTech¹ database, according to those criteria. The survey was sent through e-mail in May/June 2002.

Difficulties in reaching companies and the right people

Many of the e-mail addresses in the CorpTech database were very generic (e.g. info@company.com or sales@company.com) demanding more than one round of communication with the company, in order to reach the right people.

In some cases, e-mail addresses were just wrong, preventing the researchers from having any access to the company, at all. Unfortunately, no record was kept of the number of messages that bounced back, which would have been a good way of measuring the effectiveness of the database. Authors estimate that more than 25% of the e-mail addresses were either incorrect or never read by anyone. It was also felt that, the more interactions that were required, the smaller the chance of obtaining a filled-in survey back from the company. A good database, leading directly to the relevant people in the organizations, is therefore an important factor to determine the number and the accurateness of the responses.

After exchanging more than 150 personalized emails (not to mention the original customized bulk mail) and a few telephone calls, the authors were finally able to receive 50 suitable responses, on which the results discussed on this paper are based.

The convenience sample obtained for the research project

The authors believe that the companies responding to the survey constitute an unbiased sample² of the universe of small/middle size software companies in California, with products targeted at very different markets. Some of the companies in the sample are application service providers (ASP); others sell utilities, productivity tools or applications. There are also many companies that market enterprise-wide systems. The diversity of target markets and types of products/services would make one expect some of the aggregate data to be of little relevance. What has been found, though, is that most responses consistently pointed towards the same direction and are, probably, extensible to the universe of small and middle size software companies in the USA.

Table 1, below, provides information about the smallest, largest and average size of the participating companies, with respect to annual sales and the number of employees (Such information wasn't obtained from the survey, itself, but directly from the CorpTech database).

Table 1 – Company size

Company size			
Min(Sales):	\$2,500,000.00	Min(Employees):	25
Max(Sales):	\$41,100,000.00	Max(Employees):	232
Avg(Sales):	\$11,028,116.04	Avg(Employees):	92

THE PURPOSE OF THE QUESTIONS IN THE SURVEY

The survey questionnaire aimed, primarily, to find out about the use software companies are making of the Internet, as a platform for interaction with their customers. Focus concentrated on after sales activities, such as purchase follow-up, software update and upgrade, bug fixing and training. Information was gathered on the current content and on plans for future development of surveyed companies' web sites. Companies also provided their impressions on the impact of the web on their operations' costs and the value they deliver to the customer.

But those issues can only be analysed and understood after one has a good picture of the profile of the companies participating in the survey. Therefore, the questionnaire was divided in two sections: the first part intended to provide researchers with an idea of the participating companies' businesses and the second part attempted to depict their strategies and uses of the web for business purposes. The authors think that, although information on the companies' profile is not central, here, readers should be presented to it, because it helps understand why companies are acting the way they are, with respect to the Internet. Therefore, the results of the survey will be presented and discussed in two different sections *Participants' profile and business practices* and *Companies' practices and plans for the Web*. The section *Participants' profile and business practices* will provide information on the respondent (who filled in the survey in the company?), the price of the company's major product, the amount of money customer is expected to spend on implementing the company's software, the percentage of registered users of the company's product, channels used for follow-up, purpose of follow-up and the strategies to identify

end-users. The section *Companies' practices and plans for the Web* will deal with the current use of the companies' web-sites, the areas to be improved in the companies' web-site, bug fixing, training over the web and the impact of the web on operations' costs and generated value.

Survey results will be confronted with the authors' prior expectations.

PARTICIPANTS' PROFILE AND BUSINESS PRACTICES

Respondents' profile

Respondents to the survey were asked to provide their name and position in the company, as well as detailed contact information, in case further contacts were required. They were, typically, marketing vice-presidents or directors and, sometimes, marketing managers. CEOs/Presidents, customer service/support and operations executives were responsible for a few surveys.

Information on respondents' department/area in their organizations is important because function divides still exist in most corporations, in spite of the companies' efforts to make their executives have a holistic and global understanding of their businesses. The angle of a marketing executive is, very frequently, different to the one of someone in operations or finance, for example. See Figure 1 for the results.

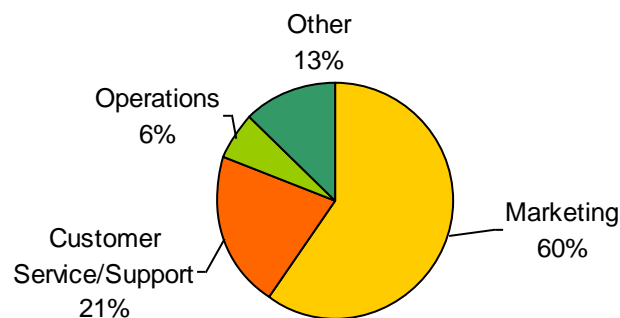


Figure 1 – Function/area of respondents in their organizations.

The authors were pleased that most respondents to the survey were top executives in their companies (see Figure 2). That probably means they are not so involved with the details of daily routine activities of their areas and have a more “systemic view” of the company and its role in the market. Hopefully, that also means responses are less biased by function “narrow-minded” points of view.

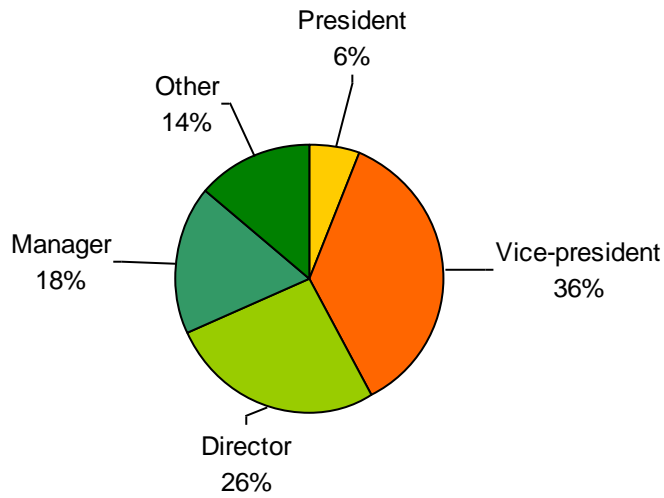


Figure 2 – Position/title of respondents in their organizations.

Price of a typical configuration of the company's major product

Figure 3 shows the price of a typical configuration of the company's major product. It is clear that, although the survey involved small and middle-size companies, the products they sell are, in general, expensive. Note that 50% of the companies claim their products are worth more than US\$50,000.

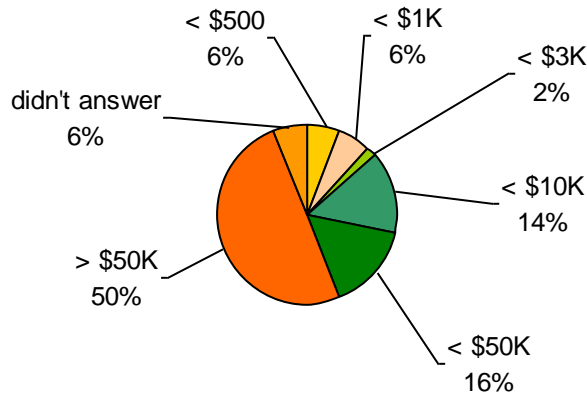


Figure 3 – Price of a typical configuration of the company's product

The price of the product, presumably, has an implication on the way the company sells and supports it, customizes it to the customer specific needs, trains users etc.

As the reader goes through the data presented in this paper, s/he should keep in mind the fact that the products of the great majority of the companies in the sample are expensive enough for the companies to be willing to provide their customers with personalized attention.

No correlation was found between company size (sales) and price of major product.

Expenditure with installation, integration, customization and training

Figure 4 shows the amount of money companies expect their customers to spend with the installation, integration and customization of the product, in addition to the list price. Amounts are expressed as a percentage of the product's price.

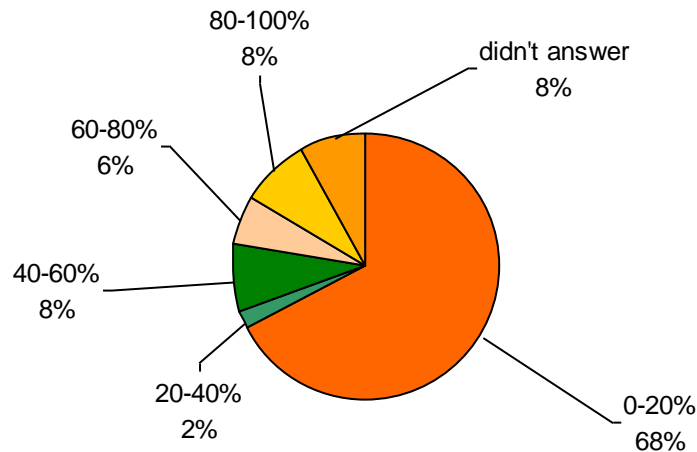


Figure 4 – Additional costs with installation and customization

Figure 5 shows the amount of money that companies expect their customers to spend training users to use the product, in addition to the list price. Amounts are expressed as a percentage of the product's price.

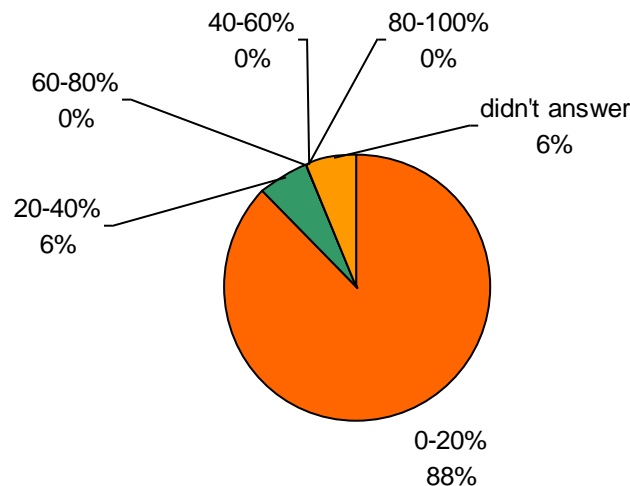


Figure 5 – Additional costs with training

It was interesting to see that most companies believe their customers do not need to spend much extra money on the implementation/customization of the product, neither on training. The responses to the survey, with respect to customer's expenditure with installation, integration, customization and training contradict the authors own previous experience and

the IS literature. There always seem to be additional hidden (or sometimes very evident) additional costs customers will incur, when they decide to embrace software projects. KEARNS (2003) stresses the point that one has to look beyond the unit cost into the total cost of ownership, which, although he considers a well-worn phrase, is still applicable to technology buying decisions.

Considering that most companies in the sample sell expensive products that one could assume to be complex, it was even more surprising that, in general, respondents consider the expenditures with implementation and training to be marginal.

Registered users

Figure 6 shows the percentage of companies in the sample that claimed 0-20%, 20-40%, 40-60%, 60-80% or 80-100% of the users of their products to be registered users, respectively.

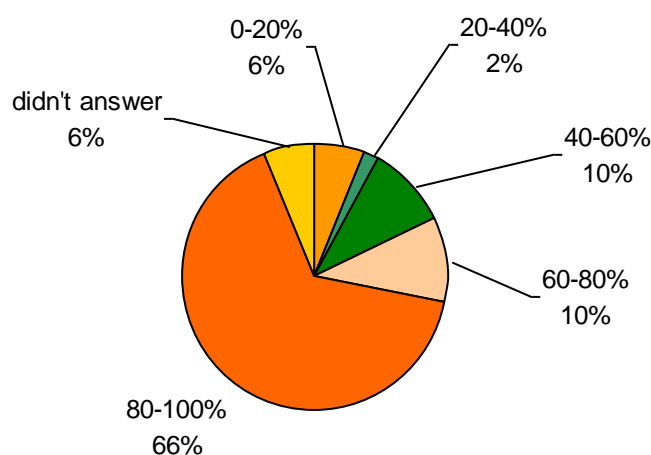


Figure 6 – Registered users

If customers register the products they buy, companies are able to know who they are and use that information in a variety of ways, to improve the effectiveness of their business and also the value to the customers.

At a first glance, the percentage of registered users seems really high. But, once again, one has to think that most of those companies sell expensive and, presumably, complex products, demanding a lot of interaction with the customers during the life cycle of the product, so that customers can get good value out of their investment.

Other companies in the sample have products that are downloadable from the Web. They are typically the companies that sell the cheapest products (some products are even given away). Even in that case, customers may have to register in order to gain access to the product.

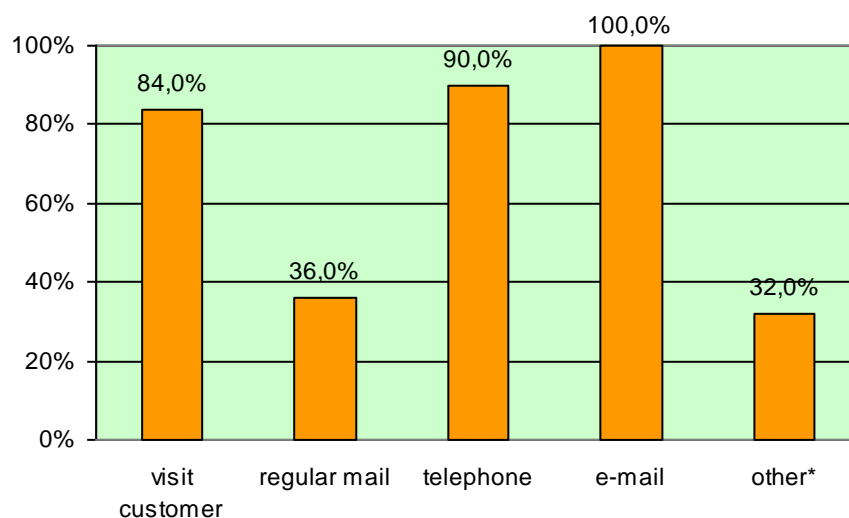
A lot of the companies – regardless of their products being enterprise solutions or downloadable freeware – sell their products directly to end customers (see Figure 9), which also contributes to a higher percentage of registered users than in other industries.

If one considers the marketing benefits of knowing who the end customers really are and Internet's potential to establish a closer relationship with them, one would expect software companies to be even more interested in obtaining that kind of information.

For the moment, the software industry is probably the only industry which could get close to 100% registered users, without much extra effort by the companies themselves, nor extra hassle to the customers.

Channels used for sales follow-up

Figure 7 shows the percentage of respondents who claimed to use each of the following channels to follow-up sales to their customers.



* *Other* includes: customer satisfaction surveys, daily alerts, web, seminars, support hot-line, distributors, customer advisory board meetings and fax.

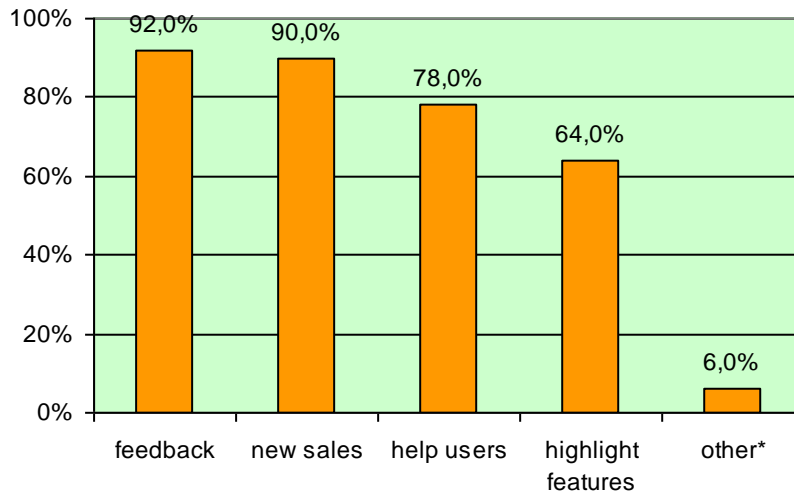
Figure 7 – Channels used for sales follow-up

There is some correlation between price of the product and visits to customers, i.e. companies that sell expensive products tend to visit customers more often than those whose products are cheaper. Again, one has to think that the majority of the companies in the sample sell expensive products to a relatively small customer base.

All companies communicate with customers through e-mail, but the telephone is still a very important means of business communication.

Purpose of sales follow-up

Companies may have several different reasons to contact their customers after a sale is made. Figure 8 shows the percentage of respondents who claimed to use sales follow-up activities with the objective of obtaining feedback, performing new sales, helping users achieve better experience with their products, stressing important features of the product the user may be overlooking etc.

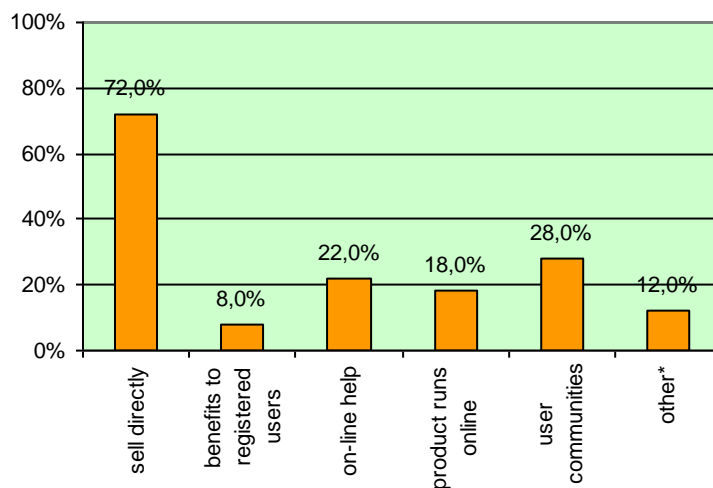


* *Other* includes: determine and ensure customer satisfaction, expand usage of product and confirm license renewal.

Figure 8 – Purpose of sales follow-up

Strategies to identify end users

One of the challenges of any company is to identify the end users of its products and to establish a more direct relationship with him/her. That is important for several reasons: it may contribute to sell more of the same, in the future, but it may also help the company understand market needs, in order to improve the usefulness of its product. Figure 9 shows the percentage of respondents who claimed to use the following strategies to find out who their end users/customers are.



* *Other* includes: web-based surveys, on-site visits and user group meetings.

Figure 9 – Strategies to identify end-users

Sell directly to end user – A considerable percentage of the companies in the sample sells directly to end customers. That makes the job of the after-sales staff a lot easier. There are industries in which companies find it really difficult to know who the end customer/user of their products is, which prevents them from obtaining feedback, generating new leads from previous sales, helping users, highlighting features of products that may not have previously caught the user's attention etc.

Benefits to registered end-users – In the authors' opinion, companies could offer special benefits to users who register the product, mainly in cases when, otherwise, it would be difficult to trace them. In the software industry, that doesn't necessarily mean giving up part of the revenue. There are so many clever ways of creating different versions of the product and segmenting the market, that marginal additional cost would be greatly compensated.

On-line help – To keep extensive on-line help to the product is a nice strategy: it allows for fast update and correction of eventual errors and it also drives the user to a place where s/he can be identified and targeted by the company's after-sales actions.

Product partially running on-line – Even companies that sell large systems that rely on a lot of on-site IT infrastructure are migrating fractions of their systems to the Web. That may have a lot of other advantages from the vendor's perspective. But, strictly from the after sales' point of view, it represents a way of permanently keeping in touch with customers.

User communities – STANOEVSKA-SLABEVA (2002) defines on-line communities as associations of participants who share a common language, world, values and interests, obeying a commonly defined organizational structure, and communicating and cooperating ubiquitously, connected by electronic media.

There has been a lot of emphasis on the creation of on-line user communities, lately. And surveyed companies have shown their concern about the issue, as can be depicted from Figure 9.

User communities can bring several advantages, if companies understand how to benefit from them:

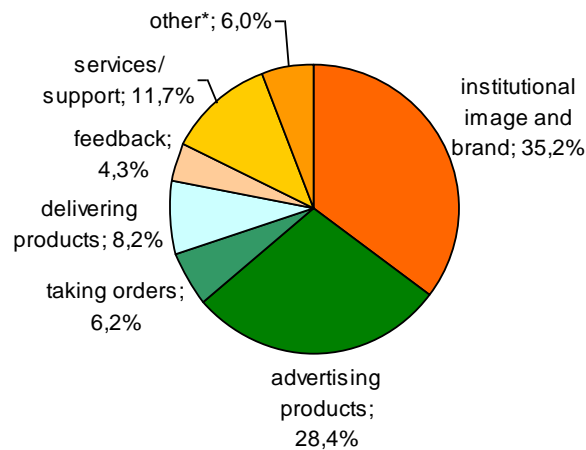
- ✓ users can help each other solve problems, reducing the pressure on the support team.
- ✓ users can teach each other about the product's features, reducing the need of formal training.
- ✓ companies can monitor customers' interaction and understand, or even anticipate, needs and solve problems, etc.

COMPANIES' PRACTICES AND PLANS FOR THE WEB

Current use of the company's Web-site

One of the major interests of the research project was to identify what use software companies actually make of their web-sites and what use they think they should be making or they will need to make in the future. This section deals with the current situation. The next section will show where companies intend to invest their resources next.

Figure 10 shows the percentage of the companies' web-sites used for each of the following activities. Numbers represent the average figure for the responses of all respondents, for each of the activities.



* Other includes: back-end service, information, links to partners' sites, demos and training and press-releases.

Figure 10 – Percentage of web-site used for each activity

“Building institutional image and brand” and “Advertising products”

The literature says that, in the early stages of Internet adoption, companies still don't know how they can use their Web sites to support their business strategies. BROWN (2003) says that many companies' web-sites miss the mark when it comes to supporting revenue-generating transactions. Successfully converting visitors to customers requires a greater investment of thought, customer research and interactive development. They put a lot of emphasis on displaying institutional data and attempting to advertise their products and services. Only afterwards, they start thinking of effective ways in which the Web can be integrated to their business processes and practices.

Unfortunately, the survey was not able to depict exactly what respondents meant, when referring to “Advertising products”. It could be trying to replicate, on-line, previously existing paper-based product catalogs and other promotion material. That would definitely be the “beginner's” approach. But it could also mean that they are trying to develop opportunities for a customer's better pre-purchase experience with the company's product, a much more sophisticated approach. One of the participants, after having contact with the preliminary results of the survey, wrote: “I know that I interpreted ‘image and brand building’ to mean more of community building -- and I'm guessing many of the respondents did as well vs. your interpretation of traditional brand building. The website becomes the “central hub” of the company and the easiest point of contact given our global environment. We see our website as a resource for all things, and I'm guessing other software companies do as well”.

“Selling products (taking orders)” and “Delivering (making them available for download)”

Considering that the great majority of the companies in the sample sell large systems, it's understandable that the Web site hasn't yet become their major channel to “deliver the product”, due to bandwidth restrictions. One would also agree that most orders of expensive

products (priced over US\$10,000, for instance) wouldn't happen over the Web, unless they represented repetitive/commodity purchases, not usually the case in the software industry. So, "order taking" isn't a big issue for most of the respondents to the survey.

"Providing after-sales services and support" and "Obtaining feedback from users"

The authors expected that the Internet had become a more relevant tool for software companies to interact with their current customers, by now. The software industry seems the perfect industry to deploy "service and support" over the Web. It has the "magical qualities" for that, as mentioned before! If a narrow bandwidth may still be a problem for those who want to deliver whole systems over the Internet, it is fine for patches and upgrades, which tend to be less bulky. There are great opportunities for self-service, if the Web-site is used as a trouble-shooting tool, guiding the customer in his/her attempt to solve problems.

"Feedback from customers" can be easily obtained through the Web and seems to be much less frequent today than one would expect. VENETIANER (1999) had already remarked, a few years ago, that if one wants to make friends (he was talking about a company building a long lasting relationship with its customers), s/he should give them the opportunity to speak and complain and should listen carefully. It is important to provide web-sites with mechanisms that allow for easy customer feedback. And, once the customer has made contact through the communication channels that have been made available to him/her by the organization, s/he should be quickly responded to. More recently, the idea of building a stronger communication channel with the customer has gone even further. Mass customization is becoming a reality to some. THOMKE & HIPPEL (2002) noticed that R&D doesn't need to be the same costly and inexact process of the past. Companies can provide their customers with the tools to design and develop their own products.

Areas to be improved in the company's web-site

Each company selected the two most important features to be further developed in their web-sites. Figure 11 shows the number of companies that mentioned each one of the following areas to need diligent improvement, in their Web-sites.

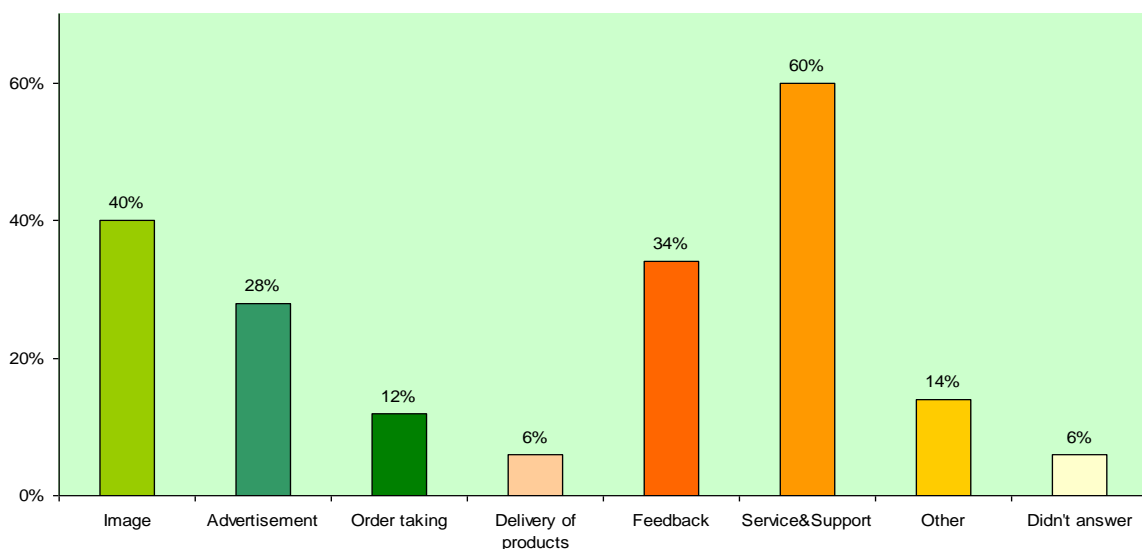


Figure 11 – Areas to be improved in the company's web-site

“Building institutional image and brand” and “Advertising products”

The authors were surprised with the fact that a considerable part of the companies’ current web-sites are devoted to building institutional image and brand. But even more surprising is the fact that companies consider it to be an important issue for their competitiveness in the future. That seems to contradict the common sense (and most of the literature), at least after the crash of so many .com’s. It seems to be very hard, if not impossible for most companies, to build a brand and a trustful image just from one’s presence on the Web. Consolidated brands and a respectful institutional image in the brick-and-mortar market have been noticed to be a very important asset for companies attempting to “look respectful” also on the Web. Many companies have failed, in California and elsewhere, that considered a well-known “e-brand” to be their top priority, relegating other aspects of the business to a second stand.

The authors now admit that the term “Advertising products” was presented in a too broad and generic way, in the survey. It is difficult to know what went on the respondents’ minds when they considered product advertisement on the web to be an important improvement area for the future. It could even be that they are realizing that advertising on the Web is very different than doing it elsewhere. There are many resources and features provided by Internet technology that can make it a very effective way of providing customers with good pre-purchase experience with the product. Positive side effects to the vendor-buyer relationship are innumerable.

“Selling products (taking orders)” and “Delivering products (making them available for download)”

Order taking was only mentioned as an important issue to be considered in the near future by companies that sell cheaper products. That was something that had been anticipated. When large investments are expected, much more negotiation and follow-up are required, which depend to a greater extent on human skills.

Delivering products over the Web was also not considered very important by most surveyed companies. Only a small percentage considered that they had to improve their Web-sites, so that they could deliver products more effectively. As it was mentioned earlier, that may have something to do with the amount of data to be transmitted over the Web. There are still constraints, imposed by the lack of available bandwidth.

“Obtaining feedback from users” and “Providing after-sales services and support”

Although not much of the surveyed companies’ current Web-sites is used for service and support and for customer’s feedback, it was comforting to find out that companies realize those issues may become important drivers of business success. Many respondents believe their Web-sites will have to be improved in those respects, so that their companies remain competitive.

Support over the Web

As software products and services are fairly complex, it makes more sense to place an emphasis on after-sales services and support not only for repairs, but also for obtaining expert advice on the usage and upgrade options (NEW STRAITS TIMES-MANAGEMENT TIMES, 2003).

There are many improvement possibilities concerning the provision of customer support over the Web. Notice that “manually processed e-mail” and “FAQ pages”, the two most

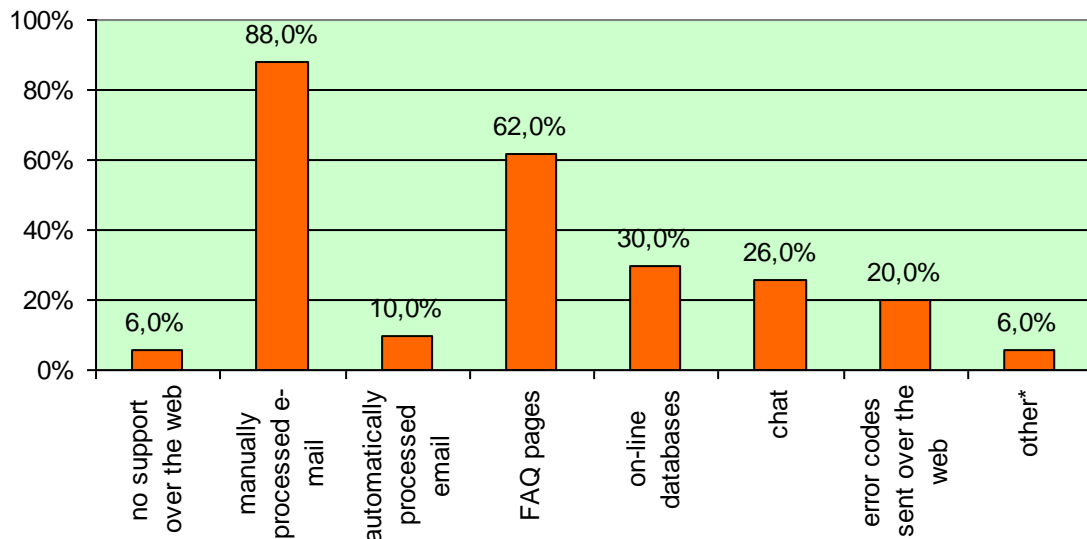
used tools for support over the Web, according to the data on Figure 12, are also the most basic and the easiest to implement.

“FAQ pages” – FAQ pages allow customers to perform some checking and self-service, before contacting the company’s support team. That helps the support team to concentrate in the more complex problems. LOHSE & SPILLER (1998) argue that sites that offer a FAQ section receive more visits, comparatively to those that don’t have them.

Visiting some of the companies’ FAQ pages, though, the authors found out that most do not provide for any feedback. It would be important to allow customers to say if the information they obtained in FAQ pages was relevant and helpful, so that the company can decide if it should remain there. If it is not useful, it should be taken away, leaving room for more suitable information. Users’ experience with a product and the environment in which it is used are very dynamic. Questions that were frequent a year ago may not be so, anymore. Still, even very static FAQ pages are efficient problem screeners that should, by all means, be present in any company’s Web-site, in the authors’ opinion.

“Manually processed e-mail” – Sometimes, the e-mail can be a practical substitute for other kinds of interaction with users, particularly the telephone, with the advantages and disadvantages of not being synchronous. The major advantage is, probably, that work can be more evenly distributed along the working hours of the day and there is no need for an infrastructure to cope with demand peaks. On the other hand, one cannot have the problem solved straight away.

The authors believe that some of the other alternatives provided as options in the survey’s questionnaire, shown in Figure 12 as being neglected by the respondents, will become important tools for customer support in the near future. A lot can be done to provide customers with more customized, fast and automated responses to their inquiries.



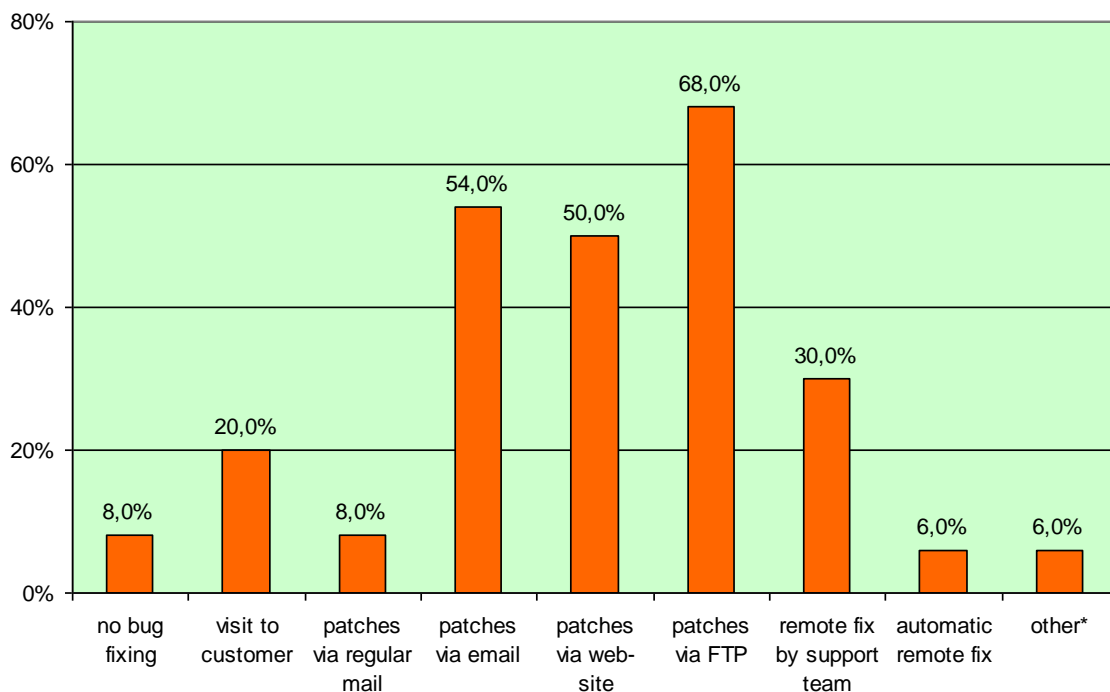
* Other includes: on-line tutorial and product updates via the Web.

Figure 12 – Support over the web

Bug fixing

Bug fixing used to be a very demanding task for software companies, not only for the actual work of finding out the problem and correcting it, but also due to the logistics

involved, to deliver trouble-free versions of the product to the customer. The connectivity provided by the Internet is definitively playing a major role in making bug fixing procedures more flexible and agile. There were no surprises concerned to the responses to the question about the way companies fixed bugs they were already aware of, when customers faced them. The authors were even impressed with relatively high numbers for “remote fixing by support team” (See Figure 13). “Automatic remote fix” is expected to increase along the next few years, as companies start monitoring the performance of their products, in the customers’ premises using the Web or other future infrastructure. But patches being made available from the Web-site or FTP servers are probably a good start in that direction for most companies.



* *Other* includes: hosted application/ASP (no need to fix bugs at the customer’s end) and periodic releases of new/fixes versions of the product.

Figure 13 – Bug fixing

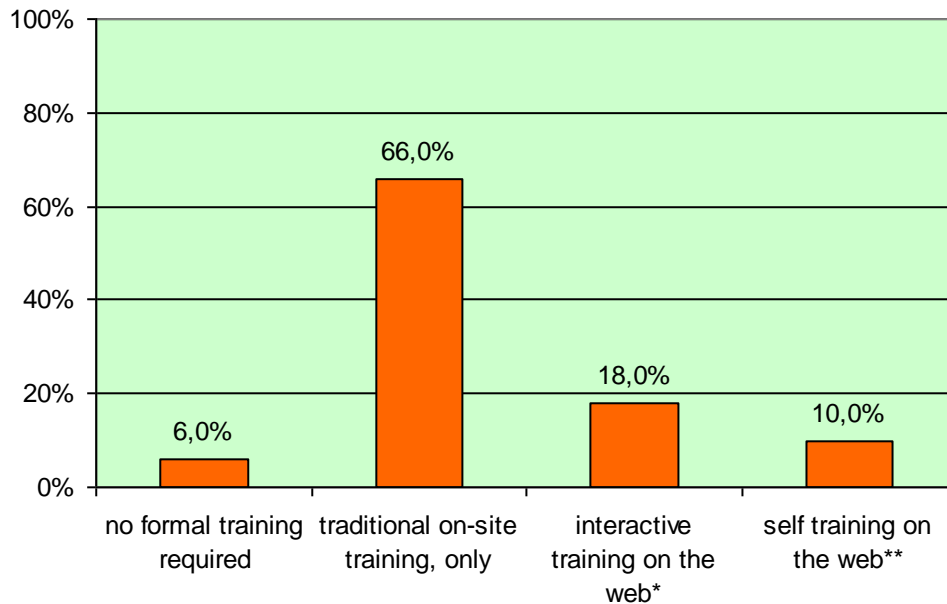
Training over the Web

The on-line training scene is rife with new possibilities, among which, asynchronous training, distance learning, computer-based training, synchronous training and web-based training. According to WEIDNER (1999), many types of training are becoming computer based and provided via a network or the Internet.

Use of the Web for training purposes was low among surveyed companies (See Figure 14). Web-conferences/meetings, web-seminars and virtual classrooms were mentioned by those who claimed to provide some interactive training over the Web. A few of the participants have on-line manuals and other documentation, as well as tutorials and demos, which they consider useful for self-training. There were also a couple of companies that claimed to

carry out on-line certification programs. But those involved only the evaluation of learning, after traditional on-site courses had taken place.

Software mentioned by participants for training over the Web included: WebEx, MS NetMeeting or Windows Messenger (for Windows XP), BuddyHelp and Centra.



* Interactive training on the Web included: web-conference/meeting, web-seminars and virtual classrooms

** Self-training on the Web included: on-line manuals and documentation, tutorials, demos and on-line certification programs

Figure 14 – Training over the web

Impact of the Web on operations' costs

Most companies said that the use of the Internet didn't cause any impact on costs (44% of the sample) or believe they are saving money, now (32%). Only 2 companies (4%) claimed that their costs are higher with the Internet than they were before (See Figure 15).

The average reduction in costs was calculated only considering the responses of those who said there was an actual reduction in costs. On average, those companies considered that costs were 17.2% lower than before they started using the Internet to leverage their business processes.

The average increase in costs was, likewise, only calculated for the 2 companies that considered that the costs of their operations increased after they started using the Web for some of their activities. The average increased cost for those companies was 10%. The fact that even those 2 companies believe that the increase in value (20%) has more than compensated for more expensive operations is noteworthy.

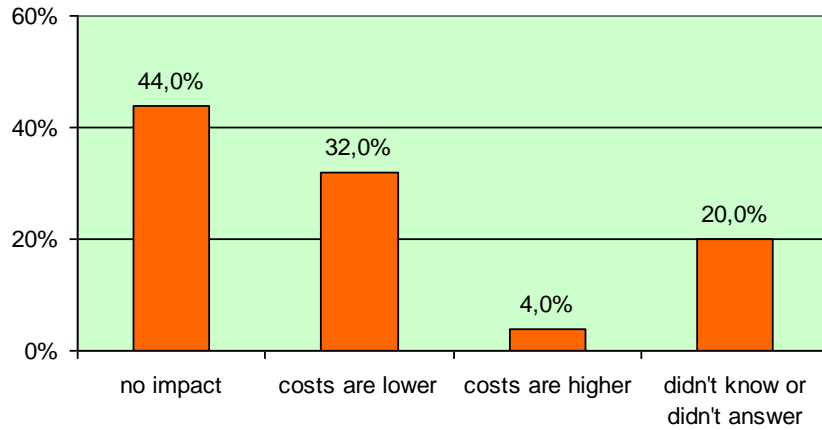


Figure 15 – Impact of the web on costs

Impact of the Web on the value to the customer

Only one company claimed that the value it delivers to its customers has decreased after it started using the Internet for some of its activities, as can be depicted from Figure 16. No further comments will be made on that, because the authors believe that the respondent unintentionally marked the wrong field in the questionnaire, taking into account some of the other answers and comments that were provided.

Sixty percent of the companies believe to be delivering more value to their customers, due to the Internet. On average, companies claim an increase in value of about 45%, when compared to products and services that they used to provide the market with prior to the Internet.

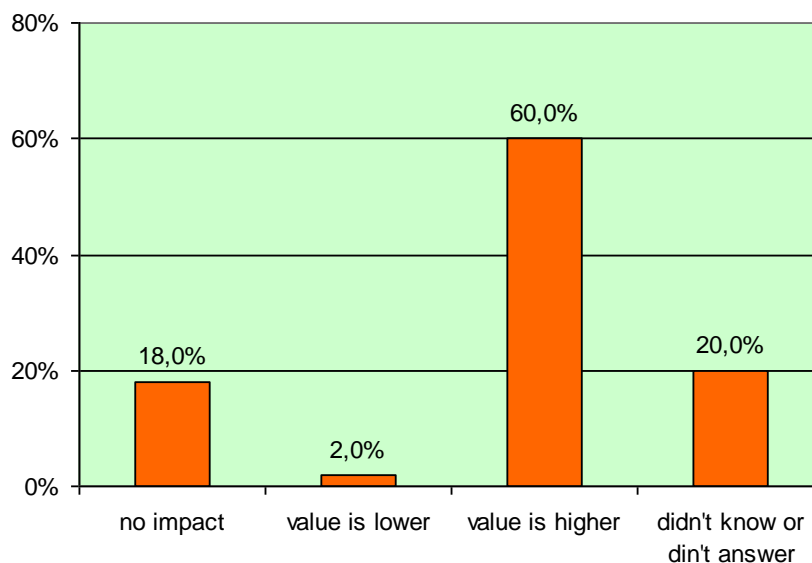


Figure 16 – Impact of the web on value

CONCLUSIONS

The research project that originated this paper had an exploratory purpose. The authors didn't make use of any sophisticated statistical tool, nor have they followed any strict quantitative methodology. Although the participants were tested against other non participating companies of the database to find out if they represented a good sample of the population, that was only done with respect of size (sales), as it was the only information that was previously available for all listed companies. The fact that a convenience sample was used, i.e., all companies that voluntarily responded to the request were included in the study, may have disturbed the sample's resemblance to the population, to some extent.

In spite of this limitation, the authors believe the study has fulfilled its original objective of providing information on what software companies are doing about the Internet. The fact that Californian companies were chosen for this exploratory project, many of which are located in the Silicon Valley, one of the world's well-known innovation centers when the matter is software and technology, was also intentional. The same way the authors believed that a study in the software industry could be useful to other industries, for it being a "fruit fly" industry against which others could benchmark, they also thought that Californian software companies could represent good benchmark to software companies elsewhere.

Managerial implications of several possible uses of the Internet to improve the relationship with customers have been discussed all along the paper. Some of the findings deserve to be highlighted in these final remarks, though.

The fact that surveyed companies had about 65% of their Web-sites dedicated to "building institutional image" and "advertising products" was quite surprising to the authors. If the literature is right about that being a preliminary stage in the adoption of the Web as a new platform for doing business, one should expect software companies to be far past that stage. As it has been said, one of the reasons for this survey to have been carried out with companies in the software industry was that it was assumed that players in a very technologically oriented industry would be ahead of other industries in using new technologically driven infrastructures (such as the Internet). Is that assumption correct or should it be reviewed? The issue definitively calls for further reflection and represents an interesting subject for future research.

Another interesting result is the increase in the value to the customers that participants attributed to the Internet. Among those companies that claimed that the Internet helped to improve their business proposition to the customers (60% of the respondents), the estimated average increase in value was 45%. That is quite a large figure! Are the companies right about that? What other technology could have such an impact on the value companies provide their customers with?

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NOTES

¹ The CorpTech database contains relatively accurate and up to date contact information on 50,000 high technology firms in the United States. For more information about it, see <http://www.corptech.com>.

² The sample wasn't, in fact, randomly chosen; it is a "convenience sample" made up of those companies which responded the proposed questionnaire. Statistic tools were used to test if it represented the universe of companies in the database and $h_0 = \text{not part of the universe}$ was rejected for $\alpha=0.05$, for variables *sales* and *number of employees*, which were already available from the CorpTech database.