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# The Impact of Internet Use on Business-to- Business Marketing

## Examples from American and European Companies

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*The Internet has been the favorable theme for numerous studies and reports, during the last decade. Yet, there is a lack of systematic empirical evidence regarding the marketing activities that are affected by the use of the Internet, and their consequent performance outcomes. In this article, we document the role of the Internet in business-to-business marketing and identify market-oriented activities that are affected by the use intensity of the Internet. Using a sample of 130 industrial businesses, we found a substantial positive effect of the use of*

*the Internet on sales management activities, market-oriented product management activities, and sales performance and efficiency. The results of this study also stress the central role of the sales force in the successful implementation of the Internet marketing strategies within organizations. © 2000 Elsevier Science Inc. All rights reserved.*

### INTRODUCTION

The Internet is an information technology (IT) that diffuses at exponential rates among the business-to-business organizations. According to the Forrester Research (Business Marketing, May 1997), \$66 billion in business-to-business commerce will be conducted on the Internet by

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the year 2000, with the number of businesses connected in the Net rising from 4% in 1997 to 33% by then (i.e. the year 2000). Its high approval and use by business-to-business organizations may be largely attributed to two factors. First, to its interoperable<sup>1</sup> idiosyncrasy that constitutes an overwhelming advantage over other competitive information networks (such as value added networks, open EDI systems, Intranets, etc.), since it entails significantly lower setup and operational costs and elimination of switching costs [1]. Second, it may be attributed to its enhanced informational and interactive communicative capabilities, which enable it to be used as both a communication tool and a marketing channel, thus inducing the development of more effective interorganizational relationships and the emergence of new network cooperative opportunities [2].

Current trends in the market environment, such as shrinkage of markets, increase of competition, technology turbulence, and diffusion of the IT through the organizations, preempt structural changes in the organizations and their marketing channels. These trends call for increased collaboration among organizations that leads to increased outsourcing activities, transformations in the value chains of the organizations and of their distribution channels, and the formation of new network organizational structures. In fact, these trends are calling for enhanced communication capabilities and increased interorganizational exchanges. In view of these marketing phenomena, the examination of both business-to-business marketing transactions, and the potential of the IT (i.e., the Internet) to facilitate these transactions, become a primary concern.

The positive impact of Internet on industrial organizations has been addressed in many studies [3–8]. However,

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<sup>1</sup> Interoperable: compatible with every network and individual information system.

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apart from the pioneering work of Hoffman and Novak [8] who proposed a preliminary theoretical process model of consumer navigation behavior in hypermedia computerized mediated environments (CME), most research on marketing communication and new media has been either descriptive or theoretical/speculative [e.g., 9–11].

Thus, although the Internet has been the favorable theme for numerous researchers and scholars during the last decade, there is still a lack of systematic empirical evidence regarding the role of the Internet vis-à-vis the marketing activities and performance of business organizations.

This research addresses these issues. More specifically, focusing on business-to-business organizations, we attempt to investigate how the use of the Internet affects their marketing efforts and performance.

## THE STUDY

Current marketing and sales practice and theory are undergoing unprecedented transformations that may be highly attributed to the adoption of new technology tools and marketing concepts, such as sales force automation tools, database marketing, relationship marketing, network marketing, electronic trading systems, and, finally, the Internet. Transferring the thought of the Harvard Business School marketing theorists, the main thrust of the transformation in marketing practice could be reduced to the shift from broadcast marketing to interactive marketing that introduces marketing concepts and practices that are more customized and responsive to the individual [12]. In this context, the Internet has been characterized as the ultimate interactive medium.

The above interactive approach in marketing is reinforced by the views of many scholars according to which our period is a transitory period towards “the information era”, in which the management of information has become a competitive necessity [13, 14]. Other authors sustain that we already have reached the threshold of the “knowledge era,” in which the competitive advantage lies in the embedded organizational knowledge of how to establish and manage effective relationships, both within organizations, and among them (both with customers and suppliers) [15, 16]. In the same vein, Glazer [14] argues that the source of long-sustained competitive advantage is the management of the overall set of relations between the firm and its environment. Because these relations are developed through the “pattern of exchanges” in which

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# Current marketing phenomena are calling for enhanced communication capabilities and increased interorganizational exchanges.

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the firm is involved, the firm's competitive advantage is the management of the firm's information-processing system. In this context, the Internet's core advantage lies in its great capacity of fast, efficient, integrated, and interactive exchange of information. The multiple tools of the Internet enable the transmission and exchange of information through multiple formats, namely one-to-one communication (i.e., through e-mail), one-to-many (i.e., through the Web or e-mail), and many-to-many (i.e., through the Web, newsgroups and mailing lists) communication. Thus, the Internet facilitates the information exchanges between organizations, concerning issues such as discovery of new customer needs, trends of the local and global markets, competitive moves, joint development of products, joint selling activities, etc. [13, 17]. Similarly, Cunningham and Tynan [16] sustain that electronic technologies (i.e., the Internet) should be seen as a key part of the corporate strategies of business in the 1990s and beyond.

Despite the aforementioned conceptual developments, business literature is largely devoid of material regarding the impact of the commercial use of the Internet on business-to-business organizations performance. This study attempts to start filling this void. Thus, the purpose of this study is to investigate the effects of the use of the Internet on business-to-business marketing activities and performance.

In the following sections, first the development of the conceptual framework and the hypotheses of the study are presented. Next, the methodology of the study is discussed followed by the analysis and results. More specifically, the conceptual model is tested using path analysis, with the AMOS structural equation modeling package [18], and data collected by an e-mail survey of 130 business-to-business organizations. Finally, the conclusions and their implications are discussed.

## CONCEPTUAL FRAMEWORK AND HYPOTHESIZED RELATIONSHIPS

The conceptual framework of this study is drawn from two streams of research: IT and Internet literature, and current business-to-business marketing theory. Figure 1 shows the conceptual model with the hypothesized linkages between the constructs. These linkages deal with four sets of hypotheses:

1. The relationship between two indicators of the use intensity of the Internet, namely, the *use of the Internet tools* and the *Internet budget*.
2. The effect of the use Intensity of the Internet, as expressed by the *Internet budget* and the *use of the Internet tools*, on *marketing activities*.
3. The effect of the use intensity of the Internet, as expressed by the *Internet budget* and the *use of the Internet tools* on *sales performance* and *efficiency*
4. The relationships between *marketing activities*, *sales performance* and *efficiency*.

The next section provides a brief definition for each construct, followed by the development of the hypotheses. The relevant literature for each hypothesized relationship is discussed in the appropriate hypotheses development section.

## KEY CONSTRUCTS

### Use Intensity of the Internet

Since there is a lack of any established criteria for measuring the use of the Internet, as well as the success of its use, as Bellafante [19] stated, referring to the WWW, researchers need to develop concepts and to shape standards, to provide mechanisms for measuring

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# Sales management activities involving the Internet use have a positive impact on sales performance.

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investment opportunities and business success on the Internet [2].

In our study the use intensity of the Internet is examined using two variables, the *use of the Internet tools* and the *Internet budget*.

**THE USE OF THE INTERNET TOOLS.** The Internet is a bundle of communication tools and services, with distinct characteristics and communication capabilities that allow an organization to use them either independently or jointly, to achieve multiple communication goals. Of the numerous Internet services, e-mail, USENET, File Transfer Protocol (FTP), and the World-Wide-Web

(WWW), are the most popular ones [20, 21]. Thus, the use of the Internet is examined in relation to the relative use of these four major Internet services.

**THE INTERNET BUDGET.** The budget that is allocated to the Internet may be viewed as an indicator of its use. This is based on the self-evident notion that the operation of any function within an organization entails the absorption of capital, in the form of either investments (i.e., new equipment and hiring of new personnel) or expenses (overheads or payroll expenses).

Additionally, as far as the allocation of resources among alternative uses remains largely a top management's con-

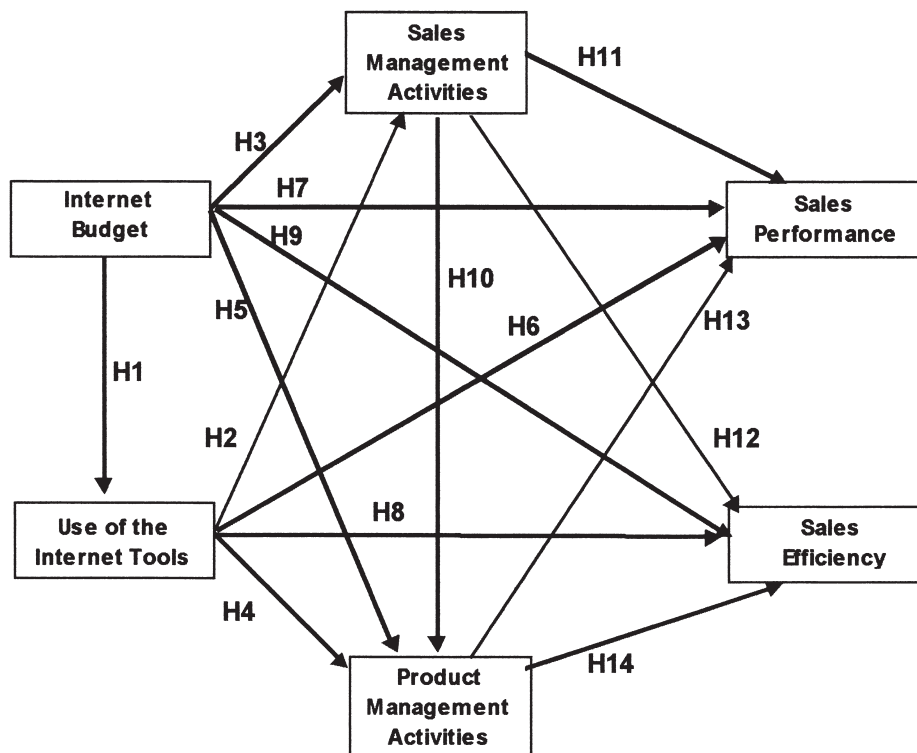


FIGURE 1. Conceptual model and hypothesized relationships.

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# The implementation of customer-oriented strategies is now highly feasible, without sacrificing efficiency.

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cern, the aforementioned variable also may well personify top management's support to the wider diffusion of the Internet use in intra/interfirm exchanges. In the context of the IT, this behavior may be interpreted as the organizational climate that embraces its use, which is regarded as a necessary condition for its actual (effective) use [22]. In the same vein, top management's support has been characterized as an important factor for the successful implementation of any business process innovation (i.e., the use of the Internet for interorganizational exchanges) [23].

## Marketing Activities

Product management together with sales management constitute the two cornerstones in business-to-business marketing strategy. The extent to which the Internet influences these two marketing management aspects, may well judge the Internet's compatibility with, or, applicability to business-to-business marketing.

**PRODUCT MANAGEMENT ACTIVITIES.** The management of the product mix refers to the development and commercialization of new products, as well as to decisions which determine the length of their life cycles, namely, product rejuvenation and renewal, or elimination decisions. In this study, we focus on market-oriented product management activities which may be facilitated through the use of the Internet. More specifically, within the spectrum of product management activities, we examine the issues of faster discovery of customer needs, greater customization of the products to the customer needs, faster new product testing, and shorter product life cycles.

**SALES MANAGEMENT ACTIVITIES.** Industrial sales management consists of activities referring to customer classification and market segmentation, as well as to targeting, selling, service, and retention of existing customers. These activities seem to be very crucial for industrial marketers [24, 25].

In our study, we focus on those sales management activities that may be integrated and enhanced with the interactive attributes of the Internet. More specifically, we examine the marketing activities of market segmentation and customer classification, management of customer databases, electronic transmission of advertisement material (i.e., electronic catalogues) to the customers, and performing audiovisual presentations through the Internet.

## Sales Performance

Appropriate performance measurement is an issue that has been extensively debated in marketing literature. Specific conditions that characterize industrial markets, such as long-term buying processes and demand for quality customer service and closer relationships with the customers, often makes accountability (i.e., performance measurement) of certain sales management activities a quite stringent task. Upon this matter, Churchill et al. [26] argued that performance is behavior evaluated in terms of its contributions to the goals and objectives of the organization. Thus, performance of selling and marketing efforts often is judged on the basis of not only sales, but also on other criteria that are essential to business-to-business marketing, such as implementation of sales leads and improvement of customer relationships. In the same spirit, Bondra and Davis [27] state that the measures of the IT (i.e., the Internet) performance should be closely linked to the objectives that were to be achieved through its applications by the sales and marketing departments. The Internet is an out-directed IT that can be used both as a direct sales channel and as an interactive communications tool (i.e., sales force and marketing tool). Thus, it may affect sales performance in two ways: (a) through achieving direct sales (i.e., via the WWW); and (b) indirectly, through enhancing interorganizational relationships and implementing sales leads (i.e., via e-mail communication), providing higher levels

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# Through the Internet, interpersonal and interorganizational relationships are led to closeness and evolution, more than ever before.

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of productivity (i.e., increase of sustainable customer shares). Drawing on the above views, in this study, we focus on performance issues that relate to sales productivity (i.e., the top line of the income statement), namely total sales, sales leads, new orders, and customer service and relationships.

## Sales Efficiency

This is a performance measure that is related to the net profit margin (i.e., the bottom line of income statement). Efficiency is another thorny issue in performance measurement, because it is determined by a vast array of expenses that are not always easily identifiable, or accountable. In this study, we specify sales efficiency as cost reductions resulted through the use of the Internet in certain sales management activities, namely, reductions in cost of sales, customer service costs, time of routine service jobs, salespeople travel time, and number of salespeople employed.

## HYPOTHESES

### The Relationship between the Internet Budget and the Use of the Internet Tools

This study does not attempt to examine either how the Internet Budget is allocated to different Internet tools or the factors that affect the Internet budget decisions, although these are quite interesting issues, needing further investigation. Rather, this study attempts to investigate the effects of the Internet marketing spending on marketing activities and performance outcomes. Thus, it makes an attempt to operationalize the meaning of the use intensity of the Internet, not only in terms of the relative use of the Internet tools (means) but also in terms of marketing

expenses (resources) that are allocated to its use. In this way, the variable *Internet budget* complements and reinforces the use intensity of the Internet, as it is measured by the *use of the Internet tools*. So, it is hypothesized that:

*H1: The higher the Internet budget the greater the use of the Internet tools.*

Accordingly, the impact of the use intensity of the Internet on marketing activities and performance is examined by two perspectives, the *use of the Internet tools* and the *Internet budget* and leans on two sets of hypotheses, as it is analyzed in the following sections.

### Effects of the Use Intensity of the Internet on Marketing Activities

The impact of the use intensity of the Internet upon marketing activities is tested by two blocks of hypothesized relationships.

EFFECTS OF THE USE INTENSITY OF THE INTERNET ON SALES MANAGEMENT ACTIVITIES. Drawing on the Internet literature, it is elicited that the various Internet services may be well used to facilitate certain sales management activities.

Thus, the WWW may be proved the ideal tool for the successful customer classification [14, 28, 29]. The USENET service, which includes various business discussion groups, through which public conversations on subjects of common interest are developed, may reveal market segments where industrial customers are self-classified. Another Internet service, the FTP facilitates the access and management of on-line customer databases in which prospects and existing customers' files are stored, according to predefined segmentation criteria. Similarly, it enables the deployment of targeted promotion activities, for example, the electronic transmission of paperless and

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# The interactive communication of salespeople with their customers affects market-oriented product strategies.

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costless product catalogues, brochures, product specifications, etc., containing selective information of particular interest for each individual customer. Thus, the interactive information exchanges enable salespersons to customize their product/pricing offerings and selling efforts on the basis of their affinity with the customer.

According to Blattberg and Deighton [28], we are running the age of addressability, in which the enhanced capabilities of improved and interactive communication, imply new marketing opportunities and trends, such as database marketing, micromarketing, and integration of marketing activities. Moreover, the Internet is going to lead companies to even finer market segmentation. In a similar context, the attributes of the new IT, (i.e., the Internet), will lead to new marketing paradigms of microsegmentation and targeting in niche markets, which have been characterized as monocasting and pointcasting marketing [14, 29, 30]. Thus, Armstrong and Hagel [11] note that “marketers will then (when they will be fully exploiting virtual markets such as the market that can be developed through the Internet) need to wrestle with microsegmentation not just at the level of the individual customer, but at the level of the individual customer at specific points in time.” Furthermore, the Internet may facilitate the interactive communication between salespeople and their markets, by providing them with new capabilities, such as access to distant databases through on-line connection, performance of audiovisual presentations, and efficient transmission of electronic catalogues and commercials. Thus, it is hypothesized:

The greater the *use of the Internet tools*, the larger the impact on *sales management activities*, involving market segmentation and customer classification, managing customer databases, sending electronic catalogues to the customers, and making audiovisual presentations.

*H3: The higher the Internet budget, the larger the impact on Sales management activities, involving market segmen-*

*tation and customer classification, managing customer databases, sending electronic catalogues to the customers, and making audiovisual presentations.*

EFFECTS OF THE USE INTENSITY OF THE INTERNET ON PRODUCT MANAGEMENT ACTIVITIES. The Internet has been characterized as the ultimate medium that promotes interactivity, which, in turn, reshapes the marketing paradigm [12, 28, 29]. The two most important features of the Internet interactivity are addressability (ability to address an individual) and memory storage (ability to gather and remember the response of that individual through properly designed computer databases) [12, 28]. The above attributes enable the formation of market-oriented product strategies that would have been unthinkable in the past. Thus, the Internet may drive marketing to a new paradigm, where differentiated products would be sold to differentiated markets [31]. Indeed, firms interested in marketing within a hypermedia computer-mediated environment probably should adopt a market orientation [8]. Similarly, Rayport and Sviokla [17] argue that the virtual world of Internet has permitted business-to-business organizations not only to manage information, but also to create new value for customers by serving a broader set of their needs. In this way, they seem to adopt a demand-side thinking and follow demand-side strategies rather than simply making and selling products. Furthermore, the easiness of communication flows among the organizations, which is facilitated by the Internet, is expected to lead to increased information exchanges between the organizations. This will promote the faster discovery of customer needs and the acceleration in the rates of innovations’ development and mature products’ elimination, thus resulting in shorter product life cycles [3]. Additionally, many scholars have stressed the Internet’s ability to enhance cooperation efforts among the market actors (suppliers, customer,s and even competitors), leading to customization of products to the ever-changing customer

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# Sales and marketing actors play a central role in the successful implementation of the Internet marketing strategies.

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needs, in a faster and more effective mode, than through traditional marketing [32]. Thus, we hypothesize:

*H4:* The greater the *use of the Internet tools*, the larger the impact on *product management activities*, as expressed by faster discovery of customer needs, greater product customization, faster new product testing, and shorter product life cycles.

*H5:* The higher the *Internet budget*, the larger the impact on *product management activities*, resulting in faster discovery of customer needs, greater product customization, faster new product testing and shorter product life cycles.

## Effects of the Use Intensity of the Internet on Sales Performance

Although the potential of the Internet, viewed as a direct sales channel, for company profitability is unquestionable, Hoffman, Novak, and Chatterjee [2] argue that there is lack of knowledge regarding this issue. Also, Thomson and Kaul [5], referring to the WWW, suggest that success in the Internet can be measured by the number of site visits, though they note that very few companies report any significant sales. In addition, Kurlwich [33] states that most companies generate very little business from WWW advertising at present and that in reality, the main advantage of the WWW, at this early stage, is the experience that they gain about the marketing strategies to be used when the network becomes a major commercial tool for everyone.

Nevertheless, we should always remember that apart from direct sales, the development of successful interorganizational relationships is very critical in business-to-business marketing and is mainly based in the quality and quantity of information exchanges [34, 35]. In this spirit, recent surveys have stressed the ever-growing potential of the Internet to become a huge virtual market that connects organizations around the world, enabling (a) expansion into new markets, (b) improvement of customer relationships, and (c) enhancement of interorganizational

cooperation [3, 8, 12, 32]. Indeed, the out-directed ITs (i.e., the Internet) can foster a general shift from arms-length transactions toward closer exchange relationships with the entire customer base, where closer coordination, reduced conflict and norms of mutual trust and information sharing can be expected [5, 36, 37]. For instance, the Internet may provide an information infrastructure that generates positive externalities; it may not only reduce the costs of communicating and transacting, but also make internal databases available for sharing with vendors and customers, promoting interfirm collaboration and relationships [3, 5, 28, 29]. As a matter of course, the Internet may have spillover effects to the entire supplier base that can be exploited to improve exchange relationships and generate sales leads. Thus, it is hypothesized:

*H6:* The greater the *use of the Internet tools*, the larger the impact on *sales performance* and specifically, on sales, sales leads, and customer relationship improvements.

*H7:* The higher the *Internet budget*, the larger the impact on *sales performance*, and specifically, on sales, sales leads and customer relationships improvements.

## Effects of the Use Intensity of the Internet on Sales Efficiency

Sales and sales force management costs have been dramatically risen during the last 15 years, stressing the necessity for marketing and sales departments to improve their accountability and efficiency. The above need is getting even more intense, given the squeezed profitability margins due to the ever-growing competition and market turbulence. Thus, efficient management of sales and marketing departments has become a major concern.

Many researchers have stressed the great competitive advantage of the Internet to be used as an efficient marketing tool [13, 38]. The Internet has been characterized as a tool for facilitating sales force efforts, thus leading to higher levels of sales productivity and efficiency [29, 39,



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40]. According to an Office of Technology Assessment report “networking technologies can greatly reduce the costs entailed in exchange transactions.” Thus, the cost of recruiting and training salespeople, identifying and contacting prospective buyers, evaluating buyer’s capacity, and conducting transactions should be reduced with the use of the Internet. The Internet may be proved the ideal means of servicing existing customers efficiently, especially in the case of small and sparse accounts (i.e., reducing sales force travel time and time spent on face-to-face routine service jobs with the customers).

Furthermore, Samli, Wills, and Herbig [40], referring to the high-tech salespersons selling to international markets, proclaimed that their traditional role as intermediaries between the production or service department and customers will be minimized, since they will not be required to develop their technical backgrounds to develop solutions to customers’ problems, as is now often the case, but their role will be limited to prospecting and interpersonal communication duties with customers. In addition, they foresee that their role as information providers may disappear, implying the diminishing of both power and number of salespeople. Thus, it is hypothesized that:

*H8: The greater the use of the Internet tools, the larger the impact on sales efficiency resulting from cost reductions in sales and customer service and from downsizing of the salespeople.*

*H9: The higher the Internet budget, the larger the impact on sales efficiency resulting from cost reductions in sales and customer service and from downsizing of the salespeople.*

### **The Relationship between Product and Sales Management Activities**

A number of IT and organizational theorists have paid attention to the consequences of the increasing information intensity on organizational structure [41]. The proliferation of the out-directed ITs (i.e., the Internet) will result in integration of the marketing function, and furthermore, in delegation of many marketing activities to other departments. This will lead to integration of organizational functions and transformation of organizational structures. Indeed, according to Glazer [14], the information intensive environments (i.e., the Internet) lead to dissolution of the boundaries between the marketing and other divisions, thus arousing the possibility that the traditional notion of marketing as a distinct functional

area within the firm will be rendered obsolete. Furthermore, he makes the hypothesis that the more information intensive the firm, the greater the degree to which other functional areas are involved in activities traditionally associated to marketing. The above perspectives imply that what companies need is not managers (and employees) that know a lot about marketing (or finance or production) and little about anything else, but managers who know a lot about a particular set of customers (and enough about marketing and finance and production) and hence enable the firm to serve these needs before the competitors do.

Our thesis is that in view of the above trends in the organizational environment that may be caused by the increasing information intensity of the Internet, sales and marketing employees are taking the lead in the collection of marketing intelligence concerning customer needs, to be implemented into customized product offerings. More specifically, we sustain that the market-oriented product management activities are highly affected by the use of the Internet in the sales management activities, which are examined in this study. Thus, we hypothesize that:

*H10: The Use of the Internet in sales management activities will have an impact on product management activities.*

### **Relationships between Marketing Activities, Sales Performance, and Sales Efficiency**

The relationships between market-oriented product activities, sales management activities, sales performance and sales efficiency have been addressed in a number of studies [42, 43]. In this study, these effects are tested under the spectrum of the information intensive environment of the Internet. Thus, we are examining the indirect effects of the use of the Internet on sales performance and efficiency through its interactive use by the sales force that favors the adoption of customer-oriented product strategies.

Accordingly, we put forward the following hypotheses:

*H11: The sales management activities examined in this study will have a positive impact on sales performance.*

*H12: The sales management activities examined in this study will have a positive impact on sales efficiency.*

*H13: The product management activities examined in this study will have a positive impact on sales performance.*

*H14: The product management activities examined in this study will have a significant positive impact on sales efficiency.*

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## METHODOLOGY

### Data, Sample Characteristics, and Response Rate

From recent Internet surveys, it is being implied that the Internet's commercial use proliferates at exponential rates and has already reached the critical mass in the United States and Canada [2]. Consequently, our research focused mainly on the American and Canadian business-to-business companies.

A sample of 1,200 U.S., Canadian, and European companies was selected randomly from a population consisting of approximately 3,000 business-to-business companies, in Spring 1997, which were listed on the Yahoo directory of the WWW ([http://www.yahoo.com/Business\\_and\\_Economy/Companies/Industrial\\_Supplies](http://www.yahoo.com/Business_and_Economy/Companies/Industrial_Supplies)), covering a wide range of industries. The senior sales or marketing executive of each of the above companies was sent a 10-page copy of the research instrument along with a cover letter, through the Internet (by e-mail). A total of 134 companies responded, producing a response rate 11.16%.

Regarding the response rate, we gained valuable information which would be useful to other researchers who would like to use the Internet as a research medium.

The first wave of e-mailed questionnaires was sent to the general e-mail address of each sampled company, with anonymous reference to the senior marketing/sales manager, producing a very low response rate of 4.5% (54 responses). An e-mail query followed (sent to the same general e-mail account of each company) in which we asked for the name and personal e-mail address of their senior marketing or sales manager and stating the reason for the query. From a total of 1,200 companies of the sample, only 40.84% responded appropriately, thus reducing the initial random sample to an effective sample of 490 companies. The remaining, which were excluded from the sample, either did not reply at all or cited that the requested top executives could not be addressable through the e-mail. The first follow-up, accompanied by a personal letter, was sent to the senior marketing/sales director of each of the 490 companies, producing a significantly higher response rate of 16.32% (80 responses), which raised the total response rate to 11.16%. Apparently, a second follow-up of a personally addressed research instrument would have been much more appropriate, as it probably would have raised the total response rate to an even higher level. However, time and financial constraints did not allow us to implement this option.

The relatively large deviation (almost fourfold) in the response rates, between the first wave, which was addressed anonymously to the general e-mail account of each company, and the second wave, which was addressed personally to the e-mail account of each senior executive, (4.5% and 16.32% respectively) is largely justified by two reasons. The first is related to the appropriateness of the sample source. The Yahoo directory, which was used as sample source, is a Web list, where companies are self-classified, under no objective classification criteria, according to their subjective and selective perceptions. Thus, it is very likely to include companies that are not properly classified, (i.e., wrong industry sector, double entry, no specific classification between large, and small/individual companies). Consequently, a first prescreening of the random sample would have been necessary, to raise some of the "noise" from companies that should not be included. This is verified by the response rate of the e-mail query, which followed the first unprescreened wave. From a total of 1,200 queried companies, only 40.84% answered appropriately, implying that this subgroup would be the appropriate effective sample for the purposes of the research.

The second reason is related to the value of personalization for communication via the electronic superhighway. More specifically, the above result allows us to sustain that personalization is a prerequisite of effectiveness for research studies that use the Internet as medium for data collection. Furthermore, it is implied that questionnaires that are published through the Web, waiting to be filled in by random visitors, may be much less effective, though more convenient and impressive, than those that are directly addressed (targeted) to specific persons, through their personal e-mail accounts.

The response rate achieved is acceptable, given the length of the research instrument, the technical and confidential nature of the information requested and the nature of the respondents. Indeed, it compares favorably with the response rates achieved by other studies performed through the Internet [44], given the fact that security reasons make a few companies reluctant to release private company information via the "quasi-public" electronic superhighway. It also compares favorably with response rates obtained in large-scale surveys of executives/managers [45-47], which range from 5.9% to 22%. Four cases were excluded from the analysis due to excessive missing data. The result was an effective sample of 130 companies.

To examine the possible presence of nonresponse bias, we divided the sample into groups of early (first wave)

and late (second wave) respondents [48]. The late respondents imitated the nonrespondents, whereas the early respondents simulated the respondents in the sample. For the questionnaire items measuring each construct described in the hypotheses, the values were summed. Then, t-tests were performed to examine the differences in these measures between early and late respondents. No meaningful differences were identified. As a result, response bias seemed not to present a serious problem in the study. Certain characteristics of the companies sampled are presented in Table 1.

## Measures

Because scales were not available for the variables described in the conceptual framework, measures were developed following the guidelines suggested by Churchill [49]. Thus, to operationalize the constructs of our study,

**TABLE 1**  
**Characteristics of the Sample**

	Frequency	Percentage
Nationality		
USA	105	80.8
Canada	9	6.9
Europe	16	12.3
Total	130	100.0
Size (number of employees)		
1–50	75	57.7
51–250	40	30.8
251 and more	15	11.5
Total	130	100.0
Experience with the Internet (years)		
1–2	86	66.2
2.01–4	25	19.3
4.01 and over	19	14.6
Total	130	100.0
Field of Endeavour		
Software development	35	26.9
Management consulting	27	20.8
Manufacturing equipment	20	15.4
Multimedia equipment	7	5.4
Chemical and plastics	6	4.6
Transportation means	6	4.6
Telecommunications	6	4.6
Scientific and medical equipment	6	4.6
Financial services	6	4.6
Home equipment	3	2.3
Hardware manufacturing	2	1.5
Packaging	2	1.5
Office automation equipment	2	1.5
Textile industry	2	1.5
Total	130	100.0

we primarily drew upon the academic and trade literature on IT, the Internet, the Electronic Commerce, and business-to-business marketing. As a next step, we conducted personal unstructured interviews with approximately 10 Internet specialists. The purposes of these interviews were (a) to clarify and confirm technical issues pertaining to the commercial capabilities of the Internet tools, and (b) to reassure the applicability of the constituent variables.

All the constructs, with the exception of the one referring to the *Internet budget*, included four items and were operationalized using five-point scales.

As it will be explained below, each of these scales were unidimensional and reliable, and this led us to use the factor score of each scale (which resulted from factor analysis), for the testing of our model. Only in the case of the use of the Internet tools, the measure involved the averaging of the items, by using the similar practice as followed by Ross, Anderson, and Weitz [50].

Finally, the variable *Internet budget* was measured by asking the respondents to indicate the percentage of their total marketing budget that the Internet accounted for.

Details about the scale items of the constructs are presented in the Appendix, whereas, Table 3 provides some descriptive statistics.

## Reliability and Validity of the Scales

Since the scales used in this study were new, their reliability and unidimensionality were tested to verify the quality of the measures.

To test the reliability, a combination of item-to-total correlations and coefficient alpha was used. As it can be seen in Table 2, all constructs have coefficient alphas that range between 0.65 and 0.84, indicating acceptable levels of reliability [51].

Tests for the unidimensionality of scales were performed using confirmatory factor analysis involving a single factor representation of each set of cogeneric items [52]. The confirmatory construct reliabilities are reported in Table 3.

Several fit statistics were utilized to evaluate the acceptability of each of the factor models. As recommended by Bentler and Bonnet [53], the normed fit index (NFI) was utilized and deemed acceptable if above the recommended value of 0.90. Additionally, the comparative fit index (CFI) also was used and acceptable model fit is demonstrated with CFIs above 0.90, as well. Furthermore, goodness-of-fit index (GFI), adjusted goodness-of-

**TABLE 2**  
**Summary Statistics and Construct Correlations**

Variables	Intercorrelations					
	1	2	3	4	5	6
Use of the Internet tools	1,000					
Internet budget	0.280*	1,000				
Sales management activities	0.292**	0.267**	1,000			
Product management activities	0.318*	0.486*	0.621*	1,000		
Sales performance	0.273*	0.352*	0.670*	0.586*	1,000	
Sales efficiency	0.066	0.341*	0.401*	0.441*	0.345*	1,000
Number of items in scale	4	1	4	4	4	4
Mean	3.50	15.19	2.45	2.57	2.81	2.56
Standard deviation	0.93	19.94	1.02	1.1	0.93	1.04
Coefficient alpha	0.67	—	0.74	0.84	0.65	0.79

\* Significance at 0.05.

\*\* Significance at 0.1.

fit index (AGFI), and root mean square residual (RMR) also were provided. Standard cutoffs for the above indices, as proposed by experts, are provided in Table 4. The results indicated that the scales were unidimensional.

## ANALYSIS AND RESULTS

To test the robustness of the propositions developed in the conceptual framework, we used the structural equation modeling package of AMOS. Since the sample size of 130 cases is not sufficient to support a structural equation

model at the level of complete disaggregation of measured variables (by using the multiple measured variables as indicators for each construct), we used the factor scores as single item indicators and performed a path analysis, applying the maximum likelihood estimates (MLE) method, following the guidelines suggested by Joreskog and Sorbom [54], Peter [55], and Teas, Wacker, and Hughes [56].

The application of the MLE method for estimating the model, entails that the constructs should satisfy the criterion of multivariate normality [57]. Therefore, for all the constructs, tests of normality, namely skewness, kurtosis, and Mahalanobis distance statistics [57], were produced. These indicated no departure from normality, except for the variable of the Internet budget. By transforming this variable to logarithmic, we achieved normality. Thus, as normality was confirmed for all the constructs, we proceeded in using the MLE method to estimate the model.

The sample size of 130 cases satisfies the general rule of thumb that suggests that sample sizes as low as about 100 are often adequate, with 200 or more sometimes recommended as safe, as put forward by some researchers [57–60]. Additionally, Bentler [61] suggests that “the ratio of sample size to number of free parameters to be estimated may be able to go as low as 5:1 under normal and elliptical theory. Although there is little experience on which to base a recommendation, a ratio of at least 10:1 may be more appropriate for arbitrary distributions.” For the model under investigation, the ratio of sample size to number of free parameters is 6.5:1.

**TABLE 3**  
**Confirmatory Factor Analysis of Model Constructs**

Construct	Chi-Square	df	P	RMR	GFI	AGFI	NFI	CFI	
Use of the Internet tools	4.29	2	0.11	0.08	0.98	0.91	0.96	0.98	
Product management activities	5.61	2	0.06	0.09	0.98	0.89	0.97	0.98	
Sales management activities	1.74	2	0.42	0.05	0.99	0.97	0.99	1.00	
Sales performance	2.86	2	0.24	0.09	0.99	0.95	0.98	0.99	
Sales efficiency	4.88	2	0.09	0.07	0.98	0.91	0.98	0.99	
Statistic	Suggested (P)			Obtained					
Chi-Square	N/A			0.23					
Degrees of freedom	N/A			1.00					
Chi-Square significance	>0.05			0.63					
Root mean square residual (Hu and Bentler [70])	≤0.10			0.006					
Goodness of fit index (Joreskog and Sorbom [54])	≥0.90			0.99					
Adjusted goodness to fit index (Joreskog and Sorbom [54])	≥0.80			0.98					
Delta 1 (NFI) (Bentler and Bonnet [53])	≥0.90			0.99					
Comparative fit index (Bentler [71])	≥0.90			1.00					

Authors names in the parentheses are those who suggest the adopted cutoff values. N/A indicates that no standard cutoff exists for these statistics.

Figure 2 illustrates the path diagram for the causal model. It also presents the estimated standardized parameters for the causal paths, their levels of significance and the square multiple correlations for each construct.

A more detailed analysis of the results and measures for model fit are reported in Table 4. Since there is no definitive standard of fit, a variety of indices are provided along with suggested guidelines.

The chi-square statistic of the model was very small ( $\chi^2 = 0.185$ ) and insignificant ( $P = 0.67$ ), indicating a very good fit. Additionally, the results of the rest measures, together with the squared multiple correlations indicate that the overall fit of the model to the data is quite strong.

Since the causal effects of the use intensity of the Internet may be either direct or indirect (i.e., mediated via the effects of other variables), or both, the total causal effects were computed. More specifically, the indirect ef-

fects are the multiplicative sum of the standardized path coefficients [62]. The total effects are the sum of the direct effect and all the indirect effects [63, 64]. Table 5 shows the direct, indirect and total effects of the use intensity of the Internet.

## DISCUSSION

### Findings

Our findings generally support our conceptual framework. The results place support to most of the hypotheses.

With respect to the first hypothesis (H1), it was found that the *Internet budget* has a positive impact on the *use of the Internet tools*. However, this relationship is not particularly strong. Thus, this finding places empirical support to the anecdotal evidence that the Internet is the great

**TABLE 4**  
**Fit Assessment for the Causal Model**

Hypothesized Relationships		Standardised Estimate
H1	Internet budget → Use of the Internet tools	0.16*
H2	Use of the Internet tools → Sales management activities	0.26**
H3	Internet budget → Sales management activities	0.14*
H4	Use of the Internet tools → Product management activities	0.13**
H5	Internet budget → Product management activities	0.24**
H6	Use of the Internet tools → Sales performance	-0.002
H7	Internet budget → Sales performance	0.24**
H8	Use of the Internet tools → Sales efficiency	-0.02
H9	Internet budget → Sales efficiency	0.01
H10	Sales management activities → Product management activities	0.53**
H11	Sales management activities → Sales performance	0.41**
H12	Sales management activities → Sales efficiency	0.25**
H13	Product management activities → Sales performance	0.07
H14	Product management activities → Sales efficiency	0.25**
Statistic	Suggested ( <i>P</i> )	Obtained
Chi-Square	N/A	0.23
Degrees of freedom	N/A	1.00
Chi-Square significance	>0.05	0.63
Chi-Square/degree of freedom (Wheaton et al. 1977)	≤5.00	0.23
Root mean square residual (Hu and Bentler, 1995)	≤0.10	0.006
Goodness of fit index (Joreskog and Sorbom, 1978)	≥0.90	0.99
Adjusted goodness of fit index (Joreskog and Sorbom, 1978)	≥0.80	0.98
Delta 1 (NFI) (Bentler and Bonnet, 1980)	≥0.90	0.99
Rho 1 (Bollen, 1986)	≥0.90	0.98
Delta 2 (Bollen, 1989)	≥0.90	1.00
Rho 2 (Tucker and Lewis, 1973)	≥0.90	1.00
Comparative fit index (Bentler, 1990)	≥0.90	1.00

Authors names in the parentheses are those who suggest the adopted cutoff values. N/A indicates that no standard cutoff exists for these statistics.

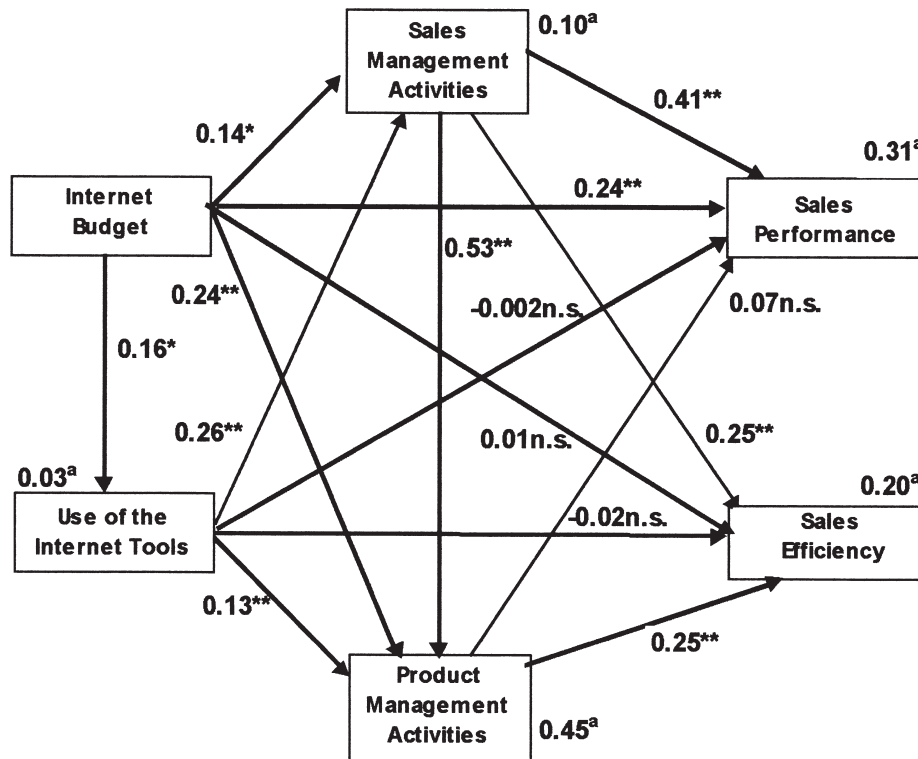
\*  $P < 0.10$ .

\*\*  $P < 0.05$ .

equalizer that levels the playing ground between large and small firms, mainly because of the relatively limited capital investments that are required for setting up and maintaining a company's presence to the Internet [29].

With respect to the marketing activities, it was found that both variables of the use intensity, namely the *Internet budget* and the *use of the Internet tools*, have significant and positive effects upon *product* and *sales management activities*, supporting the hypotheses H2, H3, H4, and H5. The above significant relationships provide em-

pirical support to the theoretical views that state that the Internet is a facilitator of market-oriented strategies, enabling interactive sales activities and customized product offerings, in the context of business-to-business marketing [12, 26, 28, 30]. Additionally, *sales management activities* were found to have positive and significant impact upon *product management activities*, thus supporting H10. This finding relents the base to support that sales and marketing actors play a central role in the successful implementation of the modern marketing con-



**\*\* Standardised Estimates significant at  $p < 0.05$ .**

**\* Standardised Estimates significant at  $p < 0.1$ .**

**a: Squared Multiple Correlations.**

**Goodness of Fit Summary:**

$\chi^2 = 0.231$ ,  $df = 1$ ,  $p = 0.63$ ,  $RMR = 0.006$ ,  $GFI = 0.99$ ,  $AGFI = 0.98$ ,  $NFI = 0.99$ ,  $CFI = 1$ ,  $RMSEA = 0.000$ .

FIGURE 2. Casual model of the use intensity of the Internet on marketing activities and performance. \*, standardized estimates significant at  $P < 0.1$ ; \*\*, standardized estimates significant at  $P < 0.05$ ; a, squared multiple correlations. Goodness of fit summary:  $\chi^2 = 0.231$ ;  $df = 1$ ;  $P = 0.63$ ;  $RMR = 0.006$ ;  $GFI = 0.99$ ;  $AGFI = 0.98$ ;  $NFI = 0.99$ ;  $CFI = 1$ ;  $RMSEA = 0.000$ .

cepts that are enabled by the increased interactivity and information intensity of this new era.

Regarding *sales performance*, it was found that this is not directly affected by the *use of the Internet tools*. Thus, the results do not provide support for H6. However, this neutral and insignificant direct effect is offset by the indirect positive effect of the *use of the Internet tools* on *sales performance*. This result may be interpreted by the fact that it is not the use of the Internet per se, but rather the efforts of the sales force that lead to enhanced *sales performance*. The *Internet tools* indirectly affect *sales performance* through their use in *sales management activities*. Indeed, the results indicate that *sales management activities* involving the use of the *Internet tools* have a positive impact on *sales performance*, thus supporting H11.

Unlike the *use of the Internet tools*, the *Internet budget* has a significant and positive direct impact on *sales performance*, providing support for H7. Since marketing spending decisions are a primary top management concern, the *Internet budget* reflects the top management's will to implement the use of the Internet within an organization. This finding is consistent with numerous IT studies that suggest that top management support is a decisive factor for the successful implementation of any IT innovation (i.e., the Internet) leading to superior performance [65]. Besides, this is always the case for the successful adoption of new organizational processes (i.e., the use of the Internet in marketing activities).

*Product management activities* have shown only a negligible and insignificant impact on *sales performance*, and, thus, H13 was not supported. It appears that although the Internet facilitates market-oriented product activities, it is not the customized product offerings, but rather other factors, that is, sales push strategies, that lead to enhanced performance in business-to-business organizations.

Finally, it was found that *sales efficiency* is not directly affected by either *the use of the Internet tools* or the *In-*

*ternet budget*, and, consequently, we cannot accept hypotheses H8 and H9. However, these insignificant direct effects are offset by the positive indirect effects of the *use of the Internet tools* and the *Internet budget* on *sales efficiency*, due to the positive impact of *sales* and *product management activities* on *sales efficiency*, which support H12 and H14. This finding indicates that the mere use of the Internet does not automatically lead to the competitive advantage of efficiency. Rather, it implies that the use of the Internet enables the implementation of interactive sales management activities and customized product offerings without the need to sacrifice efficiency, as it was always the case in the past.

## Conclusions and Implications

This research attempted to place empirical evidence upon the theoretical views that suggest that the Internet enhances business performance, in terms of sales performance and efficiency, affecting both the "top line" (total sales) and the "bottom line" (net profit margin) in business-to-business organizations [8, 29, 38].

The results are of double nature. First, there are conclusions and implications that are related to the nature of the research procedure followed. The deviation in the response rates between the first, anonymously addressed wave, and the second, personally addressed wave, was quite large. Apparently, cover letters should be personally addressed to achieve the required response rates that guarantee effectiveness for e-mail surveys. This result also seems to answer the dilemma of whether the Internet will result in the relative anonymity of users, hindering personal selling and encouraging negative word-of-mouth activity, or in closer personal contacts, reinforcing addressability [8, 28]. Profoundly, the relatively large deviation in the response rates, between personalized and anonymous e-mailed research instrument, strongly sup-

**TABLE 5**  
Standardized Direct, Indirect, and Total Effects of the Use Intensity of the Internet

Dependent Variables	Use of the Internet Tools			Internet Budget		
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
Sales management activities	0.26	0.02	0.28	0.14	-0.04	0.10
Product management activities	0.13	0.16	0.29	0.24	-0.04	0.20
Sales performance	-0.002	0.13	0.13	0.24	-0.06	0.18
Sales efficiency	-0.024	0.13	0.11	0.01	0.07	0.08

Total effect = Direct effect + Indirect effect.

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ports the second scenario, according to which, the new information intensive on-line media, that is, the Internet, will lead interpersonal and interorganizational relationships to closeness and evolution more than ever before.

Second, there are results related to the core hypotheses of the research. Overall, the findings of this study support the basic hypotheses and have a number of managerial implications.

More specifically, the findings show that the Internet facilitates product management activities that lead to product customization and innovations' acceleration. Despite the fact that, traditionally, industrial companies have the tendency to adopt product strategies that are technology driven rather than market driven [66], our findings support that the Internet assists companies in putting marketing orientation into practice. Additionally, the findings show that these market-driven product management activities are highly affected by the sales force's use of the Internet. The benefits of interactivity in sales management activities are highly reflected upon customized product strategies. Indeed, the pertinent theory sustains that the use of Internet allows sales departments to have an interactive communication with their customers that results in market-oriented product strategies, and this was supported by our findings.

In the same spirit, it was found that the Internet highly affects sales management activities. For example, the Internet facilitates the management tasks of market segmentation and customer classification, (i.e., through effective database management and interorganizational information exchanges). Additionally, interactive communication via e-mail may facilitate routine customer service, especially in the case of small or sparse accounts. Thus, salespeople may have more time available to spend in core productive activities, where their physical presence is irreplaceable, that is, in new task situations. As a result, sales management activities were found to have a positive impact on sales performance, in terms of sales, sales leads, and customer relationships.

Notably, it was found that the use of the Internet affects sales performance not directly, but indirectly, through sales management activities. Since performance is not directly affected by the use of the Internet, organizations do not appear to accept that any specific performance gains should be attributed to the Internet per se. Thus, they do not seem to acknowledge that the Internet, viewed as a direct sales channel, provides some noticeable performance gains. In business-to-business organizations, the mere presence on the Internet (i.e., the Web)

has no effect on profitability, for the time being. The ramification is that direct Web sales strategies, preempting sophisticated WWW sites that might integrate the whole of marketing activities and automatically carry off sales transactions without the need of any human intervention, might be neither profitable, nor cost efficient, at least in the short run. Rather, it is the use of the Internet by sales departments and the sales force that leverage sales performance (indirect effects). Thus, business-to-business marketing strategies should emphasize the use of the Internet tools that promote personal and interactive communication with the customers, such as the e-mail, the FTP, the USENET, and the e-mail capabilities of the WWW, to enrich sales management activities and leverage their performance.

Similarly, the results have shown that sales efficiency is not directly affected by the mere Internet use. This means that the competitive advantage of sales efficiency is not automatically obtained with the adoption of new information technologies, that is, the Internet. Nevertheless, it was found that both product and sales management activities indirectly affect sales efficiency. At this point note that organizations have always acknowledged the benefits of product customization and interactivity in customer management. However, it was the high cost of implementation that was entailed by such product and sales strategies, that made them unattainable, especially for large, mass production organizations. In fact, there seems to be a trade-off between customization and/or interactivity and efficiency. For example, personal selling is considered as the most interactive, and for this reason, the most effective, sales method, but at the same time, it is the most expensive one. The same applies to the trade-off between product customization and efficiency. With the advent of the new computer technologies, that is, the Internet, the implementation of such customer-oriented strategies is highly feasible, without necessarily sacrificing efficiency, as it has been shown by the results of this study.

In addition, the findings stress the central role of sales departments and the sales force in the successful implementation of the Internet marketing strategies for industrial organizations, and have some important implications for the sales force management. In view of the increasing information intensity of our era, the new generation of salespeople should be highly qualified and trained to be able to take full advantage of the Internet capabilities. This raises the demand for reshaping the recruitment, deployment, motivation, training, evaluation, and compen-



sation standards and policies of the sales force management. It also implies the need for transformation of the sales manager's job, per se, which seems to be evolving more toward that of a channel manager overseeing a hybrid sales force, operating in diverse electronic and field channels and managing ongoing customer relationships, as put forward by Anderson [39].

Moreover, our findings stress the ever-growing sales and marketing managers' responsibility to implement marketing orientation into their organizations and to translate it into improved sales performance. Indeed, in this new state of things that is emerging with the diffusion of the Internet, sales and marketing managers have an opportunity to reposition themselves, to play the critical coordinating role of managing the flow of information within their organizations. Thus, they may be able to enhance their standing and improve internal communication, by helping other departmental managers to introduce and integrate new information management tools, as it has been pointed out by Bondra and Davis [27]. We are proposing that they should go a little further, to use their compiled experience and skills, to teach other departmental managers how to exploit the market knowledge gained through the use of the new information and communication tools, such as the Internet. Otherwise, they will have failed as "integrators" for once more [67] living the field free to some other departments that would like to undertake this role or, even worse, preventing their organizations to take full advantage of the enhanced communication capabilities of the Internet.

Apparently, the compatibility of the Internet with business-to-business marketing is self-evident, and top management support, expressed in terms of resources allocation, was proved to make sense for its effective adoption by marketing departments. Top executives should embrace the Internet into their strategic marketing plans, since, organizations that lag behind, will soon face rigorous challenges from those who make a commitment to this new communication tool, as it has been shown in this study.

## Limitations

The results and implications that are drawn from this study are subject to limitations associated mainly with the measurement of the constructs.

A cautionary note regarding the measurement of the *use intensity of the Internet* should be in order, in addition to the *use of the Internet tools* and the *Internet budget*. A more accurate reflection of this construct might

have been to track the actual average daily commercial use of the Internet, as it may be expressed by hours of daily on-line connection, number of employees that are using the Internet, average number of e-mails with professional content received per day, etc.

Furthermore, the relatively limited set of items used to operationalize *product* and *sales management activities* should also be mentioned. Current marketing literature on marketing-oriented product management and sales management allows the inclusion of a larger number of items [68, 69]. However, the validity of our results is not reduced by the limited number of the included items, since these items have been extensively discussed in the current IT and the Internet literature, as product and sales variables that are likely to be influenced by the use of this new information technology.

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## APPENDIX 1

Construct	Measures Used to Capture Constructs
Use of the Internet tools	Items related to use of the Internet tools share the common introduction, "Please indicate the extent to which the following Internet communication tools are used in your organization." <ol style="list-style-type: none"> <li>1. USENET (Newsgroups and Forums)</li> <li>2. World Wide Web (WWW)</li> <li>3. E-mail</li> <li>4. File Transfer Protocol (FTP)</li> </ol>
Internet budget	Percentage of marketing budget accounted for the Internet (single item measure)
Sales management activities	Items related to sales management activities share the common introduction, "Please indicate the extent to which your salesmen are using the Internet for the following activities."* <ol style="list-style-type: none"> <li>1. Market segmentation and customer classification</li> <li>2. Audiovisual presentations</li> <li>3. Managing customer databases</li> <li>4. Sending electronic catalogues to the customers</li> </ol>
Product management activities	Items related to product management activities share the common introduction, "Please indicate the extent to which the use of the Internet in your organization has resulted in the following."* <ol style="list-style-type: none"> <li>1. Faster discovery of customer needs</li> <li>2. Greater customisation of the products to the customer needs</li> <li>3. Faster new product testing</li> <li>4. Shorter product life cycles</li> </ol>
Sales Performance	Items related to sales performance share the common introduction, "Please indicate the extent to which the use of the Internet in your organization has improved the following."* <ol style="list-style-type: none"> <li>1. Total sales</li> <li>2. New orders</li> <li>3. Sales leads</li> <li>4. Customer service and relationships</li> </ol>
Sales efficiency	Items related to sales efficiency share the common introduction, "Please indicate the extent to which the use of the Internet in your organization has resulted in the following." <ol style="list-style-type: none"> <li>1. Decrease in the number of salespeople</li> <li>2. Reduction of the salespeople travel time</li> <li>3. Reduction of the sales and customer service costs</li> <li>4. Time reduction of routine service jobs</li> </ol>

\*Each item was scored on a five-point scale, with end-points: 5, to a large extent; 1, to no or limited extent.