Chapter I

Understanding Senior Executives' Use of Information Technology and the Internet

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The Internet and information technology (IT) have received considerable attention from senior executives, yet they still have not committed themselves fully to these technologies. Consequently, they are not reaping the full benefits. Recent studies investigated the factors that influence senior executives' use of IT and the Internet. Surprisingly, only a few factors had a significant influence on usage, directly or indirectly. A better understanding of these factors can facilitate the design of interventions that address the adoption and acceptance of a new IT tool, an information system or the Internet. This chapter proposes a limited number of interventions aimed at improving usage. The Internet will change the way information is being gathered, evaluated, and communicated. This also applies for senior executives and their main constituencies. Now is the time for senior executives to hone their Internet skills so that they can receive the right information in the right way, leading to enhanced decision-making.

INTRODUCTION

Senior executives are constantly being told that information technology is the key to the success of the business, yet the so-called IT productivity paradox leads managers to believe that investments in IT are reaching unprecedented levels with no commensurate increase in productivity. However, to measure whether investments in any technology deliver value, we must assume the technology is being adopted and used. Furthermore, few organizations derive full value from their IT investments, either because people have not learned how to use technology well enough or because managers have not yet learned how to manage its benefits (Orlikowski, 2000). One reason for the poor return on IT investments in the perception of the senior executive could be their lack of personal involvement and low level of use of IT and its applications. A number of senior executives still have not committed themselves to IT and consequently have not been able to experience the benefits at first hand. As a result their attitudes and behavior remain unchanged.

One might argue that senior executives need not to be involved with IT use in an organization, but rather with its deployment. Others consistently advocate that the use of the technology rather than technology itself should be evaluated, and innovative use of IT should be rewarded (Orlikowski, 2000). It could be argued that senior executives do not warrant special attention when investigating the acceptance and use of IT, especially because they form only a small percentage of the total user population. However, recent studies showed these individuals should be treated differently (Ghorab, 1997; Igbaria & Iivari, 1995; Seeley and Targett, 1999). Most notably their willingness to adopt and use IT, their role model, the confidentiality and integrity of their information, and their external orientation differentiate their work and, hence, the IT tools for their tasks.

The few research projects targeting senior executives reported that the main obstacle to executives using IT was the lack of IT literacy. Other arguments mentioned were that executives felt intimidated by the computer– that it would require too much time for them to learn and that they would be embarrassed about taking courses to attain IT literacy. Many senior executives argue that the real reason they do not use IT is that they do not see a connection between what IT does and their tasks as executives. The same reasoning might be valid for using the Internet for their daily work, although compelling evidence is not yet available. Most senior executives, now in their late 40s or 50s, had scant if any contact with IT during their college years. At the same time, during their careers they have attained positions with no involvement or experience of IT.

Recent developments in managerial IT tools (e.g., balanced scorecards, management cockpits, Internet-based business intelligence systems) put senior executives more in the driver's seat with respect to business information and the business environment. Peers and subordinates both inside and outside the company are doing so too because information gathering, processing and dissemination turning more readily to IT with tools based on Internet technologies. To communicate and to inform and be informed are key activities of senior executives, for which these new Web-based tools are very much suited. Moreover, compared to most existing management information systems which are considered closed, the Internet is an open system using commonly accepted standards to connect individuals and organizations worldwide to one another. The rapid penetration of the Internet both in companies and in home life gives promising ground for organizations to develop new business and products. However, to make effective use of the Internet, senior executives must accept it, learn how to interact directly with aspects of the hardware and software, and adapt the Internet and corresponding tools to their task requirements.

From the above we can see that the perceptions and attitudes of senior executives influence their behavior regarding the use of information technology, including the Internet. Senior executives might have not used this new technology because it has not provided the information they need for their own tasks, as is the case until now with many IT tools specifically aimed at the senior executive level. Therefore, it is important to understand the factors affecting both IT and Internet acceptance and use by senior executives. If usage is to improve, first and foremost the factors actually influencing the acceptance of IT in general and the Internet in particular must be identified. Next, it would enable responsible management to design organizational interventions that would increase user acceptance and usage of new and existing systems, including the Internet. As a result, senior executives will have access to better information leading in turn to more effective decision-making in their jobs. Moreover, individual and organizational performance would improve, leading to a more competitive position in today's global economy.

This chapter will answer the following practical question:

What are the major factors influencing senior executives' use of IT and in particular the Internet?

Building upon existing research (Pijpers, 2001) and the few studies to date that address the behavioral and attitudinal factors influencing Internet usage (e.g., Anandarajan et al., 2000; Chuan-Chuan Lin & Lu, 2000; Chueng et al., 2000; Lederer et al., 2000; Moon & Kim, 2001; Teo et al., 1998; Teo

et al., 1999) this chapter will, in addition to the above question, investigate from a theoretical and practical point of view:

- whether senior executives are a very diverse group and whether they are significantly different from other Internet users;
- which factors influence use;
- which organizational and individual interventions would enable the key determinants of Internet usage to be manipulated.

The level of analysis is at the individual level, i.e., the senior executive. While the term senior executive is not unambiguously described in literature, for this chapter a senior executive is defined as "an executive who is concerned with the strategic direction of their organization's business" (Seeley & Targett, 1997) and:

- is in a position to influence significantly the strategic decision-making processes;
- has substantial control and authority over how resources are deployed;
- is in a position to influence the strategic direction of the business;
- may have other senior managers reporting to him or her.

This is in line with Fisher's (1995) definition of a senior executive: those people who are only three hierarchical steps removed from the post of chief executive officer on the organizational chart.

Finally, it should be born in mind that all study findings described here assume that the IT tool or the Internet is being used by the subjects under review. Yet the possible interventions given at the end of the chapter will most likely also apply to reluctant or anxious senior executives, who have not yet experienced the huge amount of information on literally any subject readily available on the Internet.

The remainder of this chapter is organized as follows. The next section begins with the term senior executive, followed by a discussion of the managerial IT tools used to date. The next section introduces the factors influencing use, as they were found in previous studies. The organizational and individual interventions aimed at improving usage are described in the next section. The peers of the senior executive are also reviewed before the future of IT and the Internet for senior executives is discussed. Also, a discussion of the potential avenues of future research is given. Finally, the chapter ends with some thoughts about the use of information, information technology, and the Internet.

SENIOR EXECUTIVES

The primary task of senior executives is to manage and control their business. As Mintzberg (1994) indicates,

"In almost every serious study of managerial work the formal information–in other words, information capable of being processed in a computer–does not play a dominant role. Oral information–much of it too early or too 'soft' to formalize, such as gossip and hearsay–and even nonverbal information forms a critical part of every serious managerial job."

Davenport (1994) argues as one of his "information facts of life" that "managers prefer to get information from people rather than computers; people add value to raw information by interpreting it and adding context". A recent study of Kotter (1999) confirmed that general managers spend most of their time with others in short, disjointed conversations, skillfully asking a lot of questions.

There is a continuing trend in organizations away from hierarchical, command-and-control structures toward networks of empowered, autonomous teams working around the globe. People are working from their home, cars, and offices, leading to the emergence of virtual offices and a highly mobile workforce. Thus, managers are faced with the dilemma of managing people who work outside the local sphere of control, while at the same time managing productivity improvements. Physical resources and processes are no longer managed directly by managers but indirectly with information representing these processes, activities, and resources. And the larger the business unit that a manager oversees, the more dependent he becomes on information to manage. Finally, human communication and collaborative activities require that employees and managers operate remotely using state-of-the-art information technology. A decade ago, PCs were sufficient for the manager's task, as they were usually confined within the organization.

This closed system changed with the introduction of an executive information system (EIS), because these systems are able to provide information on the organization's environment. The EIS, a dedicated system supporting tasks, was introduced to senior executives at the beginning of the '80s. An EIS is a computer-based information system designed to provide senior executives and, in many cases, middle- and lower-level managers access to information relevant to their management activities (Leidner et al., 1999). It

might be argued that other IT tools or managerial tools with an IT component will increasingly win favor among senior management. A stand-alone EIS is rare nowadays but it forms part of integrated application software aimed at business and information functions in the organization. Furthermore, the proliferation of the Internet intensifies IT acceptance and usage issues for organizations and end users by creating an interactive, open system with direct contact between organizations and their constituencies.

SENIOR EXECUTIVES AND INFORMATION TECHNOLOGY TOOLS

The value of information technology for senior executives often depends on the perspective taken by academics and practitioners alike. On the one hand, many researchers argue that senior executives will become active users of IT and the ubiquitous Internet (e.g., Applegate et al., 1996), whereas others posit, that due to the nature of the executives' tasks use of IT will remain limited (e.g., Mintzberg, 1994). Senior executives have little time to play around with new technologies because time is probably their most precious resource. There appears to be a reluctance by senior executives to use the Internet. The ingenuity of some senior executives in not using any information technology demonstrates their mastery in dealing with problems. However, even when a senior executive is not required to use a given technology for his information needs, it is intuitively interesting to observe his or her perceptions on the technology in question. Furthermore, in the near future every senior executive will use IT tools without the luxury of dedicated staff to answer all his questions. These managerial IT tools will then be used in a more mandatory way because it will be the only source of information and method of communication for the senior executive. Moreover, developments in technologies like the Internet and PC office packages appear to imply that certain information can only be unlocked using this technology. It is highly likely that the Internet will play a major role in both the technologies used as well as the philosophy of sharing information within the organization and between the organization and its stakeholders.

As various researchers found, senior executives constitute a separate category in IT acceptance and use (Boone, 1993; Holtham & Murphy, 1994; Kanter, 1995; Nord & Nord, 1995; O'Brien & Wilde, 1996; Pijpers, 2001; Seeley & Targett, 1997, 1999). The question arises as to whether the findings of these studies generally apply to the World Wide Web and Internet, because the studies were not aimed at this technology. To my knowledge, no previous

study to date has exclusively targeted the combination of senior executives and their usage of the Internet. Although compelling evidence other than obtained from the studies mentioned and studies aimed at the use of the Internet in general is not available, it is assumed that the attitude and behavior of senior executives regarding the Internet is similar to any other IT tool. This does not mean that there are no differences in the way senior executives use the Internet compared to other users, or that their systems based on Internet technologies are not different compared to end-user systems, on the contrary.

Regarding using information technology and the Internet, senior executives differ in a number of ways with respect to other people in an organization. First, they are appointed for their vision, style, and personality and hence are unlikely to be highly influenced by peers or subordinates. Any mandate imposed on them about using IT for their job is doomed to fail. Second, once they use an information system or IT tool, it is likely that the influence of peers and superiors will diminish to nonsignificance over time with increasing experience. Finally, it is also highly likely that senior executives are not required by superiors or subordinates to use IT and are obliged to decide themselves how they will use IT. The effect of social environment on senior executive perceptions and use of IT is therefore very low. As a result, there need to be other incentives for the senior executive to start using IT and the Internet to its full extent.

The majority of studies of senior executives focus on their use of systems dedicated for their tasks, mainly to provide them support for their decision roles. These roles are, however, only a subset of all the tasks and responsibilities a senior executive has to perform. These responsibilities can be divided in two groups, each supported by different methods and procedures. First, most senior executives have staff that helps them in day-to-day operations. Apart from secretarial employees, specialists in finance, legislation, or other areas are available. All these employees normally have dedicated systems to support their work, e.g., financial systems or customer database systems. Second, some senior executive tasks are well supported by generic tools, such as word processing packages, e-mail systems, and spreadsheet software. Most organizations set one standard for the whole company so as to make communication and exchange of information as easy as possible.

These generic systems do not warrant special attention for senior executives, although implementation and actual use of these systems is much harder to accomplish for this user population. The often-referred notion that executives attempt to hide their basic computer illiteracy by claiming they do not have the skills to learn all new IT applications no longer rings true in the light of the adequacy of the readily available, easy-to-use tools and the supporting

organization nowadays. Nor does the dedicated staff of the senior executive require special attention, because part of their work is adopting and using information systems and applications to do their job. These users typically have a very low learning curve with respect to new technologies, mainly because they are intrinsically rewarded by using new applications to obtain the information they need. The Internet has put them more in control, and sometimes in command, of new developments within their departments.

Many new IT tools for the senior executive, many of which are successors to EIS software, are rapidly being developed. Most of the new software uses a Web interface as well as an interface design closely resembling the way executives work (e.g., cockpit-like arrangements of instrument panels and displays with information on the senior executive's PC screens). Internally, however, these systems still have the four key aspects of the "old" executive information system functionality, identified by among others Bajwa et al. (1998): (1) communication, (2) coordination, (3) control, and (4) planning. New systems such as business intelligence systems, data warehousing, and so on, build upon the EIS concept. The main difference with the older managerial IT systems is that new software often targets middle and lower management levels of an organization. With the decentralization and empowering trend in most organizations this scarcely comes as a surprise.

As mentioned, a number of studies investigating the acceptance factors for Internet usage are available. They do not specifically target senior executives, which is unsurprising given the fact that they were not among the first to embrace Internet. Moreover, senior executives often view the Internet as a source of entertainment rather that directly related to work (Teo et al., 1999), although this view is changing rapidly as e-business initiatives multiply. However, in the area of executive information systems, robust findings regarding senior executives' use are available to be applied and translated to the Internet environment. The next section describes these findings that are then put in perspective with regard to Internet use by the senior executive and his peers.

FACTORS INFLUENCING SENIOR EXECUTIVES' USE

Recent research (Pijpers, 2001) indicates that we are gaining an understanding of the key factors and relationships likely to influence IT use by senior executives. Pijpers used a well-established model of IT usage behavior, the technology acceptance model (TAM; Davis, 1989; Davis et al., 1989).

However, most TAM-based research to date has primarily focused on the core model instead of the key external factors directly and indirectly affecting the intermediate and dependent variables. These external variables represent the levers through which desired actions may be exercised. Building upon TAM, a theoretical research model was developed to investigate a large number of external factors that are possible antecedents of managerial beliefs, attitude, and use of IT.

A cross-sectional field survey was conducted to investigate the theoretical research model. Structural equation modeling (Hair et al., 1998) was used to analyze questionnaire data from 87 senior executives drawn from 21 different multinational, European-based companies. The results showed significant support for external factors, mostly of an individual nature, in the categories demographics, managerial and IT knowledge, personality of the manager, company characteristics, and characteristics of the IT resource. The study of Pijpers (2001) has corroborated the core TAM model as a foundation for understanding managerial usage behavior with IT, although beliefs and attitude do not fully mediate the influence of the external factors. This study further presents empirical evidence to suggest a limited number of antecedents, under managerial control influencing beliefs, attitude, and use. A better understanding of the various factors that may impede or increase effective utilization of IT can facilitate the design of organizational or managerial interventions that address these issues. The next sections will elaborate in detail on these findings. Where applicable, the impact of the key factors and relationships related to Internet usage by senior executives will be highlighted.

Although one might expect a number of organizational and environmental factors, such as IT maturity, task characteristics, or competitor behavior, to influence use of IT and the Internet, Pijpers' study demonstrated that they have no significance for this particular user group. Compared to studies investigating factors that significantly impact the use of the Web or the Internet, factors such as information quality, response time, and cognitive absorption (Agarwal & Karahanna, 2000; Chuan-Chuan Lin & Lu, 2000) are not relevant with respect to senior executives' acceptance. The main reason is the lack of compelling evidence in literature to date. As was found in Pijpers' study (2001), three categories of factors and relationships can be identified influencing beliefs about IT and the Internet.

The first category consists of the factors accessibility and implementation process, which are in fact prerequisites for effective use of an IT tool. Accessibility is understood to mean access to a PC with an the Internet connection, and indicates in this respect that user beliefs about Internet are

influenced. The implementation process refers to the strategy used to effectively incorporate the information system in the activities of the senior executive. The presence of a senior executive as sponsor also acts as a tremendous boost and encourages the use of an IT tool, whether it is a dedicated system, a generic application, or tools like the Internet. It may be concluded that senior executives' involvement in the implementation of IT is necessary but not sufficient by itself to secure full use of all the capabilities of the IT tool. To rephrase it regarding the Internet, if tools are created to provide information to senior executives using Web-based technologies, these executives should be involved in both development as well as final implementation phase. Otherwise, if they are imposed it is highly unlikely that these systems will be optimally used.

In conclusion, senior executives (1) need to have physical access to the Internet or to any system that they are supposed to use and (2) should be actively involved in the development and implementation phases of dedicated Web-based systems.

The second category consists of four uncontrollable factors--age, education, professional experience, and cognitive style. Uncontrollable means that they cannot be easily manipulated; age or professional managerial experience are good examples. Cognitive style is innate and therefore hard to influence, whereas education is completed long before the senior executive has achieved his present position.

Age is an interesting factor because it has a strong negative effect on technology beliefs. This means that younger executives perceive an IT tool to be more useful and easier to use in their work environments than older counterparts. In light of the fact that the average senior executive received no IT training at school, bringing senior management up to scratch on IT use is a prerequisite to breaking the circle of computer anxiety. Learning IT skills is not just something younger executives do; it is simply that older managers generally have limited or no opportunity to gain from their investment in learning new technologies and skills. However, executives often have a long enough career in front of them before retirement to be able to reap the benefits of their new skills. The above suggests that older senior executives have less positive technology beliefs and need more time to familiarize themselves with its information potential.

The educational level of senior executives is directly and positively linked to technology beliefs and use, suggesting that level of education is a good indicator of a manager's ability to learn new information technologies. One might conclude that better educated persons develop positive opinions about IT and its use and have a greater ability to learn in a novel situation. The

length of tenure in a managerial position, i.e., professional experience, is positively related to technology beliefs but negatively to IT use. This suggests that experienced managers see the benefits of IT and, hence, the Internet, although they clearly do not make use of those benefits.

Cognitive style can be noted as the characteristic processes individuals exhibit in the acquisition, analysis, evaluation, and interpretation of data used in decision-making (Igbaria and Parasuraman, 1989). Findings show that senior executives who are more analytical, rational, and sequential have a more positive attitude towards technology than other executives do. However, some studies suggest that an analytical/directive style may be incompatible with the demands of many top executives (Elam & Leidner, 1995). As regards the Internet that has a long technical history, analytically adept senior executives are likely to have favorable attitudes toward the Internet.

In conclusion, older senior executives need more time to gain knowledge concerning IT and the Internet. Better-educated senior executives are more suited to deal with new technologies such as the Internet. Senior executives with greater managerial experience also think positively about technology, including the Internet, but do not act accordingly. Analytically oriented executives hold favorable attitudes toward technology, resulting in extended use.

Finally, the third category of factors influencing IT use consists of three controllable factors: computer self-efficacy, perceived fun/enjoyment, and organizational support. Controllable factors means that one can influence or even manipulate factors as part of a goal or objective to improve knowledge, change perceptions or increase use.

Computer self-efficacy is defined as the individual's perception of his or her ability to use computers in the accomplishment of a task. It is not concerned with what an individual has accomplished in the past, but rather with judgments of what could be achieved in the future. Nor is it concerned with simple skills, but with judgments of the ability to apply those skills to broader tasks (Compeau & Higgins, 1995). Because successful and increased use and, as a result, improved performance are often the objectives of all IT tools, one should concentrate on users who are confident of their ability to use computers, information technology, or Internet. Computer self-efficacy is the determined to have a positive relationship with technology beliefs.

Perceived fun/enjoyment refers to the extent to which the activity of using the computer is perceived to be enjoyable in its own right. When senior executives have great fun using a system, they like both the ease of use and the utility of the system. Perceived fun/enjoyment positively influences beliefs and attitude about the technology as well as actual usage. Therefore, this factor plays a pivotal role in the adoption and use of any information

technology, whether it is an IT tool, information system, or the Internet. A number of studies have found that perceived fun or equivalent factors such as perceived playfulness, perceived enjoyment, or playfulness influence Internet usage (Atkinson and Kydd, 1997; Moon and Kim, 2001; Teo et al., 1999) and are important in predicting and explaining Internet usage. All the studies, however, did not distinguish between user populations, while some investigated only students.

Organizational support consists of both technical support and management support. Technical support is defined as the availability of development, assistance, and specialized instruction, guidance, coaching, and consultation in using microcomputer applications, whereas management support means management encouragement and sufficient allocation of resources. In the context of technology acceptance and usage in the workplace, evidence indicates that providing support staff is a key organizational response to help senior executives overcome barriers and hurdles to technology use. Recent research on the antecedents of Internet usage confirmed the importance of supporting mechanisms (Anandarajan et al., 2000; Cheung et al., 2000). Organizational support is able to ensure sufficient resource allocations and act as change agents to create a more conducive environment for information system success. Organizational support directly affects actual use. Several researchers (e.g., Kanter, 1995) have consistently advocated that most people need proper support: a qualified adviser–a mentor, friend, spouse, or peer. One could argue that support is only helpful during initial usage of the technology and its importance declines with continued use. However, as practice shows, new releases of software packages or new ways of using existing software tools make it necessary to have help at first hand to ensure the best use of IT.

In conclusion, the role of the three controllable factors is important because they are the only ways to manipulate effective use of an IT tool. Three controllable factors--two individual ones, computer self-efficacy and perceived fun/enjoyment, and one organizational factor, organizational support--have an indirect or direct effect on technology use. Controllable means one can intervene with appropriate measures to steer use in the desired direction. The next section elaborates on the practical application that gives guidance when organizations want to influence or improve senior executives' use of IT, including the Internet.

ORGANIZATIONAL AND INDIVIDUAL INTERVENTIONS

The Internet is increasingly permeating all aspects of organizational life and individual executives from a wide variety of backgrounds, with different

experiences and personalities, need to use these technologies for organizational work. This leads to a number of implications: (1) responsible management can provide appropriate training and other situational experiences or they can specifically target individuals for IT implementation through recruitment, development, and selection, and (2) management can proactively influence beliefs, attitude, and use through appropriate actions on the external factors that directly or indirectly impact IT use. In both cases interventions can substantially influence use of information technologies. This in turn will lead to better information, improved decision-making, greater worker productivity, or other benefits. Although a great deal more can be said about the relationship between more and longer use compared to effective use, the following sections assume that IT tools, including the Internet, that are better utilized will result in efficiency and effectiveness gains.

As was found and explained in the previous sections, three controllable factors can be manipulated. However, they differ in the way they affect the use of IT and the Internet. First, organizational support is under the full control of the company in that as a rule more support yields more and better use. This means that qualified IT personnel are available to the end user so that problems can be resolved by providing relatively easy access to expertise. Furthermore, top management proactively encourages IT use and allocates sufficient resources for the support function.

Second, perceived fun/enjoyment is an interesting construct as it theoretically represents an intrinsic motivator for system use or, as Webster and Martocchio (1992) contend, a motivational characteristic of individuals (the trait of perceived fun/enjoyment). These traits can be situation-specific or general thus the individual may perceive that it is fun to work with a specific IT tool, e.g., the Internet or the World Wide Web, or may enjoy interacting with computers. As a result, it is important to understand that senior executives have different individual attitudes towards perceived fun/enjoyment, yet it is assumed that overall attitudes to IT are more relevant than any liking for a specific computer system. As demonstrated by Davis et al. (1992), if potential users perceive IT usage as intrinsically increasing their utilities (e.g., if such usage provides them enjoyment or social status among their peers), they will be motivated to use it appropriately.

Third, computer self-efficacy has been treated as a unidimensional construct in literature, although recently Marakas et al. (1998) argued that insufficient attention has been paid to the multileveled, multifaceted nature of the computer self-efficacy construct. An important finding in their study highlights the difference between general and task-specific levels of computer self-efficacy. Task-specific computer self-efficacy refers to an

individual's perception of efficacy in performing specific computer-related tasks within the domain of general computing, whereas general computer self-efficacy refers to an individual's judgment of efficacy across multiple computer application domains (Marakas et al., 1998). When it comes to the Internet, an individual's perception or ability to use it refers to their general computer self-efficacy. It is important to understand that executives do not acquire computer self-efficacy overnight, but need to develop IT skills and perception continuously.

In sum, of the three factors influencing use, organizational support is the easiest to effect, whereas computer self-efficacy requires continuous attention by top management before uneasy and ambivalent opinions about IT change for the better. A few potential interventions will be described in the next section. These merely serve as a starting point, yet at the same time highlight the importance of the interventions.

Organizational support has a direct effect on usage and is the easiest to effect. Moreover, support employees can indeed help increase computer self-efficacy among senior executives by explaining and demonstrating the fun element of IT tools. Support staff should focus on encouraging anxious individuals to use IT. The reverse training mechanism, whereby young knowledge workers in effect train senior, usually older, colleagues is a good example of an organizational support intervention. This solution helps executives overcome barriers and hurdles to IT use. Some organizations employ a reverse mentoring approach, similar to the qualified adviser mentioned earlier with one-to-one sessions. It should be intensely personal and the advisers should be preferably company insiders. Rogers (1995) argues that managers learn best from peers, who act as change agents. These interventions can also deal with the limited time most senior executives have available and, at the same time, the speed and capacity with which they familiarize themselves with new ideas or situations. Of course, the reverse training and the reverse mentoring approaches must fit the corporate culture and organizational structure (Coutu, 2000).

Apart from providing staff, special attention could be given to the fun factor of IT and the Internet. For this intervention, the Internet and its huge amount of fun information is a good starting point. By combining this with business information, e.g., daily or weekly e-mail newsletters with interesting links, the role of IT in the specific area of the senior executive could be given the right focus. Another intervention method is to give various managerial levels access to the latest real-time business information through the company's intranet via an easy to use Web-based interface.

Recent developments in business intelligence can provide senior executives with information and IT tools to satisfy their information needs for decision-making.

A final intervention is aimed at the perception level of senior executives who are increasingly concerned about understanding the value of information and information technology. To change their mind-sets they need to improve their self-confidence and IT literacy before they positively embrace IT. Venkatesh and Davis (1996) have already noted that millions of dollars have been wasted on systems that are rejected, often attributed to usability issues, while a key part of the problem could well be the users, who do not possess a good, positive computer self-efficacy belief. It should be kept in mind that computer self-efficacy is not about basic IT tasks, but refers to the ability to apply IT skills to broader tasks (Compeau & Higgins, 1995). To reinforce computer self-efficacy, Torkzadeh et al. (1999) emphasized the importance of continuous improvement programs so that executives do not fall so far behind they cannot catch up. Measures to improve senior executives' self-efficacy would be instrumental in this respect, e.g., top management could urge every senior executive to use available information systems, promulgating they support its use with enough resources in time, money, and personnel. Marakas et al. (1998) argue that any manipulation or intervention aimed at changing computer self-efficacy should be directed at changes within the person rather than between persons, as a number of other factors also influence the degree of change in computer self-efficacy, e.g., level effects, variability, and controllability.

To summarize, many senior executives are subject to time and interest constraints when it comes to using IT tools and the Internet. Having to perform a series of keystrokes to receive information they need is often regarded as a task they would prefer to do without. However, once familiar with the practicalities of a particular IT tool, they rarely question whether the task involved is being done effectively. A periodical review of how management uses IT for their information needs would appear to be a useful way of gauging whether executives are conversant and comfortable with IT.

PEERS OF THE SENIOR EXECUTIVE

The question arises as to whether literate senior executives will and do proactively influence their environment. According to the social exchange Theory (SET), Kelley and Thibaut (1978) argue that human behavior is the product of a rational cost-benefit analysis. When confronted with a behavior-related decision, individuals assess the various costs and benefits associated

with different possible courses of action and then choose the most beneficial behavior based on expected costs and individual outcomes. With respect to the Internet, senior executives will act only when they perceive the expected rewards, e.g., increased and better information for their decision-making, are greater than the costs of action, e.g., putting valuable time into learning about the Internet and its practical applications. SET asserts that in a typical social exchange each party decides on a course of action based on expected benefits. As a prerequisite, there should be a willingness to invest in the relationships that underpin the social exchange. This is precisely the main goal of the reverse mentoring approach described earlier. Both individuals, who preferably have no hierarchical relationship, will influence the cost-reward outcome of the other. There will be increased rewards once both individuals recognize they can learn and benefit from one another, either by gaining insight into the executive's working area or the nice things you can do with the information technology and the Internet.

WILL THE FUTURE BE BETTER TOMORROW?

Senior executives need to muster the courage to face the reality that they will not have access to the information they need to complete managerial tasks unless they use IT and the Internet properly. Moreover, senior executives' attitudes toward information and information technology are still seen as the barometer of the company's information culture. Senior executives do not have to be IT-literate or IT-experienced, but IT-oriented and IT-savvy. They have to be conversant and comfortable with IT (Earl & Feeney, 2000). New tools based on Internet technologies are used to access information the senior executive needs to know how to use. His mind-set, behaviors, and practices regarding information technology can lead to increased credibility among his staff (Marchand, 2000). In addition to investing in and deploying IT, the senior executive must also encourage employees to embrace the right behaviors and values for working with information (Marchand et al., 2000). The behavior of senior executives sends strong messages to the rest of the organization and creates the culture of what constitutes acceptable behavior, whether dealing with either IT or other areas. So if they believe in using IT and the Internet, they should practice what they preach. If top executives do not embrace the Internet, how can they expect other people to embrace it?

What is particularly interesting about the way senior executives use IT is that they are indifferent to the fact they are using a computer as long as they receive the information they want. Executives want to accomplish something, do something meaningful. Irrespective of whether it is a car navigation

system, CD player, or microwave oven, the computer inside need not to be seen. The computer disappears into the tool, serving valuable functions but remaining invisible, although it does not hurt for executives to understand IT. And computers ought to be invisible, automatic, and useful–not just in the car, but in the home, at schools and in the office (Norman, 1993, 2000). But the more the computer or IT tool is invisible for the executive, the more he will question the quality of the information received. As a result, executives are beginning to understand what the real added value of IT is: delivering the right information with the right information technology in the right way so he can make better decisions.

Several avenues for future research emerge in this area. First, an avenue worth investigation is social pressure, the influence of peers in the IT acceptance process. Several recent studies showed the importance of the social environment in the Internet environment (Anandarajan et al., 2000; Cheung et al., 2000). Marginson et al. (2000) also confirmed the importance of the executive's social environment. Social pressure, an indicator of the influence of the social environment, is key to understanding a person's decisions, which are influenced by other people's attitude or opinion. New managerial tools, promoted as successors of the "old" executive systems, are likely to be based on collaborative teamworking and, as a consequence, social norms of peers and possibly subordinates are becoming influential for actual use (Karahanna and Limayem, 2000).

Second, another perspective that should be investigated is the individual and organizational interventions aimed at helping the senior executive become sufficiently IT literate for his job. Taking use seriously requires managers to dedicate resources to help users build effective use habits and to have resources available over time to support not just the evolving technology but also people's evolving use (Orlikowski, 2000). Further, experimental research is needed to design interventions to successfully manipulate the key controllable interventions to foster favorable perceptions and eventually create better acceptance and increased usage. Introducing new executive systems or Internet-based tools should receive balanced support in emphasizing ease of use, functionality, and user enjoyability.

Finally, to date most research and empirical studies target the Internet in general. An interesting line of research is to apply acceptance and usage theories to specific Web sites, most likely those aimed at the senior executive level. Also, applications specifically developed for senior executives and using Web-based technologies, at least for the user interface, are a promising ground for research. As a result, additional insights may well be obtained, the possibly leading to more effective use of the Internet for senior executives.

FINAL THOUGHTS

Trends in society and business organizations indicate the emergence of different perspectives on how we deal with information, on the one hand, and the facilitating role of information technology, on the other. In the new economy, senior executives must begin thinking about how people use information, not how they use IT tools or Internet. In other words, the new the open-network economy is much more people-focused and how information is used rather than on IT. Having the right managerial IT tools in place is necessary, but not sufficient for good information and information use. Too many managers still believe that once the right technology is in place, appropriate information use will follow. The ability of an organization to deal with a changing environment depends on the flexibility and dedication of their top managers in leveraging information and IT for improved business performance. As a result, it is not IT investments that are key but how IT is used by every employee from the top to the bottom of a company. Also, if the company is becoming more dependent on sharing and using information and knowledge, senior executives should pay particular attention to the cultural values and behaviors associated with information and IT use in their company. Changing a company's information culture requires altering behavior, attitudes, and incentives that relate to information (Davenport, 1994).

It has long been recognized that information adds value to a business. In today's business world, organizations use information to gain a competitive advantage (Marchand, 2000). Business imperatives, such as growth and continuous innovation, require senior executives to use available IT tools to obtain timely and accurate information. If senior executives use a computer or an information system, they want information to help them make the right decision at that particular moment. Moreover, providing executives with analysis capability to look at new and unusual information should take precedence over providing more accurate, timely, and reliable versions of currently available information. But the paradox emerges that executives will not use such an analysis tool or the Internet in this respect until it becomes an essential part of the management process, but this will not happen unless executives commit adequate time to the process of developing and using the right IT tools.

Executives must use IT and the Internet so that they can serve the needs of the members of their organization: Above all this involves communicating with one another. New technologies such as the Internet can serve this goal. Moreover, the computer is invisible within the Internet. Even the PC, primarily used to date to access the Internet, is being rapidly replaced with

information appliances with dedicated functions. Interestingly enough, the PC was the front end of the executive information system investigated in earlier research. Gershenfeld (1999) and Norman (1999) argue that the PC is perhaps the most frustrating technology ever produced in that it is not task-specific. They advocate that any IT tool should be designed in such a way that it fits the task it is supposed to support. Perhaps this explains why most executives are quick to take to new gadgets such as mobile phones, PDAs, and electronic organizers, all of which have dedicated functions. Gradually, new task-specific tools, using intelligent interfaces alongside the tried and trusted keyboard and mouse, will fully connect the executive to his organizational infrastructure. Finally, it is worth noting that although the Internet may only be one of many communications channels, it undoubtedly has been the driver behind the change in attitudes by many executives to the opportunities IT offers. The Internet is ubiquitous, has no switch to turn it off, is easy to use, is designed to be always active, and is likely to be used by every senior executive in the near future to manage geographically dispersed employees. Any intervention or support either by support staff or personal secretary then becomes superfluous, because there are a range of carrots and sticks to help persuade even reluctant executives to use IT actively. After all, valuable IT tools are still just tools: New technologies or even the Internet alone will not change the attitude and behavior of the senior executive.

CONCLUSION

This chapter contributed to existing research by providing the factors that influence senior executives' use of IT and the Internet. A better understanding of the factors that may impede or increase effective utilization of IT can facilitate the design of programs or interventions addressing issues regarding the introduction of a new IT tool, information system or the Internet. Based on a number of studies addressing the issue of IT usage by senior executives, three factors were identified that can be manipulated using the right interventions. It has been shown that these factors play a significant role in the use of any tool targeted at the individual senior managerial level, whether it is a dedicated application such as the Internet, a software package, or a Web-based system for the senior executive. It is time for senior executives to hone their Internet skills. In the not too distant future, the employees of the company will work any time, any place, anywhere, with any device. The senior executive had better be prepared.

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