

# 2003 Wireless LAN Benefits Study

Conducted by NOP World Technology on Behalf of Cisco Systems

November, 2003

## Executive Summary

While the horizontal deployment of wireless LANs within mid-size and large organizations (100+ employees) has not yet been fully realized, the 2003 Wireless LAN Benefits Study points to significant rates of penetration in sectors such as education, government, manufacturing, and healthcare. There is also greater production roll-out within these key sectors and an expectation of even more widespread deployment in the next two years—an acknowledgement of the value of wireless LANs.

Although the positive benefits of wireless LANs may appear to be logical—even common-sense—the findings of this research indicate that work still needs to be done in educating the market on the benefits of the technology *post-implementation*. In particular, communicated benefits tend to focus on the extent to which wireless LANs make users' life at work easier—without communicating the **financial benefit to the organization** of increased productivity. This quantitative study, conducted for Cisco Systems by independent research firm NOP World Technology, was designed to do just this.

Highlights of the study findings include the following:

- Among the most significant results revealed by end users was that using wireless LANs gives them the opportunity to be connected to the network, on average, over 3.5 more hours per day—up from 1.75 hours in 2001. With the additional connection time provided by the freedom and mobility of wireless LANs, end users reported they are as much as 27 percent more productive than they would otherwise be.
- Wireless LANs are increasing employee productivity by enabling users to do their work when and where it is convenient for them—whether at work, at home, or on the road. The 2003 study points to increasing business implementation of wireless networks in employees' homes, as well as significant hot spot usage while on the move (in airport lounges, coffee shops, and hotels). The ability to conduct business whenever the employee requires it and wherever the employee may be located has contributed to a reported time savings of almost 90 minutes per employee per workday—an increase of almost half an hour per day over 2001.



- Study findings also show that organizations realize greater financial returns as wireless LAN technology is rolled out to more users and departments within organizations. Almost a quarter of employees within mid-size and large organizations access the wireless LAN today, growing from 16% in 2001. This increase in deployment, plus the reported additional time savings, has resulted in the rise in annual dollar value of time saved per employee to almost \$14K today, up from just over \$7K in 2001. With IT respondents predicting that 50% of their employees will have access to the wireless LAN in the next two years, their organizations can expect to realize even greater financial returns in the very near future.
- An added benefit of wireless LAN use revealed by the NOP study is greater accuracy in everyday tasks, with nearly two thirds of end user respondents reporting that their accuracy was improved. The average gain in accuracy by those who reported an improvement was estimated at 41 percent. For respondents from healthcare organizations, 70 percent felt the improvement in accuracy was noticeable—the “anytime, anywhere” aspect of wireless communications helps medical staff ensure patient health and safety by being able to access and record patient information at the point of care.
- This study further validates findings that other studies have shown—that the propensity for increased WLAN deployment is tied to the adoption of portable devices (80% of WLAN users in this study use laptop PCs). And, as these devices increasingly come with an embedded WLAN capability, it will be easier for organizations to deploy this technology. Results from the study indicate that 50% of PDA users access the wireless LAN using embedded 802.11 technology, and 20% of IT respondents say that all of the notebooks they purchased in the past year came with an embedded WLAN capability.

## **1.0 Introduction**

### **1.1 Project Background**

While the ubiquitous implementation of networking products in U.S. organizations, as well as the continued development of the Internet as a business tool, represent robust declarations of the benefits of shared information resources, the role of technology in driving forward core business lines has been lost over the course of the last couple of years, in a difficult economy.

This has led to organizations having an increasingly difficult time identifying the benefits of implementing many technology products and services. In addition, and given uncertainty in global markets, there is a sense of trepidation with regard to the adoption of many new technologies, however innovative they may appear to be. While technology was once viewed as “a must” in order to maintain competitive advantage, there is now a real sense that investment must be justified—and that benefits must be more clear-cut than they have been in the past.

While wireless LANs have been postulated to represent a major area for potential growth, widespread deployment has yet to be realized. There remains a need to quantify the benefits offered by their implementation (including increased flexibility, productivity, and cost savings). This research has been designed to provide the required substantiation, within the parameters of the detailed objectives outlined below.



## 1.2 Objectives

In 2001, Cisco Systems and NOP World Technology conducted a benchmark study, designed to assess the benefits realized—and expected—from the deployment of wireless LANs.

Objectives for the 2001 study included the following:

- To obtain a more thorough understanding of how wireless LANs are being implemented in the U.S. marketplace, corroborating and enhancing previous research conducted by Cisco Systems
- To provide in-depth insight into the perceived benefits of wireless LAN implementation
- To offer input into the challenges experienced by organizations who have deployed wireless LANs
- To provide detailed evidence of cost savings and/or benefit associated with the deployment of wireless LAN technologies

Two years after this original study, Cisco decided to update this piece of work, in order to determine how the market has changed in terms of:

- Level of deployment
- Implementation drivers (and barriers)
- Usage patterns
- Benefits experienced
- Brands installed

Taking the above into account, Cisco Systems and NOP World Technology defined an appropriate quantitative methodology to provide for the most consummate insight into the market possible. This is outlined in Section 1.3.

## 1.3 Methodology

In view of the primary objective being a sound, representative update of changes in the marketplace since 2001, a quantitative, telephone-based survey was decided as being the best approach for identifying the key benefits of wireless LANs in the U.S. market.

As with the previous wave of WLAN research, there was a requirement to speak to both corporate IT managers with responsibility for making strategic networking decisions, as well as end users of the WLAN. Typically, the former consist of IT/MIS Managers/Directors with the key qualification criteria that the individual would have some level of involvement in the purchase decision-making process for wireless LANs. The latter respondent type was to be represented by a wide range of functional areas, with the minimum requirement that they use the wireless LAN at least once a week.

The interviewing distribution consisted of 400+ mid-size and large organizations, sampled on a representative basis from the US population of 100+ employee organizations. From this total number of organizations, 403 IT/MIS staff were interviewed, with an additional 200 end users interviewed within the same organizations.

All sample was sourced from the Harte-Hanks database.



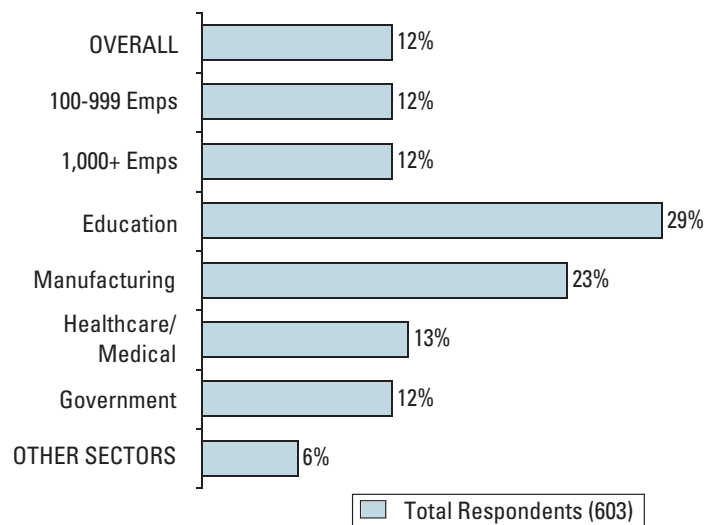
## 2.0 Wireless LAN Users

As a starting point in understanding the continued growth in wireless LAN uptake in the U.S., it is essential that an understanding of exactly who is using the technology is furthered. Intuitively, and according to previous research conducted, this comprises three primary components: the types of organizations and departments implementing wireless LANs, the employee functions most likely to use the technology, and the number of users of notebook or other portable devices.

### 2.1 Firmographic Typology of Organizations Deploying WLANs

**Figure 1**

WLAN Penetration



Base: All Respondents (603)

While the overall penetration of wireless LANs has not significantly accelerated since 2001, a continued trend towards rapid implementation in several vertical markets is seen. In particular, the manufacturing sector is rapidly adopting the technology (23% compared to 10% in 2001). Education continues to have the highest WLAN penetration (at 29%), followed by the healthcare and government sectors, with around 12 to 13% penetration. Beyond these, most other sectors tend to be implementing wireless LANs at a relatively laggard pace (with an average 6% penetration).

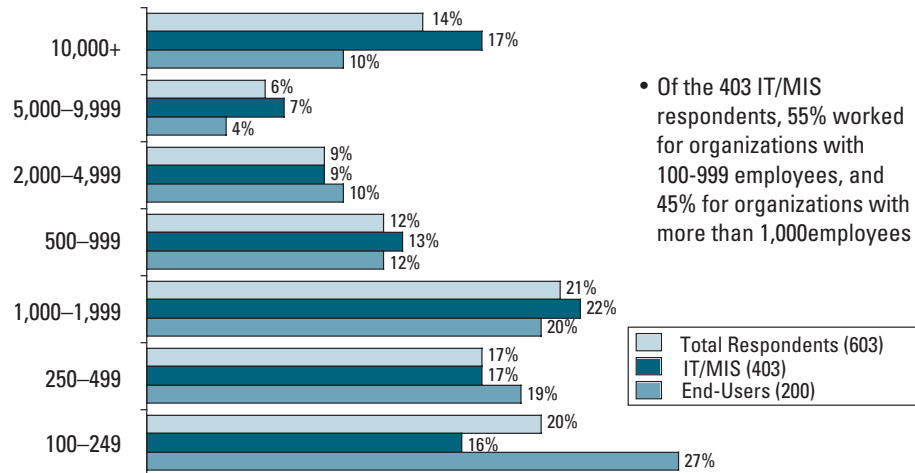
On an overall level, there is not a great deal of difference between mid-size (100-999) and large (1000+) organizations in terms of implementation rates (both around 12%).

Given there are not particularly well-defined differences by company size in terms of penetration, a fairly even spread of 100+ employee organizations was surveyed.



**Figure 2**

Size of Companies Surveyed



Q: Can you tell me approximately how many employees are in your company world-wide?

Base: All Respondents (603)

While a good range of employee sizes qualified for interview based on wireless LAN penetration, a full 14% of organizations had more than 10,000 employees. Indeed, the interviewing distribution is skewed towards large organizations in general—this is to be expected as many large organizations tend to adopt new technologies such as wireless LANs.



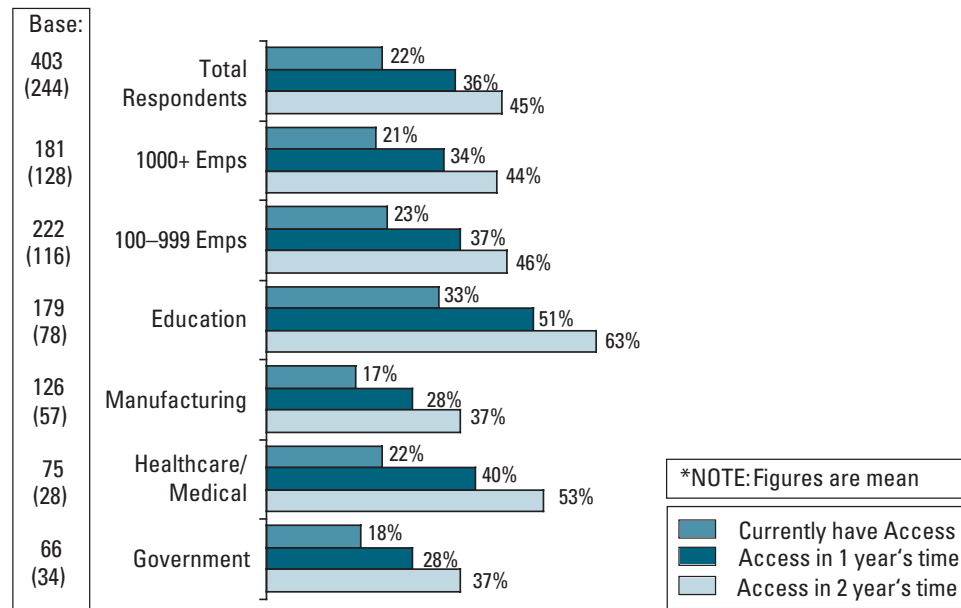
## 2.2 Functional Areas Using Wireless LANs

Within mid-size and large organizations that have implemented wireless LAN technology, IT/MIS respondents estimate that **22% of employees on average have access to the technology, up from 16% in 2001**. The percentage of WLAN users rises to as high as 33% of employees in the education sector, up from 20% in 2001, and to around 20% in manufacturing, healthcare and government spheres.

The percentage of employees with access to wireless LANs is anticipated to continue to rise, with the education sector continuing to take the lead. In a year's time, education organizations in the US anticipate that over 50% of users will have access to the wireless LAN and that almost two-thirds will have access in 2 years time. Strong growth in the number of employees accessing the WLAN is also anticipated in the healthcare sector.

**Figure 3**

Percentage of Employees Accessing WLAN



Q: What proportion of employees at your company currently has access to the wireless LAN?

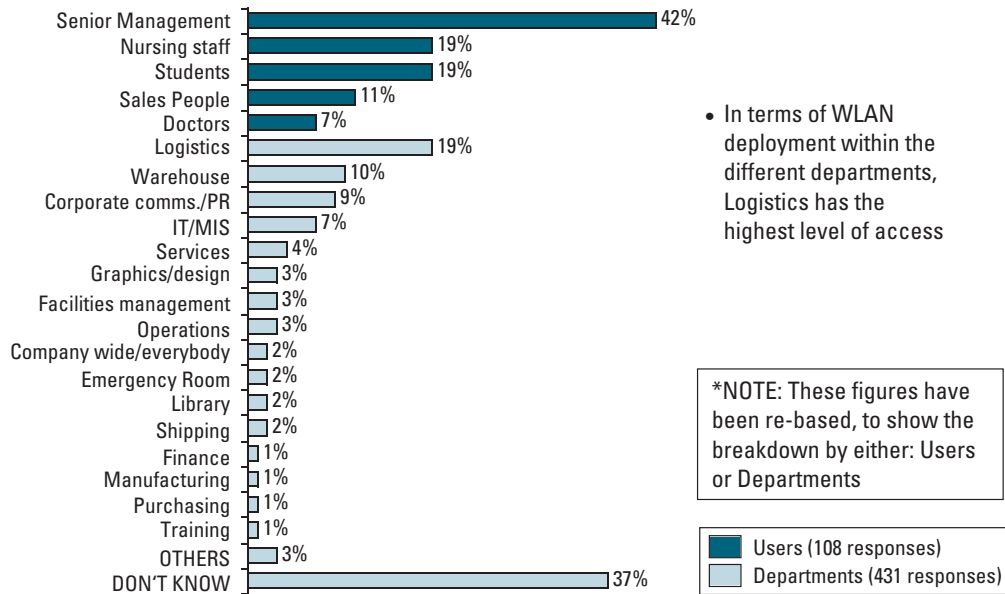
Q: What proportion do you think will have access to the WLAN in a year's time? Two year's time?

Base: All IT/MIS Respondents (2003: 403, 2001: 244)



IT/MIS respondents were asked to indicate what departments or functional areas had access to the wireless LAN. Similar to 2001, the users with most widespread access to wireless LANs include senior management, followed by medical personnel, students, and salespersons.

**Figure 4**  
Users/Departments with WLAN Access



Q: What departments or which users in your company currently have access to the WLAN?  
 Base: All IT/MIS Respondents (403)

This trend is consistent with that being displayed across technology markets—more often senior, board-level staff are getting access to new technologies first, regardless of need or anticipated usage. This points to a need to communicate the benefits of roll-out at all levels, and across a wide variety of departments. These benefits will be outlined in more detail later in this paper.

The departments with highest end user access are logistics and warehousing. Other areas with access are very diverse, ranging from PR, to Services, to Facilities management, and to Operations.

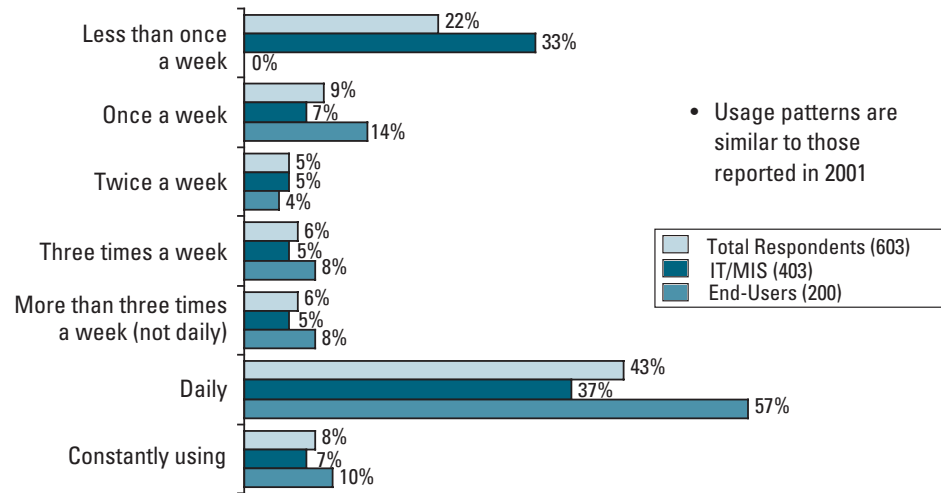


### 3.0 Use of Wireless LANs

Overall, 51% of respondents interviewed are using the WLAN either constantly (8%) or on a daily basis (43%). End users are actually more likely to be using wireless LANs on a constant or daily basis than IT/MIS. This continues a trend exhibited in the 2001 research.

**Figure 5**

Personal WLAN Usage



Q: On average, how many times per week would you say you personally use the wireless LAN?

Base: All Respondents (603)

There are no particular patterns in usage frequency by vertical market or company size; however, the more staff that have access to the WLAN, and the longer access structures have been in place, the more reliant respondents tend to be on the technology.



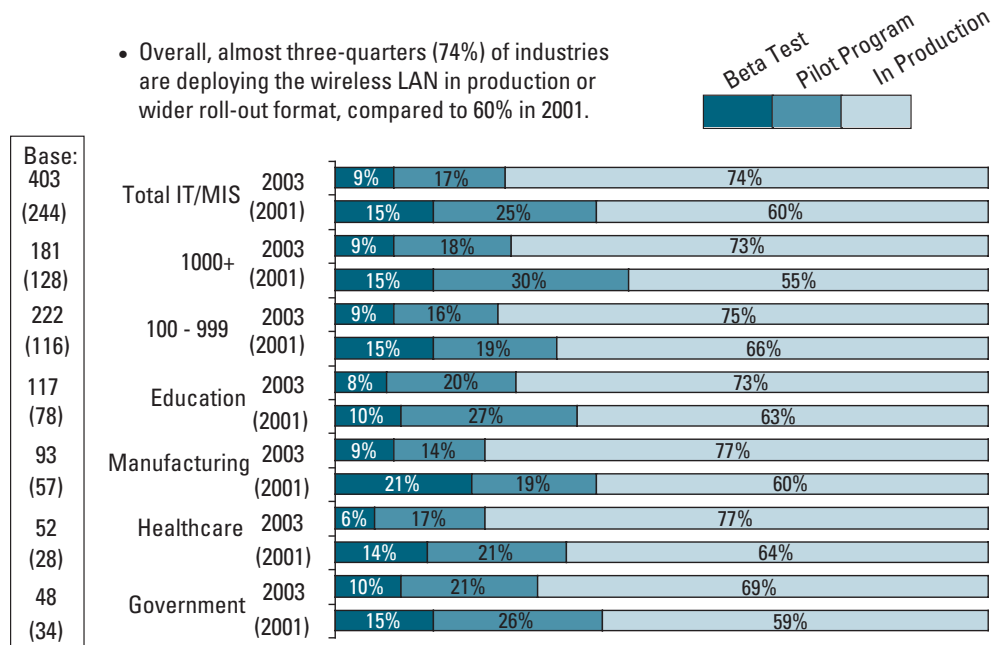
### 3.1 Stages of Development

Overall, almost 75% of organizations interviewed have progressed with wireless LAN implementation to the stage that the technology is in a production setting or being rolled out on a wider basis. This is up from 60% in 2001. A further 17% of companies interviewed are currently piloting wireless LANs within the organization, while only 9% are still at the “beta test” stage, prior to a more comprehensive pilot.

**Figure 6**

Stage of WLAN Deployment

- Overall, almost three-quarters (74%) of industries are deploying the wireless LAN in production or wider roll-out format, compared to 60% in 2001.



Q: How are you deploying wireless LANs in your company?

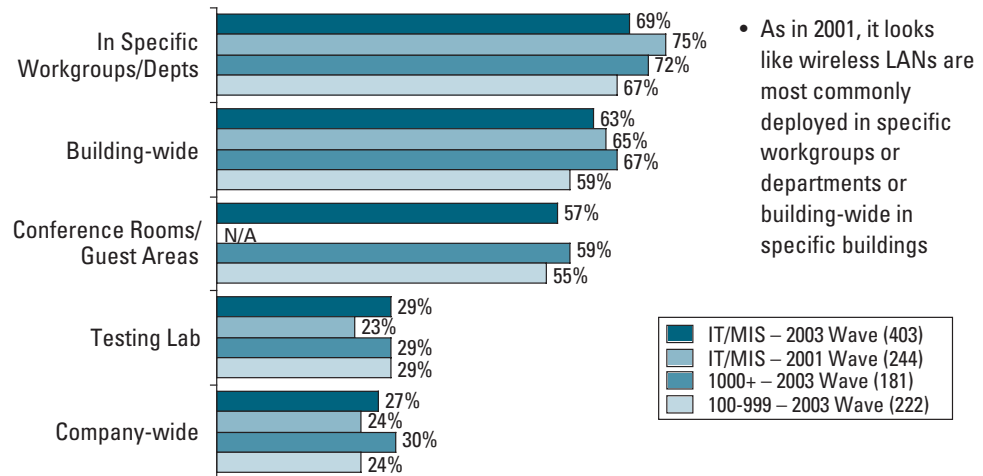
Base: All IT/MIS Respondents (2003: 403, 2001: 244)



Most wireless LANs are located in specific workgroups or departments or within specific buildings. Just a little over a quarter of organizations have rolled out the technology company-wide, similar to 2001.

**Figure 7**

Location of Wireless LAN



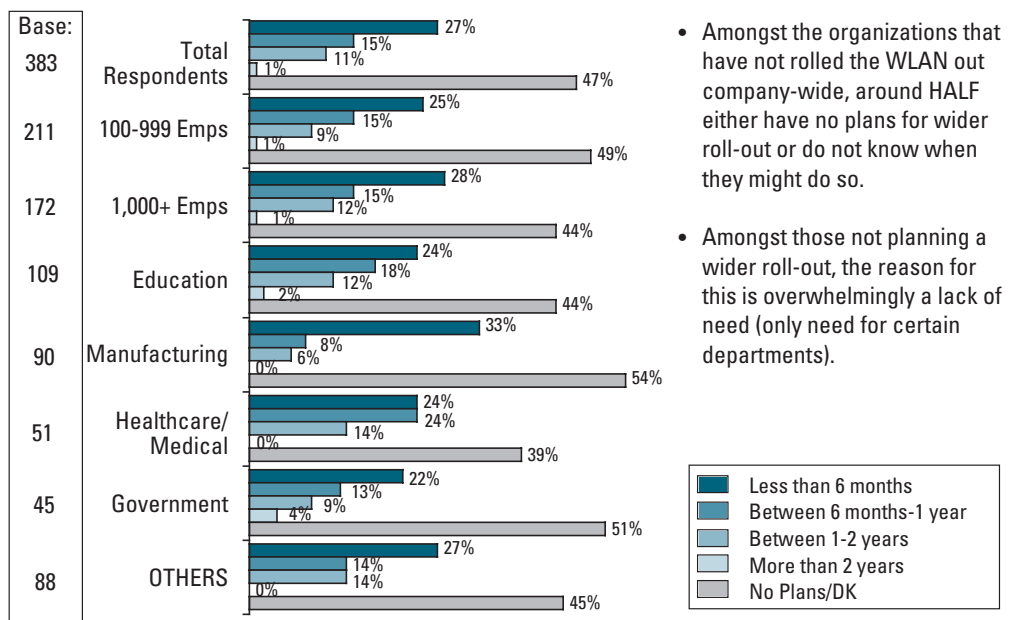
Q: Where are you deploying wireless LANs at your company?

Base: All IT/MIS Respondents (403 – 2003 Wave)/(244 – 2001 Wave)

Amongst those that have not rolled-out wireless LANs on a company-wide basis, about half are unsure or have no plans to deploy it widely due to the belief that only certain groups or users need it.

**Figure 8**

Timescale for Wider Roll-Out



Q: When do you plan to deploy wireless LAN in a production setting or wider roll out?

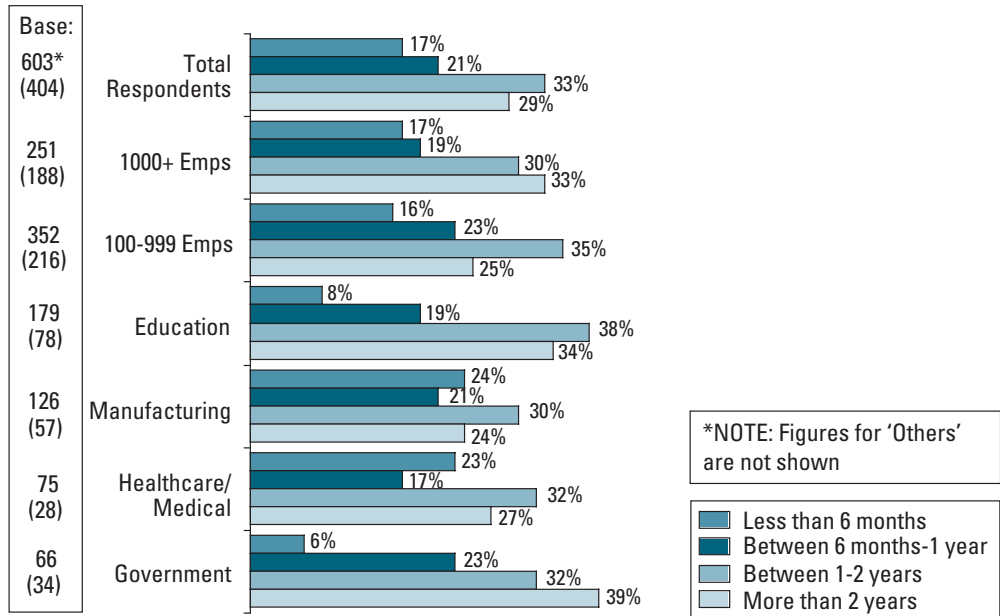
Base: All IT/MIS Respondents with WLANs not FULLY DEPLOYED (383)



Since 2001, length of wireless LAN use has matured significantly, especially in the education and government sectors.

**Figure 9**

Length of WLAN Use



Q: How long [has your company] have you been using a wireless LAN?

Base: All Respondents (2003: 603, 2001: 404) TOP BASE: 2003, BOTTOM: 2001



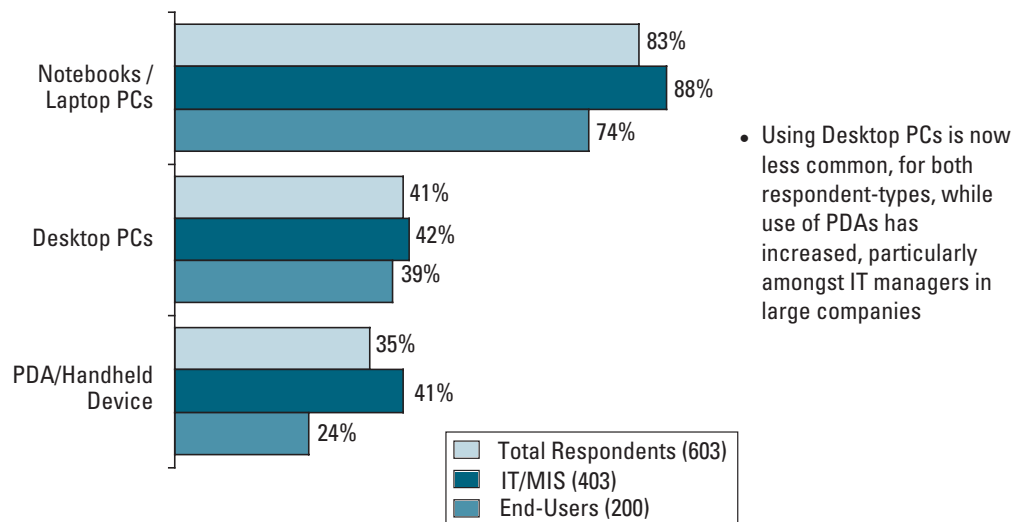
### 3.2 Devices Used to Access Wireless LANs and Areas Where Used

Overall, over 80% of organizations with wireless LANs are using notebook or laptop computers as the primary network access platform. This is on par with 2001 figures, indicating that notebooks/laptops still form the most important means of access.

Notebooks/laptops are followed by desktops (at 41%—down from 47% in 2001) and PDAs or hand-held computers (at 35%—up from 31% in 2001). This growth in PDA usage is being driven by sectors requiring high levels of mobility, e.g. healthcare organizations and logistics/distribution environments in manufacturing organizations.

**Figure 10**

Device Used to Access WLAN



Q: What types of [client] devices do you personally use [are used] to access the wireless LAN [at your company]?

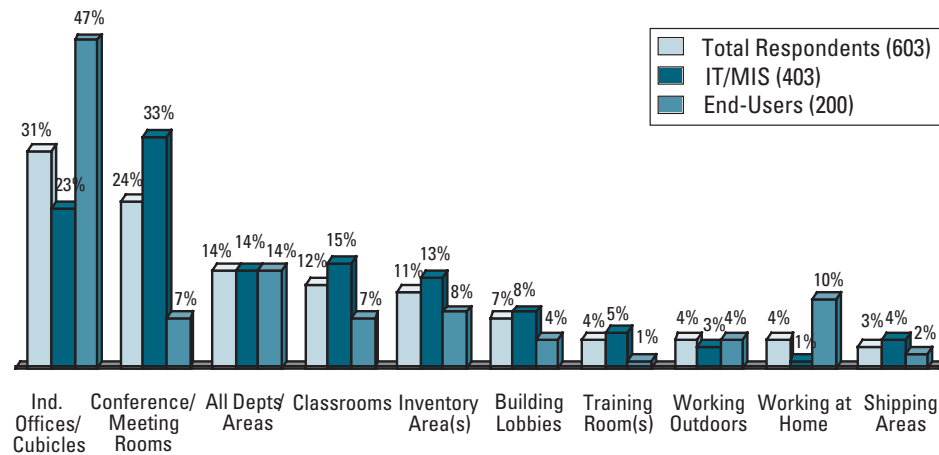
Base: All Respondents (603)

The percentage of laptop/notebook PCs installed in companies today is at about 20%, compared to 80% desktop PCs. One could surmise that as portable PC purchases increase, and as these portable devices increasingly come with an embedded WLAN capability, that more widespread deployment of wireless LANs will occur. Twenty percent of IT/MIS respondents say that all of the laptops they bought last year came with an embedded WLAN capability. They also reported that 50% of their PDA users connect to the wireless LAN using the embedded wireless LAN capability in the PDA.



IT/MIS respondents continue to tend to underestimate the extent to which the wireless LAN is actually accessed from individual offices and cubicles by end users (as they did in 2001), believing that usage is slightly more disparate than it actually is. Almost half of end users indicate that they access the wireless LAN from individual offices or cubicles, compared to the IT estimate of 31%. Ten percent of end users also report using a wireless LAN at home.

**Figure 11**  
Areas Where WLAN is Used



Q: Where do you personally [employees generally] use the wireless LAN?  
Base: All Respondents (603)

Differences by sector tend to only be marked for obvious differentiators; classrooms are obviously of particular relevance for the education sector, and inventory areas/manufacturing floor environments tend to be of more specific focus for manufacturing organizations.

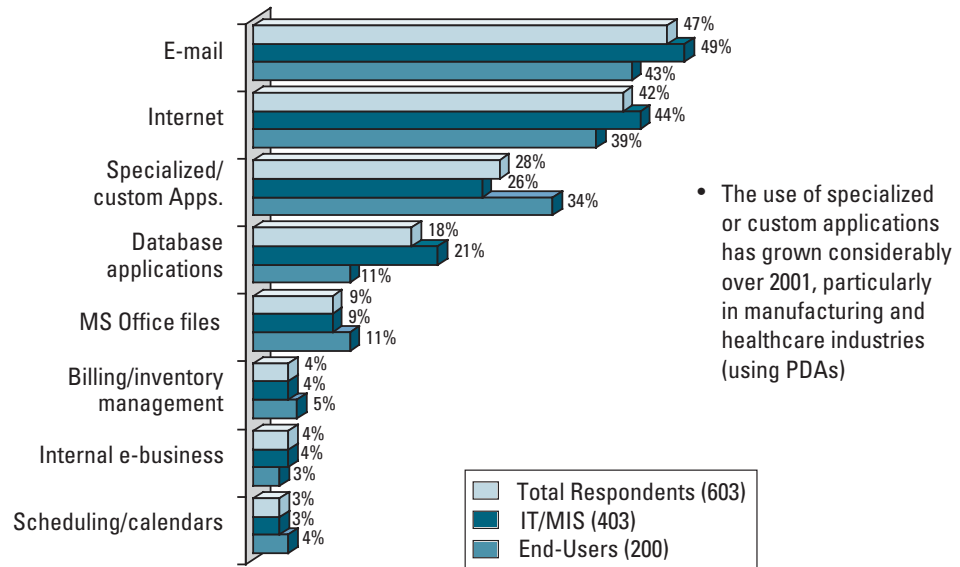


### 3.3 Key Wireless LAN Applications

Both IT/MIS and end user respondents were asked which key applications are used on the wireless LAN. While e-mail and the Internet remain the key applications, custom applications in particular are of increasing significance.

**Figure 12**

Applications Used Over WLAN



Q: Which types of applications are [you] the employees at your company using over the WLAN?

Base: All Respondents (603)

The growth in use of custom applications points to the fact that manufacturing and healthcare organizations are using wireless LANs to meet mobility requirements; for these organizations, there is not a single 'killer application' that is driving usage. Rather, these organizations are using applications that are customized for their industry.

IT/MIS respondents were asked what applications they thought end users might be making the most use of over the wireless LAN; although they tend to slightly underestimate usage of all applications over the wireless LAN, their perceptions of usage closely mirror actual application practice.

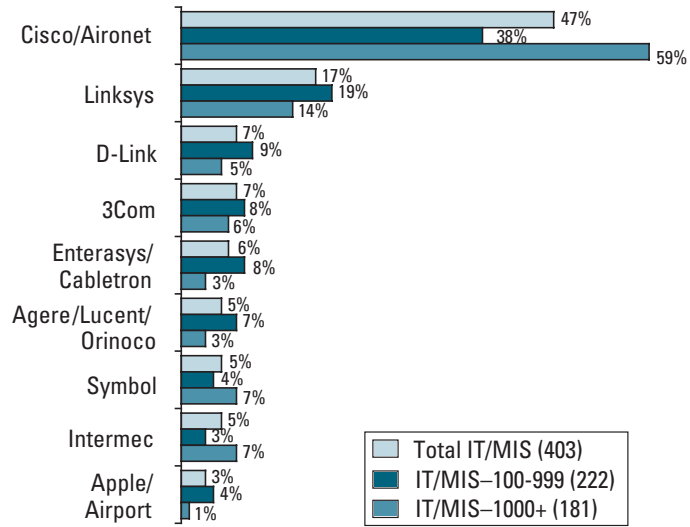


### 3.4 Brand of WLAN Access Point Installed

Almost half of the organizations surveyed report having Cisco wireless LAN access points installed, followed by 17% reporting having Linksys, and 7% having 3Com and D-Link.

**Figure 13**

Brand of WLAN Access Points Used



Q: Which brand(s) of wireless LAN access points do you currently use at your site?

Base: All IT/MIS Respondents (403)



## 4.0 Familiarity/Usage of “Hot Spots” and Outdoor Wireless Bridges

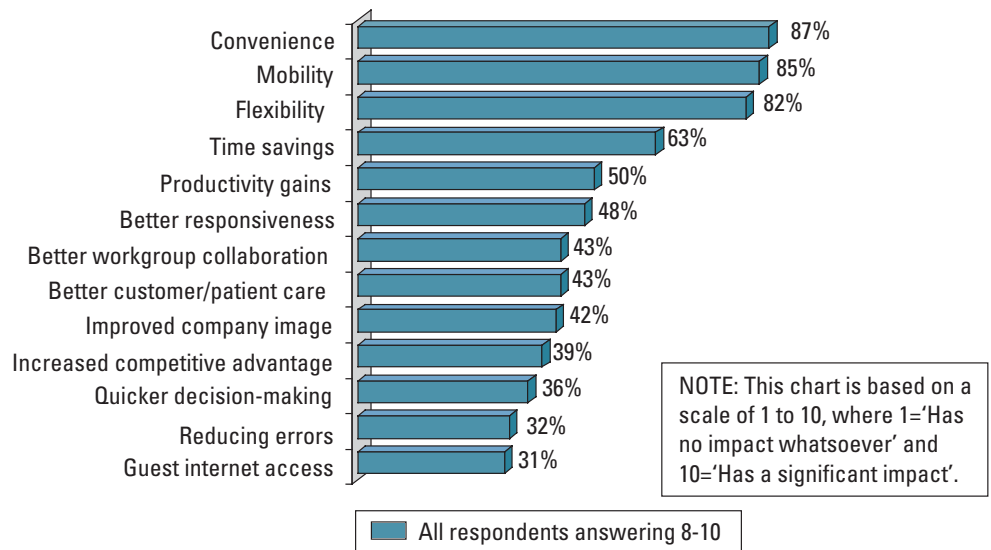
### 4.1 Familiarity/Usage of Hot Spots

77% of respondents are familiar with the concept of “hot spots,” defined as areas outside of the office (or home) that allow users access to the company network or the Internet. This compares to 61% who were aware in 2001. As might be expected, this figure remains higher for IT/MIS respondents—although around 65% of end users are aware of hot spots. This awareness tends to be consistent regardless of any other demographic or firmographic attributes.

Almost a third of respondent organizations have staff utilizing wireless LANs in these “hot spots,” up from 13% in 2001, exhibiting significant growth. This usage figure is fairly consistent across all sizes of company.

**Figure 14**

Hot Spot Familiarity/Usage



Q: To what extent do wireless LANs provide the following benefits?

Base: All End-Users (200)

Among end users aware of hot spots, but not yet using them, 61% are interested in taking advantage of the capability (up from 54% in 2001). Almost two-thirds of IT/MIS respondents think end users would be interested in using hot spots. End users in the manufacturing sector appear to be most interested in the technology (74%), despite lack of regular experience of an “off-campus environment.”

Airport lounges (66%), coffee shops (33%) and various hotel environments are the most frequently used hot spots—the need for access while traveling is therefore driving this usage. Over 75% of respondent organizations provide the technology for their staff to access these hot spots.

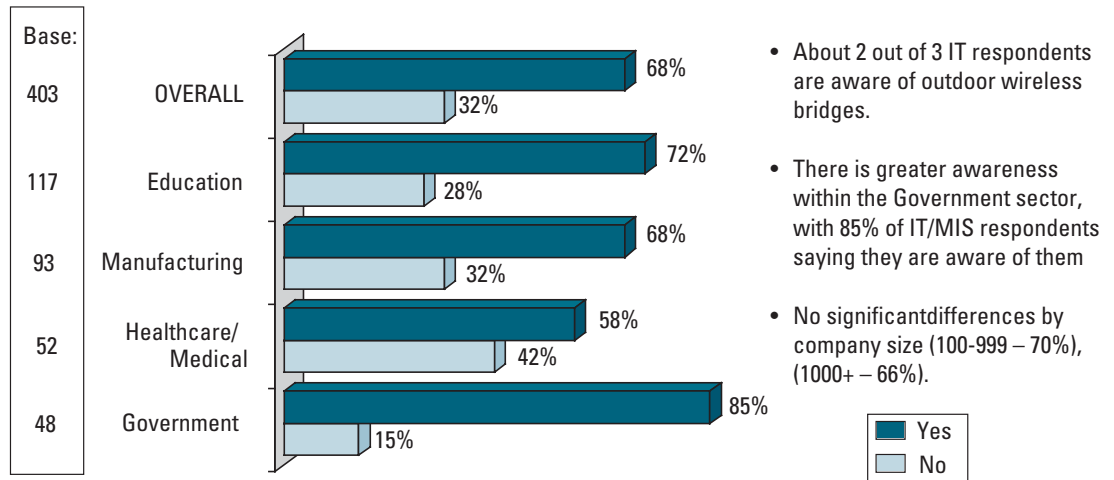
### 4.2 Familiarity/Usage of Outdoor Wireless Bridges

Two-thirds of IT/MIS respondents are aware of the concept of outdoor wireless bridges, with awareness as high as 85% amongst education organizations.



**Figure 15**

Outdoor Wireless Bridge Awareness



Q: Have you heard of outdoor wireless bridges?

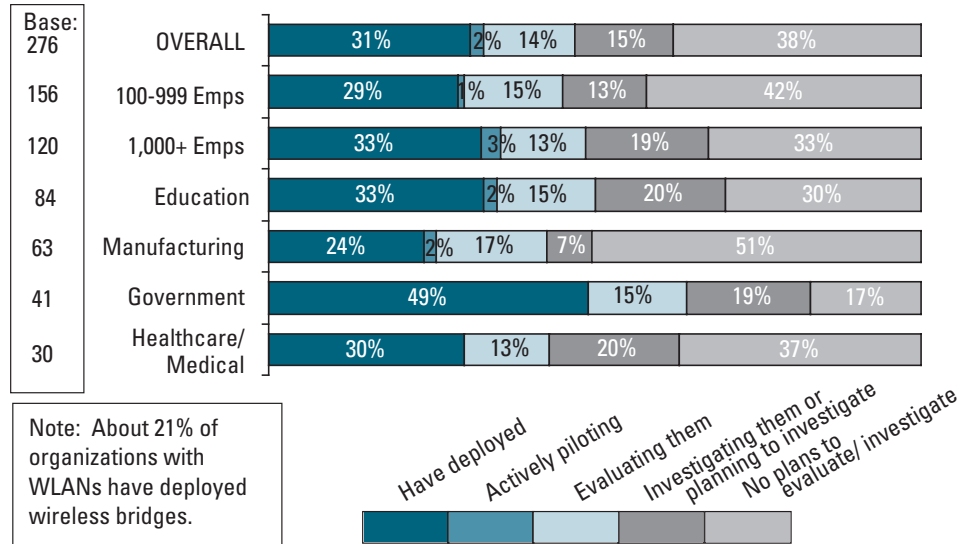
Base: All IT/MIS Respondents (403)

Overall, amongst those aware of outdoor bridges, around a third have already deployed them (31% overall)—and as many as 50% of government organizations have done so.



**Figure 16**

Stage of Outdoor Bridge Deployment



Q: Which one of the following describes where your organization is in regard to deploying wireless bridges?

Base: All IT/MIS Respondents aware of wireless outdoor bridges (276)

### 5.0 Benefits of Wireless LANs

A primary objective of the 2003 Wireless LAN Benefits research revolved around ascertaining the **perceived** benefits of wireless LAN use. Initially, respondents were asked for their “top-of-mind,” un-prompted insight into what they view as the primary benefits of wireless LAN implementation.

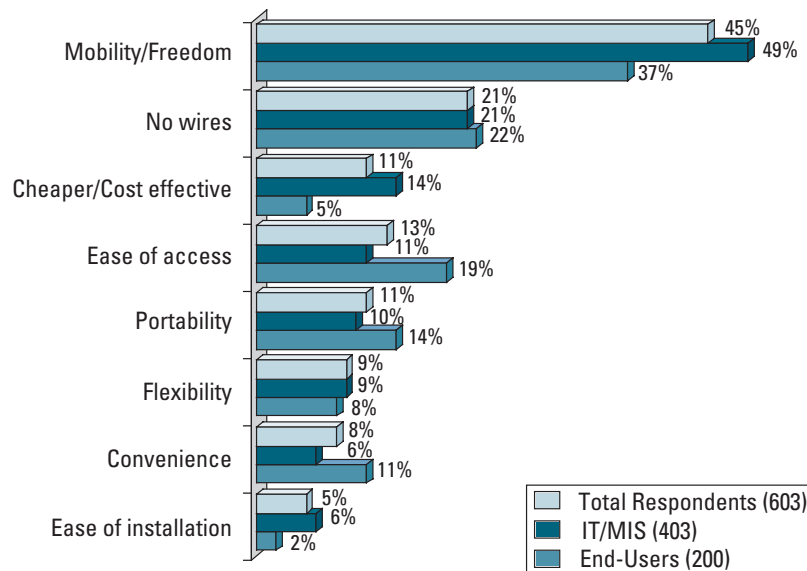


## 5.1 Un-prompted Benefits of Wireless LANs

An initial appraisal of respondent perception points to the fact that aspects of **mobility** and the convenience it provides come to the forefront as the most important benefits of wireless LANs.

**Figure 17**

Main Benefits of WLAN—Unaided



Q: What do you think are the main benefits of wireless LANs? (unaided)

Base: All Respondents (603)

This is consistent with the 2001 findings, with the lack of need for cabling again mentioned as significant by both IT/MIS and end user respondents (possibly for different reasons).

Examples of some un-prompted respondent feedback on the benefits of wireless LANs from the 2003 study are as follows:

*“Being able to connect whenever and not having to be at your work station to connect.”* IT/MIS Respondent

*“In the warehouse, we can do transactions on the forklift rather than on a PC. A lot more mobile.”* IT/MIS Respondent

*“Freedom to move around the classroom—not to be tethered by wired LAN.”* End user Respondent

*“Flexibility of equipment placement and, being in the healthcare industry, the fact that they can go wherever we need them to.”* IT/MIS Respondent

*“Convenience, easy to configure and move from one point to another within a building.”* IT/MIS Respondent

*“Mobility—I can be in a patient room or in another unit and still have access to the computer.”* End user Respondent

*“Increased productivity and accuracy.”* End user Respondent

*“No more documents on paper, we went to wireless because of lack of space, and ease of accessibility.”* End user Respondent.



“I think the main benefits of wireless LAN has been speed and its accuracy.” End user Respondent.

Cost savings (primarily as a result of lower cabling/installation costs) are also key benefits as perceived by IT/MIS respondents:

“I think the main benefit for wireless LAN is the cost factor—believe me, it's cheaper.” IT/MIS Respondent

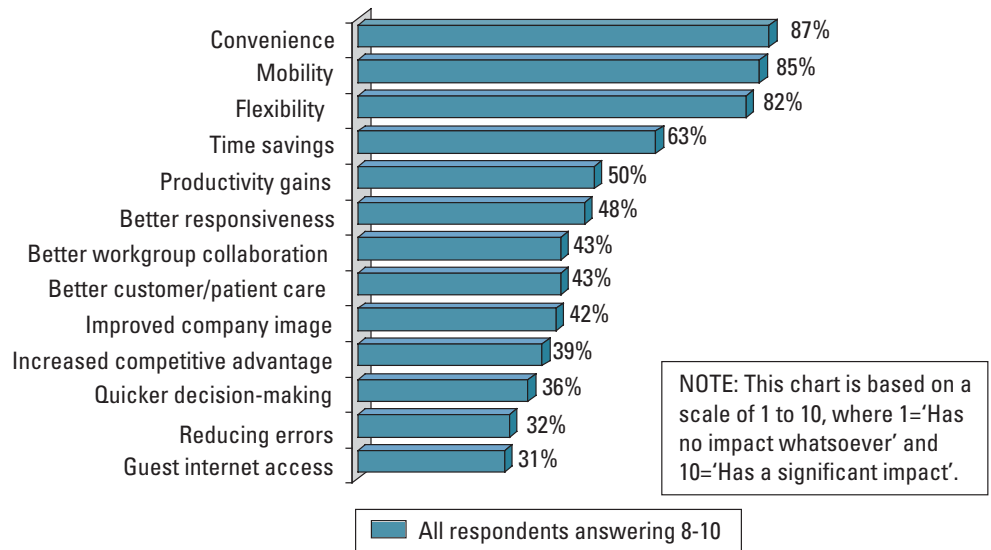
“Gets me out of the costs of cabling.” IT/MIS Respondent

All of these topline, general benefits are viewed as important across all sectors, with few significant differences across vertical markets—or, indeed, company sizes.

### 5.2 End User Perception of Wireless LAN Benefits

Following on from an initial, unprompted appraisal of the perceived benefits of wireless LANs, end user respondents were asked to rate a series of key potential benefits. Issues surrounding **convenience, flexibility and mobility again came to the forefront** as the essential benefits of wireless LAN implementation, with 80% or more of end user respondents rating these as “important” (8-10 on a 10-point rating scale).

**Figure 18**  
Extent of Benefits (End-Users)



Q: To what extent do wireless LANs provide the following benefits?

Base: All End-Users (200)

A large percentage of end users also perceive **time savings** (due to improved efficiency) and productivity gains as integral benefits (63% and 50%, respectively).

Other benefits include:

- Better responsiveness (48%)
- Better workgroup collaboration (43%)



- Better customer / patient care (43%)
- Improved company image (42%)
- Increased competitive advantage (39%)
- Quicker decision-making (36%)
- Reduced errors (32%)
- Guest Internet access (31%)

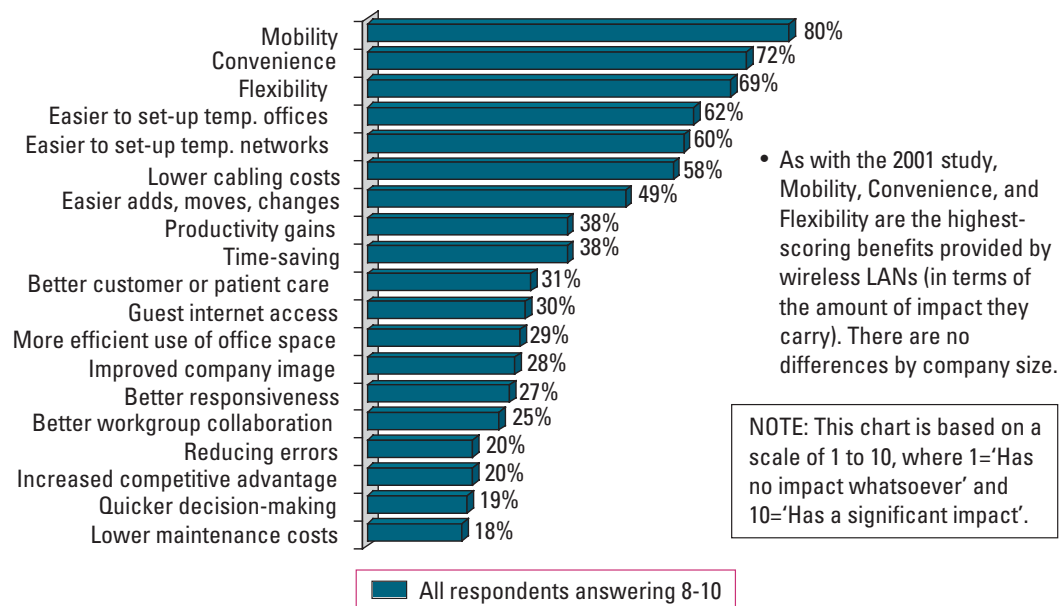
### 5.3 IT/MIS Perception of Wireless LAN Benefits

When prompted as to the potential benefits of wireless LAN implementation, IT/MIS users were as likely as the end users to view issues surrounding mobility, convenience and flexibility as being of paramount importance.

Differences start to arise, however, once the more “obvious” benefits have been established. Rather than viewing time savings and productivity as key benefits (as end users do), IT/MIS respondents are more likely to view key benefits as including easier set-up and lower cabling costs (as one might expect—both respondent types MOST readily noticing benefits that impact their working lives).

**Figure 19**

Extent of Benefits (IT/MIS)



Q: To what extent do wireless LANs provide the following benefits?

Base: All IT/MIS Respondents (403)

Other benefits cited by IT/MIS respondents include:

- Easier adds, moves, changes (49%)
- Productivity gains (38%)
- Time saving (38%)
- Better customer or patient care (31%)



- Guest Internet access (30%)
- More efficient use of office space (29%)
- Improved company image (28%)
- Better responsiveness (27%)
- Better workgroup collaboration (25%)
- Reduced errors (20%)
- Increased competitive advantage (20%)
- Quicker decision-making (19%)
- Lower maintenance costs (18%)

#### **5.4 Benefit Perception of End Users Compared to IT/MIS Staff**

Although both end users and IT/MIS staff agree that convenience, flexibility and mobility are the primary benefits associated with wireless LAN implementation, key differences do exist in their perception of other benefits. As briefly touched on before, **end users tend to focus on the time savings and productivity gains** brought about by the freedom offered by a wireless LAN, while **IT/MIS users focus on logistical aspects of installation, as well as cost savings achieved.**

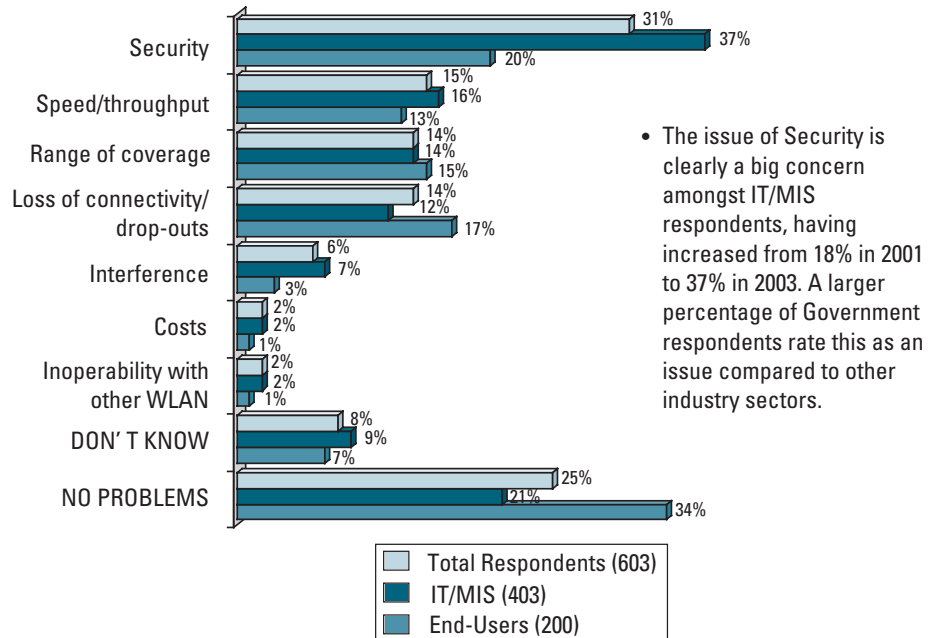
Given the financial benefit of productivity/efficiency gains to the organization (see Section 7.0), **IT/MIS departments need to be more aware of not only how wireless LANs make their jobs easier, but also the extent to which WLAN usage drives financial gain** at an organizational level. This is of increasing significance to business decision makers, given more limited opportunity at savings given cost-cutting measures over the past couple of years—productivity and efficiency is the new cost-cutting. This should represent a significant selling point for IT/MIS departments to convince board-level staff of the attractiveness of the technology.

#### **6.0 Challenges of Wireless LAN Deployment**

When asked about any particular challenges, problems or issues presented by the implementation of wireless LANs, it is worthy to note that **a quarter of all respondents had experienced no issues whatsoever**, with this figure rising to over a third for end users.



**Figure 20**  
Problems/Issues with WLAN



Q: What problems or issues do you have with wireless LANs?  
Base: All Respondents (603)

The primary concern of respondents revolves around security. This represents a change from 2001, when speed and range of coverage issues were paramount. While the security issue is a more significant one for IT/MIS respondents, the increased incidence of concerns in this area points to fears not being allayed as they might be. **However, much of this concern around security is perception—or a result of stringent standards not being implemented (three-quarters of organizations still rely on WEP, rather than more secure protocols).**

## 7.0 Productivity Increases

The 2003 study focused in on the benefits realized through the implementation of wireless LANs. Aspects of these benefits include increased connectivity, time savings, and increased accuracy, all of which contribute to increased productivity.

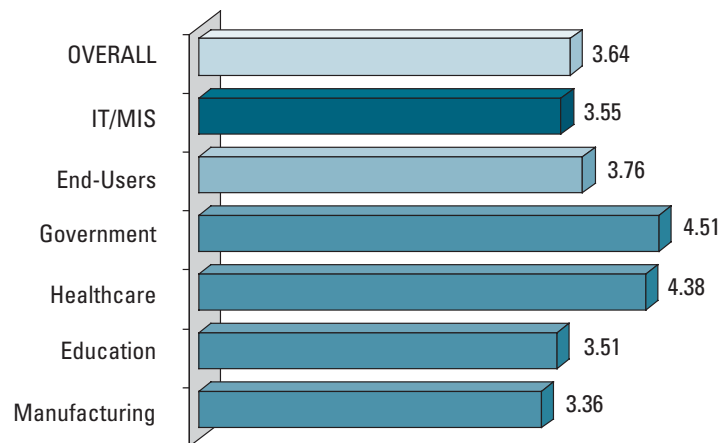


## 7.1 Increased Connectivity

On average, respondents estimate that **having access to the wireless LAN means that they are able to be connected, on average, over 3.5 hours more per day.** This view is consistent across IT/MIS respondents and end users, though it is particularly high in government and healthcare sectors. This represents a significant rise from 2001, where the figure was just under 2 hours.

**Figure 21**

Extra Connection (mean hours)



Q: How much more time per day [is the average employee] are you now able to be connected the network as a result of using a wireless LAN compared to using a wired LAN?

Base: All who agree (rating of 7-10) that 'WLANs give users more opportunities...' (296)

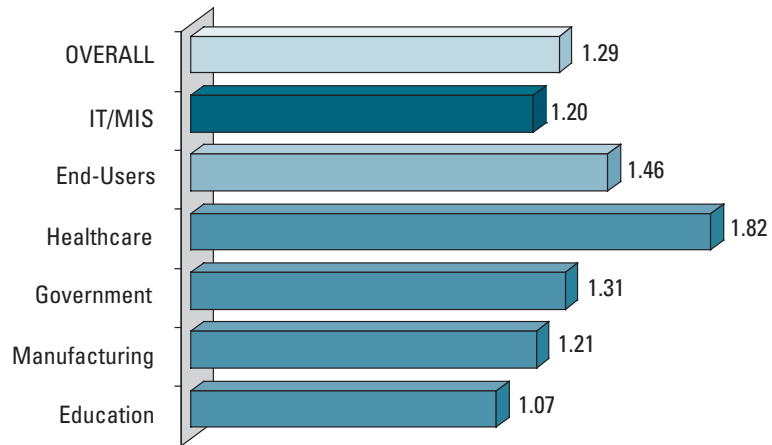
## 7.2 Time Savings

Respondents were asked how much time is saved per work day using the wireless LAN versus the wired LAN. The results indicate a significant amount of time saved for employees—estimated at over an hour a day by IT/MIS respondents, and as much as 1 1/2 hours by end users. Time savings are greatest in the healthcare industry, where the average time savings is almost 2 hours.



**Figure 22**

Time Saved (mean hours)



- The overall mean number of hours saved per day by using the wireless LAN has increased from 1.02 in 2001, to 1.29 in 2003, with increases experienced across all four main industry sectors

Q: How much time, on average, would you say [you save] the average employee saves in [your] their workday when [you] they use the WLAN versus the traditional wired LAN?

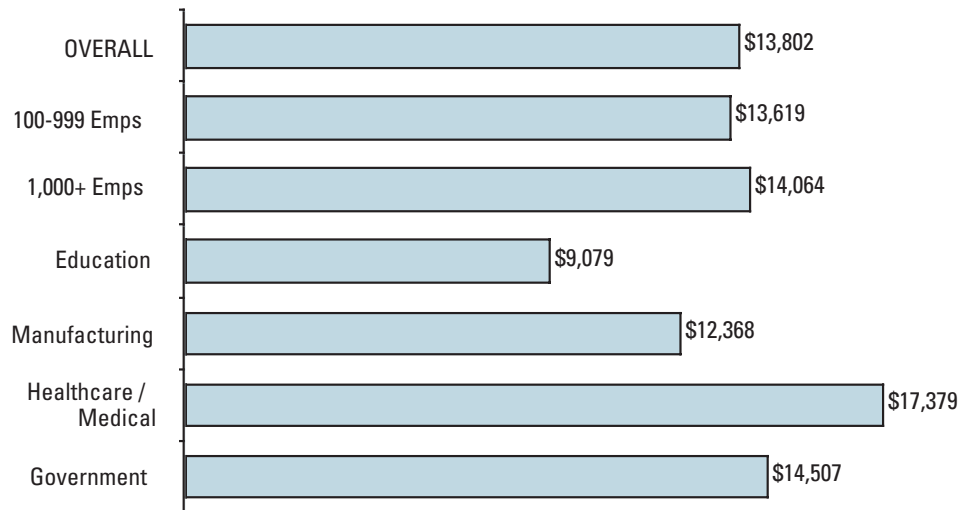
Base: All Respondents (603)

Given a reported average salary of \$80,000 (up from \$64K in 2001), and taking into account the increase in time saved, the **annual cost savings can be estimated at almost \$14K per user** (up from \$7K in 2001). The greatest savings experienced is in the healthcare sector, with per employee savings estimated at over \$17K.



**Figure 23**

Annual \$ Savings Per Employee

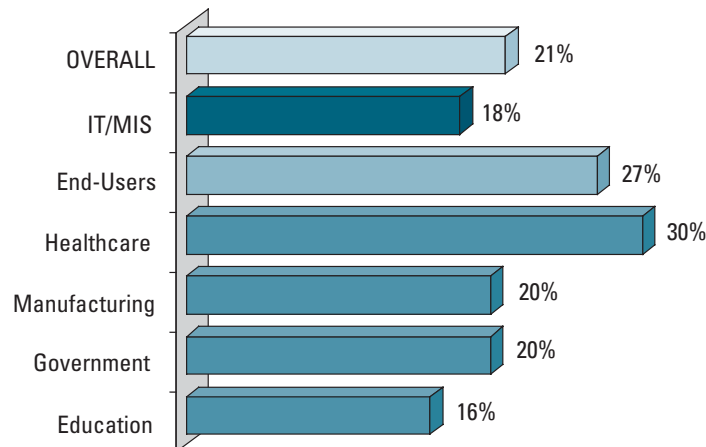


Base: All Respondents (603)

This significant time savings is estimated to, on average, represent 17% of user working days (based on an eight-hour day). This relates almost directly to productivity—on average, end users say they are as much as 27% more productive on the wireless LAN versus the wired LAN. The healthcare industry experienced the greatest gain in productivity, with an average 30% increase in employee productivity as a result of wireless LAN use.

**Figure 24**

Increase in Productivity (mean)



- End-Users have witnessed the biggest (mean) increases in productivity, from 23% in 2001 to 27% in 2003. There are no differences by company size.

Q: How much more productive do you think [you are] the average employee is versus using the wired LAN?

Base: All Respondents (603)



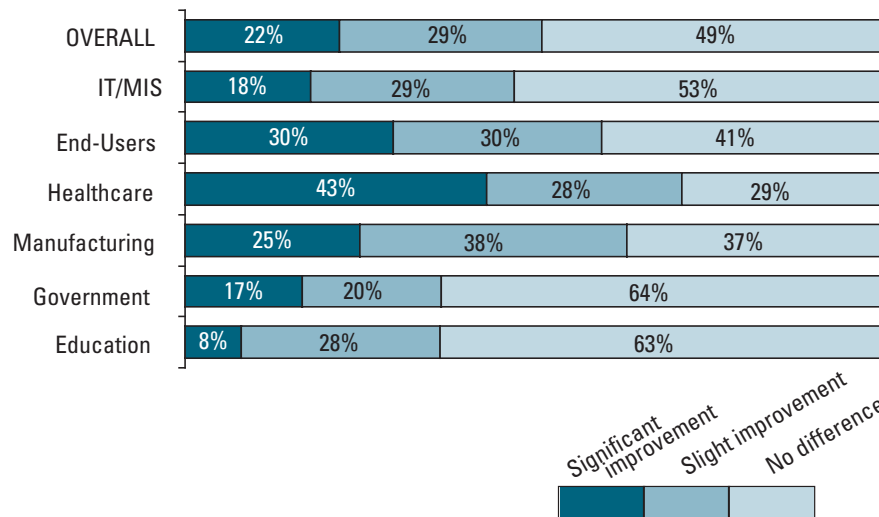
### 7.3 Increased Accuracy

Overall, just over half of respondents believe that the wireless LAN improves the accuracy of everyday tasks (22% report a significant improvement, 29% a slight improvement)—with 60% of end users believing that the technology minimizes potential errors. As many as three-quarters of healthcare staff feel that their accuracy is significantly better—a crucial benefit being the ability to access and record patient information at the point of care. Over 60% of those in the manufacturing sector also cite increased accuracy—one of the key benefits being the ability to track inventory and work-in-progress in real-time via automated data capture rather than manual entry).

**Figure 25**

Extent of Accuracy Increase

- Overall, just over half (51%) of all the respondents interviewed believe that the wireless LAN improves the accuracy of everyday tasks, to some degree.
- In Healthcare, considerably more respondents report that WLANs significantly improve accuracy.



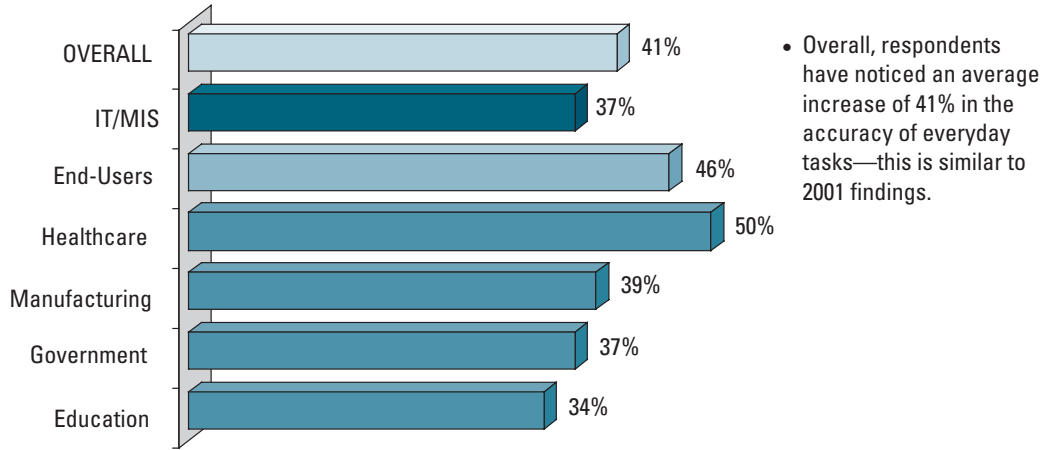
Q: To what extent do you think the wireless LAN improves the accuracy of everyday tasks?

Base: All Respondents (603)

Among those that feel that the implementation of wireless LANs makes everyday tasks more accurate, it is estimated that individuals are as much as 41% more accurate on average (46% end users, 37% IT/MIS). Although this figure is a respondent estimate of increased accuracy, it is significant in its size; 40% increased accuracy among individual users has the potential to save a lot of time and effort across a company. Staff in the healthcare sector again lead the field here—respondents say they are almost 50% more accurate in their everyday tasks. These figures are consistent with findings from 2001.

**Figure 26**

Accuracy Increase (mean)



Q: If you could attach a percentage increase in the accuracy of everyday tasks enabled by WLANS, what would that be?

Base: All who say that 'the WLAN makes a slight /significant improvement to the accuracy of everyday tasks' (308)



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