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## **Enabling the Mobile Workforce: Issues and Trends**

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**February 2006**

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## Executive summary

February 2006

With advances in networking and application technologies, organizations are increasingly challenged to deliver critical business applications and real-time data to workers in the field. Remote access to business-critical data and applications is quickly becoming the standard, and businesses are rising to meet the challenges of enabling their mobile workforce. While remote access capability brings with it new opportunities for businesses, such technologies also present significant management challenges for enterprise IT departments.

TechRepublic conducted a study among over 370 North American IT and business professionals in organizations from a cross-section of industries to examine remote access best practices. The study was conducted to explore the degree to which organizations make business-critical applications remotely accessible, as well as key challenges businesses face in enabling their mobile workforce. Specifically, we explored:

- Current practices in enabling workforce mobility;
- Making the case for extending business applications;
- Challenges in extending business applications.

Among the most compelling findings were:

- Organizations are placing increased priority on extending business applications:* An overwhelming majority of respondents (75 percent) indicate that extending business applications to remote workers is becoming more of a priority in their organizations. Moreover, 63 percent of respondents view extending paper-based and desktop applications to handheld devices as critical for maintaining the competitive advantage of their businesses.
- Many organizations currently mobilize much of their business applications:* Nearly 75 percent of organizations are making their business applications remotely available to varying degrees, while roughly 20 percent currently provide remote access for all of their business applications. Currently, personal management applications (90 percent) and Intranet access (nearly 70 percent) are at the top of the list of mobile-enabled applications.
- Organizations are targeting more business applications for mobilization in the coming 12-months:* Our findings reveal a clear trend toward mobilizing access to critical business applications. Applications targeted for remote access include Intranet access (23 percent), CRM applications (16 percent), inventory management applications (about 12 percent), and ERP applications (nearly 10 percent). The findings underscore the growing emphasis that is being placed on extending critical business applications to workers in the field.
- Increasing productivity and reducing costs are the chief areas to address in making the business case for remote access:* Justifying the acquisition of mobile technologies rests largely upon demonstrating the potential for increased workforce productivity and efficiency (endorsed by over 80 percent as a significant or extremely significant factor), and reduced costs (65 percent).

In all, the findings from this study highlight the growing emphasis organizations are placing on mobilizing business applications. Clearly, today's enterprise is rising to meet the new demands of a mobile workforce. Extending access to business-critical applications can benefit organizations in many ways, not the least of which is in increasing productivity of the mobile workforce, which ultimately impacts bottom-line profits. Providing remote access to business applications presents its own unique challenges, however, which include both technical and personnel management issues.

## Introduction

Organizations are facing the growing challenges of mobilizing business applications and data to their remote workforce. Moving critical data between remote devices and corporate networks is quickly becoming the rule rather than the exception as businesses begin to take advantage of advances in networking and application technologies. Enabling remote access to business applications presents new opportunities for business growth, as well as new challenges for IT managers as they struggle to implement and maintain new mobilization technologies.

To more fully understand the issues surrounding remote access to enterprise applications, TechRepublic conducted a survey to explore current practices in mobilizing business applications to remote workers, as well as key issues related to justifying mobile technologies from the business end, and challenges IT professionals face in making remote access a reality. Specifically, we explored:

- Current practices in enabling workforce mobility;
- Making the case for extending business applications;
- Challenges in extending business applications.

## Research methodology

A survey invitation was sent to registered TechRepublic members between December 9, 2005, and December 14, 2005. The Web-based survey was designed to explore how organizations are handling challenges related to enabling their remote workforce. The results reported here are based on the 375 completed surveys collected during the study.

## Respondent demographics

Survey respondents were selected from among TechRepublic members who met certain selection criteria, specifically those who are:

- Affiliated with organizations based in North America.
- From a cross-section of industries.
- IT and business professionals (e.g., executives, directors, managers, developers).

The following tables contain the breakdown of the respondents by key demographics: organizational size, job role, and primary industry.

## Organizational Size

Number of employees (all locations combined)	Percentage of respondents*
Less than 100	29%
100-499	18%
500-999	10%
1,000-9,999	24%
10,000 or more	20%

\*Column total exceeds 100% due to rounding.

## Primary job role

Job role	Percentage of respondents
<b>Technical</b>	<b>76%</b>
IS/IT - Consultant	12%
IS/IT - Developer	13%
IS/IT - Director/Manager	16%
IS/IT - Executive/Senior VP	7%
IS/IT - Network technologist	11%
IS/IT - Other technical	17%
<b>Non-Technical</b>	<b>24%</b>
Non-IS/IT - Director/Manager	1%
Non-IS/IT - Executive/Senior VP	7%
Non-IS/IT - Other functions	16%

## Primary industry

Industry category	Percentage of respondents*
Business services	3%
Education	12%
Financial services	8%
Government	8%
IT services	14%
Manufacturing	17%
Media/Publishing	3%
R&D/Healthcare/Sciences	8%
Retail	8%
Software development	6%
Transportation/Utilities	7%
Other	7%

\*Column total exceeds 100% due to rounding.

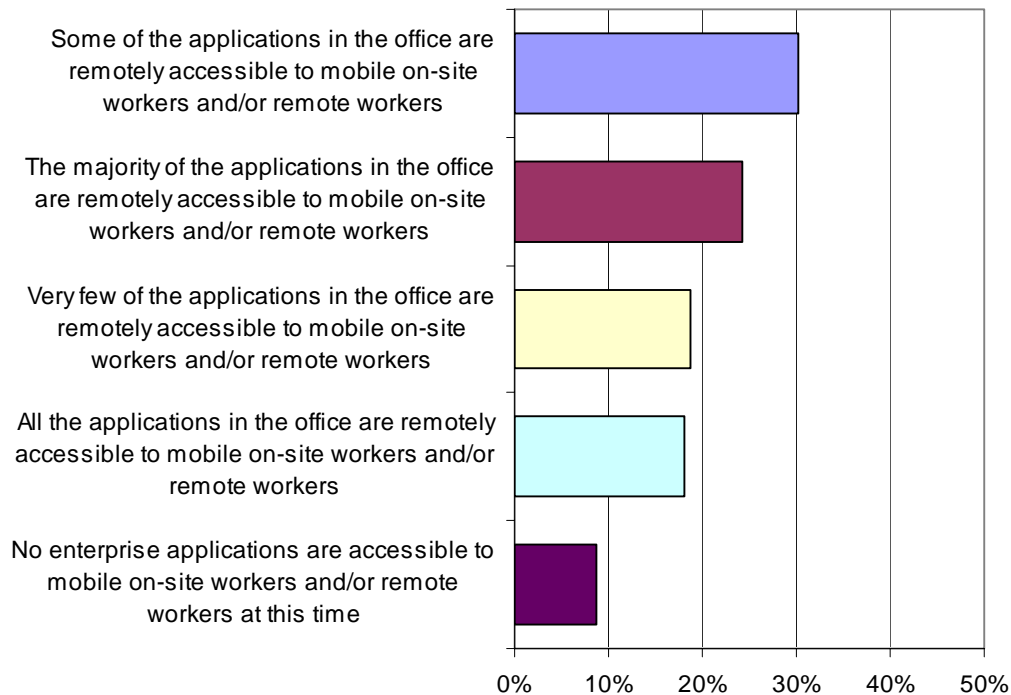
## Key findings

### Enabling workforce mobility: Current practices

The first objective of this study was to illuminate the practices by which organizations are making business applications available to their mobile workforce. In this section, we examine the degree to which organizations are providing remote access to business applications, the types of mobile-enabled applications for which access is currently provided, and for which category of employee remote access is most valued. In addition, we highlight important issues related to the acquisition of mobile data and business applications solutions. Our initial focus was on the status of remote applications availability in today's enterprise.

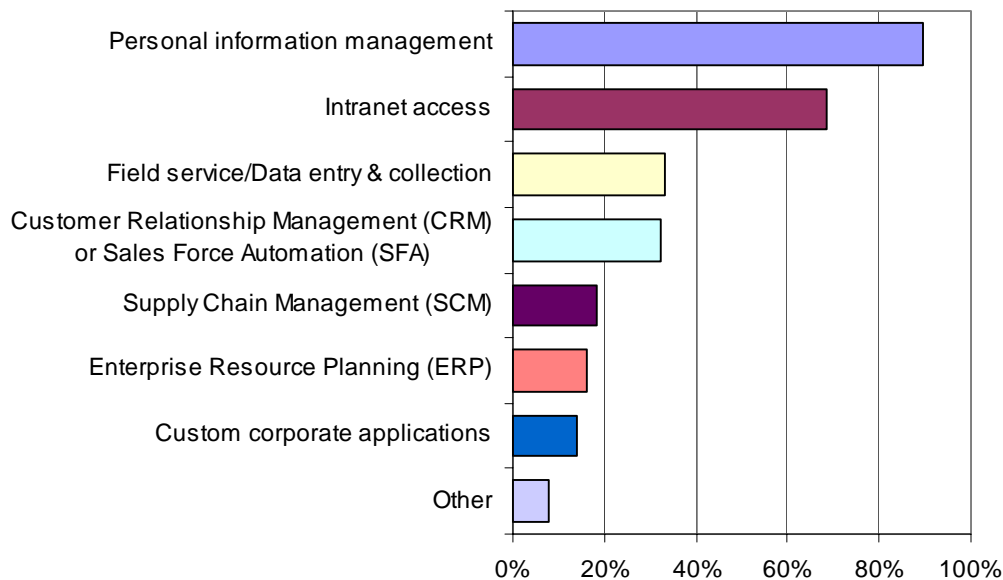
At present, organizations provide varying degrees of remote access of their business applications to mobile on-site or remote workers in the field. Our data indicate that about 30 percent provide access to some of their applications in the office to mobile and remote workers, followed by nearly 25 percent who currently provide remote access for the majority of their business applications. Another 19 percent have a few applications that can be remotely accessed, while roughly 18 percent of organizations make all of their applications in the office remotely accessible. Very few organizations (less than 9 percent) do not currently make enterprise applications remotely accessible.

*Which statement best reflects the current state of remote applications in your organization?*



The data presented below give a picture of the types of enterprise applications that are currently mobile-enabled in today's organizations. Respondents were asked to choose all applications that fall into this category. Topping the list are personal information management applications such as e-mail, text messaging, and calendars (nearly 90 percent), followed closely by Intranet access capability (nearly 70 percent). Among other types of applications currently mobile-enabled are field service or data entry and collection applications (33 percent), and Customer Relationship Management (CRM) applications (32 percent). To a lesser extent, Supply Chain Management (SCM) applications (18 percent), Enterprise Resource Planning (ERP) applications (16 percent), and custom corporate applications (about 14 percent) are also currently mobilized.

*Currently, which of the following enterprise applications are mobile-enabled or mobilized for your organization?*



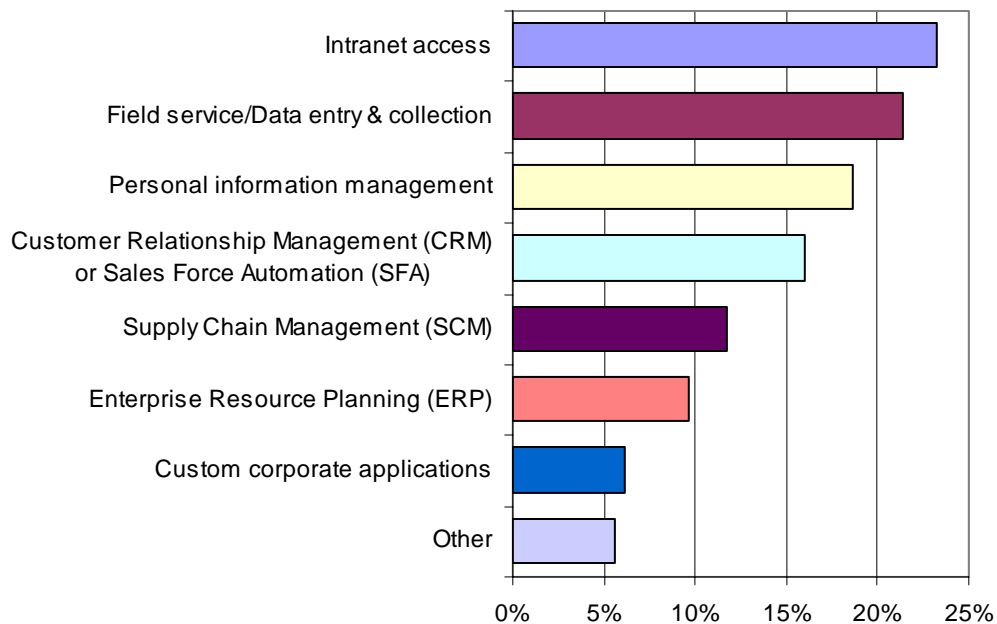
*Respondents could select more than one answer.*

Given that most of the organizations in our study currently mobilize a good proportion of their applications, we were interested in learning about the types of applications for which organizations have plans to mobilize in the coming 12 months. Again, respondents were asked to choose all applications that apply.

Among applications targeted for remote access are Intranet access (23 percent), field service/data entry and collection applications (21 percent), and personal information management applications (about 19 percent). These are followed by applications related to managing customer relations or sales force automation (16 percent), inventory management (about 12 percent), and ERP applications (nearly 10 percent). In addition to these, a few organizations (roughly 6 percent) also plan to mobilize some of their custom corporate applications.

A perspective on long-term priorities for mobilizing applications is also provided by our findings. While many personal management applications are currently the focus of remote access, increasing importance will be placed upon the larger management issues. In particular, increasing emphasis will be placed on customer service management, managing enterprise resources, and insuring uninterrupted delivery of goods and services through remote access provided to the workforce.

*Which of the following enterprise applications do you plan on mobile enabling for your organization within the next 12 months?*

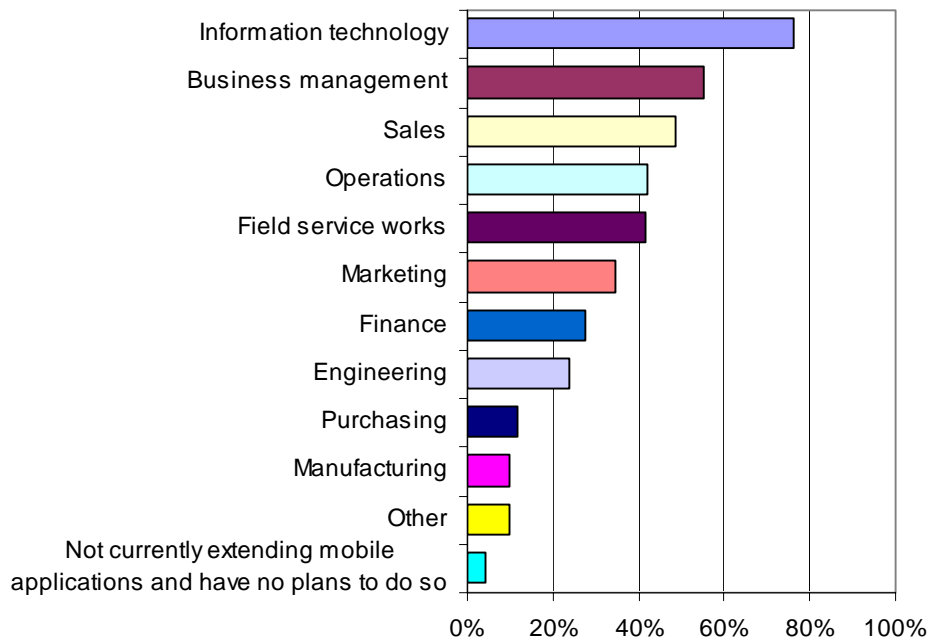


*Respondents could select more than one answer.*

*N=375; asked only of those planning to mobilize applications within the next 12 months*

We wanted to get a better feel for the types of employees that organizations support or are planning to support by making applications remotely accessible. By far, respondents indicated that information technology is the leading category for remote access (nearly 80 percent). A distant second is business management (nearly 55 percent), followed closely by sales (nearly 50 percent), operations (just over 42 percent) and field service workers (about 42 percent). In addition to these categories, organizations also support mobile workers in the areas of marketing (nearly 35 percent), finance (nearly 30 percent), engineering (nearly 25 percent) and to a lesser extent, purchasing (nearly 12 percent) and manufacturing (about 10 percent).

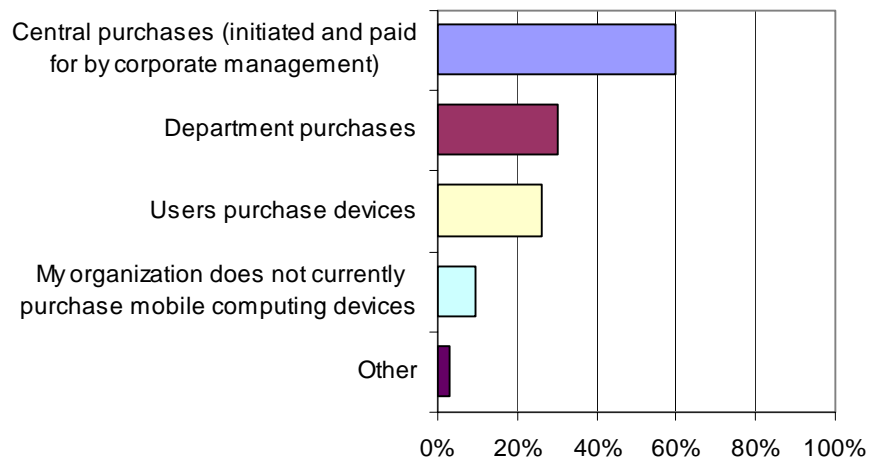
*For which types of workers is your organization currently supporting or planning to support remotely accessible applications?*



*Respondents could select more than one answer.*

We were also interested in learning more about how organizations acquire mobile technologies. We asked respondents to share with us how their organizations purchase handhelds and smart phones. Respondents could choose all options that applied to their situation. The majority of respondents indicated that their organizations purchase devices such as handhelds and smart phones through central purchasing (nearly 60 percent). In addition, organizations acquire devices to use in mobile data and business application deployment through department purchases (30 percent) and through direct purchase by end-users (over 25 percent).

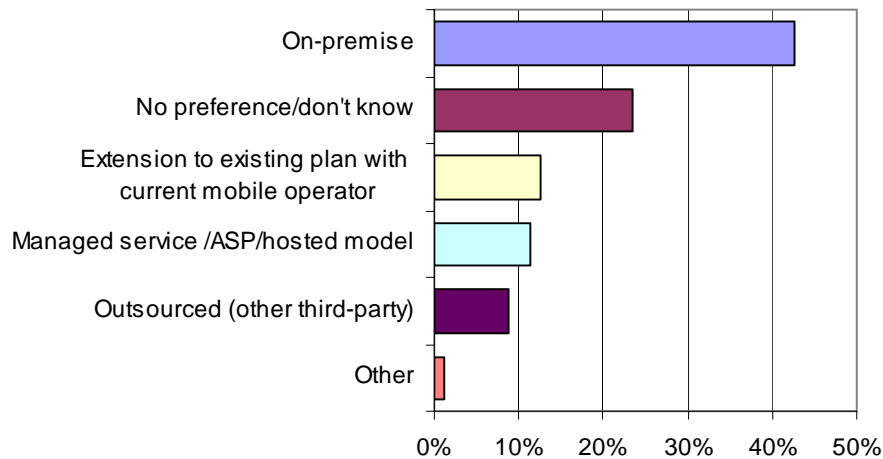
*How does your organization purchase devices such as handhelds and smart phones used for mobile data and business applications?*



*Respondents could select more than one answer.*

Currently, the preferred approach to purchasing and implementing a mobile solution is on-premise (nearly 43 percent). Extensions to existing plans with their current mobile operator are a distant second choice (just over 12 percent), followed by managed service (nearly 12 percent) and purchasing that is outsourced (just under 9 percent). Nearly one-quarter (24 percent) of organizations do not have a preferred method of purchasing devices to enable remote data access at this time.

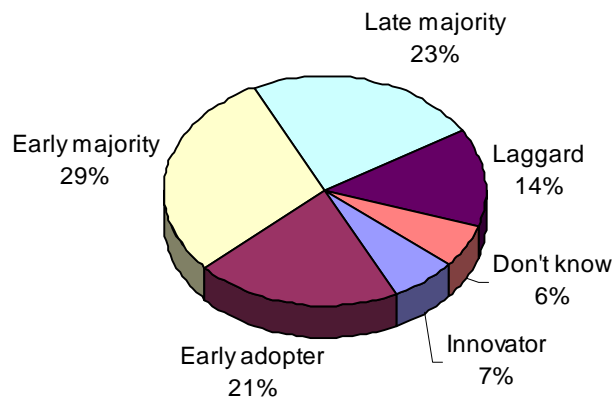
*What is your organization's preference, if any, for purchasing and implementing a mobile solution?*



Finally, we asked respondents to characterize their organizations' overall classification in terms of new technology acquisition. About 28 percent of respondents classify their organizations as innovators (7 percent) or early adopters (21 percent) when it comes to acquiring new technology. Nearly 30 percent see their organizations as early majority, followed by another 23 percent who classify their enterprise as late majority. Few respondents (only about 14 percent) see their organizations as lagging behind when it comes to technology acquisition.

The message from our data is clear – as the need for increasing remote access grows, and technology becomes more available, organizations that lag behind the times will be in danger of losing their competitive edge.

*In general, under which category would you classify your organization in regards to new technology acquisition?*

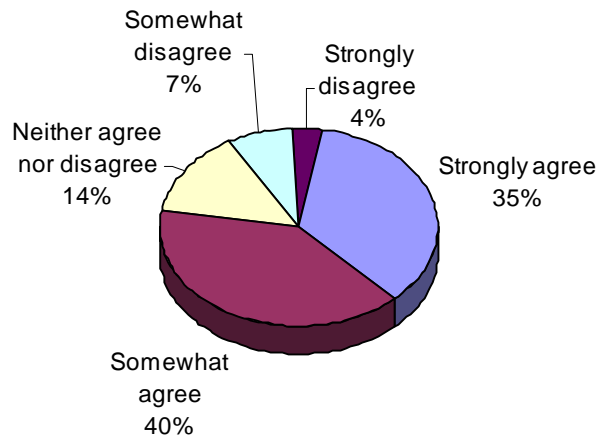


### Making the case for extending business applications

Clearly, the majority of organizations are taking advantage of technology that enables them to provide critical business applications remotely to their workforce. In this section, we investigate issues related to the importance that organizations place on remote access to applications, factors used to justify the purchase of technology to enable remote access, and examine specific objectives that organizations plan to address through extending access to business applications. We began by asking respondents to rate the priority their organizations place on making business applications remotely available to the workforce.

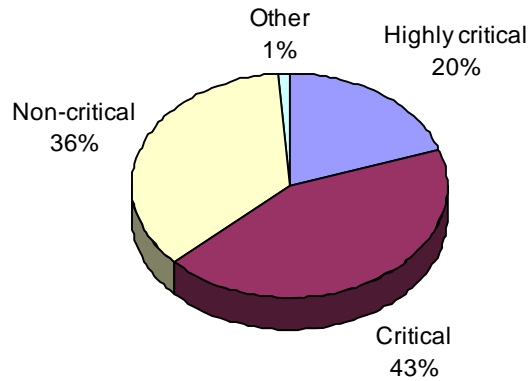
The overwhelming majority of respondents endorse the view that extending business applications previously not accessible to remote workers is becoming a more important priority for their organizations today. In fact, 35 percent strongly agree that extending business application accessibility to mobile and remote workers is becoming increasingly important, followed by nearly 40 percent who agree somewhat. While less than 15 percent of respondents are ambivalent on this issue, certainly few respondents disagree that extending business applications remotely will become the rule rather than the exception.

*Please rate the following statement: "Extending business applications that were previously not extendable to mobile workers is becoming a bigger priority for our organization."*



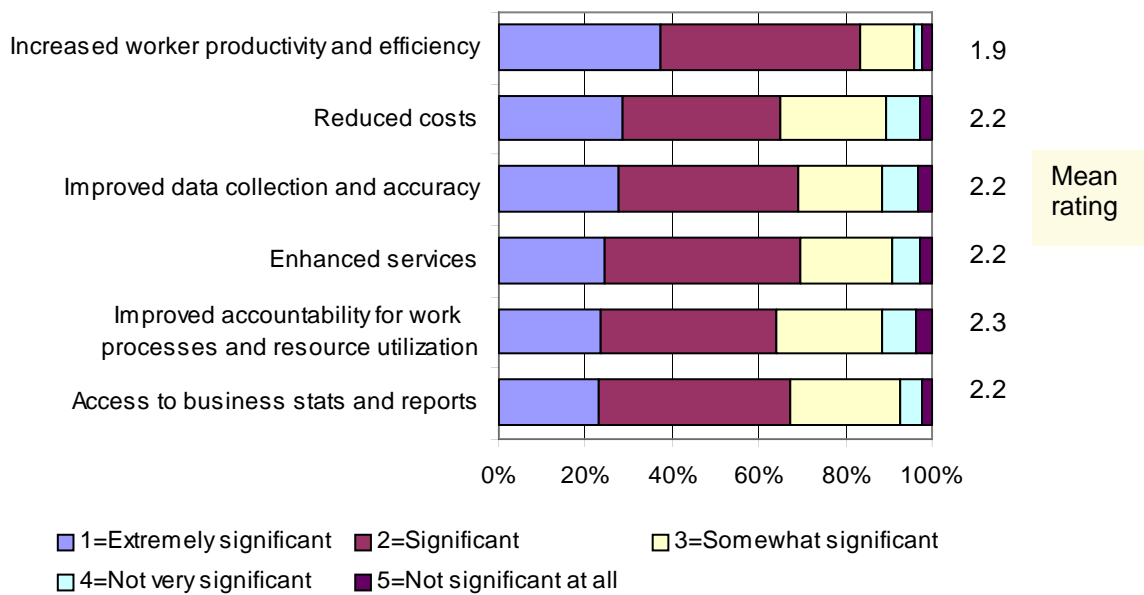
Additionally, these data substantiate the increased priority that today's enterprise places on insuring remote access to business applications. We further explored this issue by asking respondents to rate the degree to which extending paper-based or desktop-based applications to handheld devices is seen as critical for insuring future business success. The majority of respondents indicated that extending their organizations capability for accessing business applications to remote workers was "highly critical" (20 percent) or "critical" (43 percent) for maintaining their organizations' competitive advantage. Indeed, the importance of extending business applications to devices outside the office is well understood by most. Only about 36 percent of respondents indicated that extending communications and personal information management to devices is sufficient to maintain a competitive edge.

*How critical is it for your organization to extend its paper-based or desktop-based applications to handheld devices, tablet computers or laptops?*



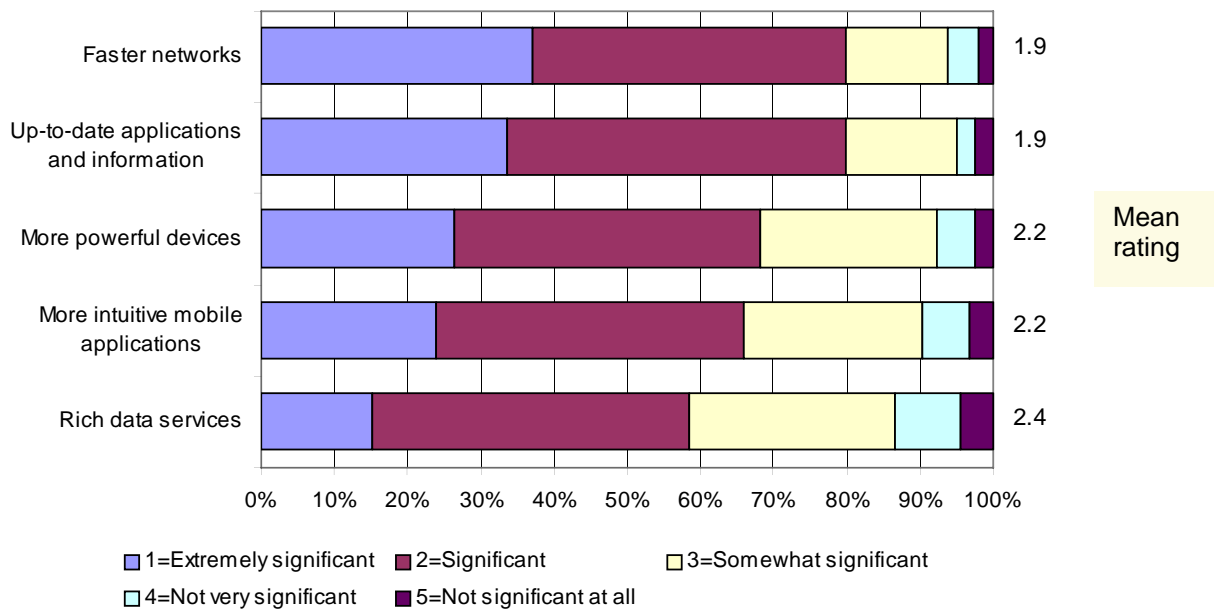
To shed light on which issues are important in making the business case for extending business applications to the mobile workforce, we asked respondents to rate a number of items deemed important for maintaining successful business operations. Ratings were made on a 5-point scale where 1 is *extremely significant* and 5 is *not at all significant*. Workforce productivity and efficiency are at the top of the list, with over 80 percent of respondents rating these issues as significant (46 percent) to extremely significant (over 35 percent) for justifying the need to extend applications remotely. Reduced costs (rated as extremely significant by nearly 30 percent) and improved data collection and accuracy (rated as extremely significant by 28 percent) were also important items for making the business case for remote business application access. Among other issues rated “significant” for justifying the need for remote access were enhanced services (45 percent), improved accountability for work processes and utilization (41 percent), and access to business statistics and reports (44 percent).

*Please rate the following benefits which can support the business case for extending applications remotely for your organization*



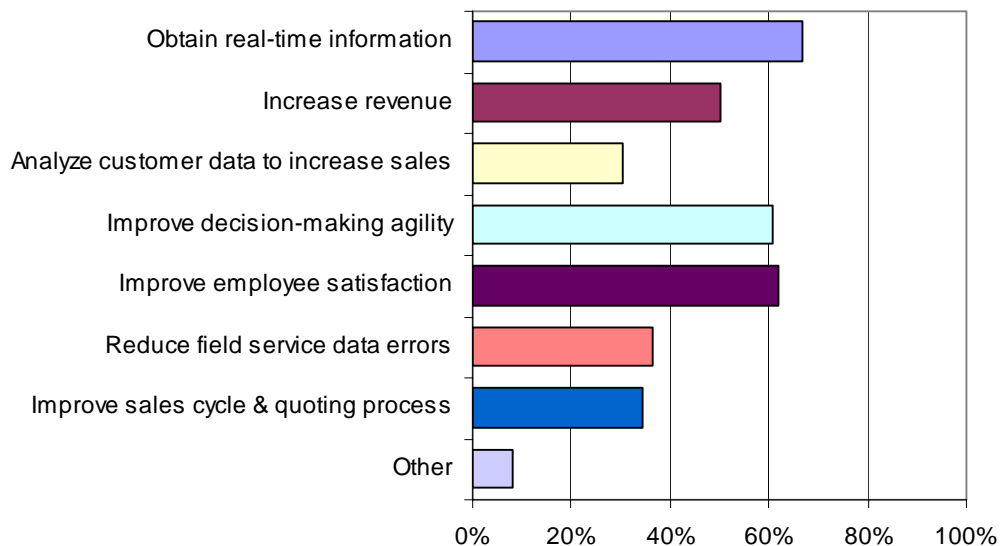
We also asked respondents how various improvements might be seen as increasing the value of mobile data services for their mobile workforce. Ratings for each aspect were made on a scale of 1 (extremely significant) to 5 (not significant at all). Faster networks and up-to-date applications and information were clearly the most valued improvements according to our respondents. Both of these improvements were rated as significant to extremely significant by 80 percent. A close second is access to more powerful devices, which was rated significant by 42 percent and extremely significant by another 26 percent of respondents. More intuitive mobile applications is also seen as a valued improvement for the end-user (rated as significant by 42 percent), as are rich data services (rated as significant by 43 percent).

*Please rate the following benefits which can support the business case for extending applications remotely for your organization.*



We dug deeper to examine more closely what motivates organizations toward increasing the availability of mission-critical business applications to remote workers. Overall, factors that directly impact performance are the most critical objectives for extending business applications to mobile workers; obtaining real-time information (nearly 70%), improving decision-making quality (just over 60 percent), and reducing field service errors (about 37 percent). In addition, objectives addressable through remote access capabilities that are related to revenue are also important. These include increasing bottom-line profits (endorsed by over 50 percent of respondents), followed by improving sales cycle and quoting processes (about 34 percent), and analyzing customer data with a view toward increasing sales (30 percent). Improving employee satisfaction (62 percent) is also a very important objective that can be addressed by making critical applications remotely accessible.

*What other business objectives is your organization trying to address by extending applications to mobile workers?*

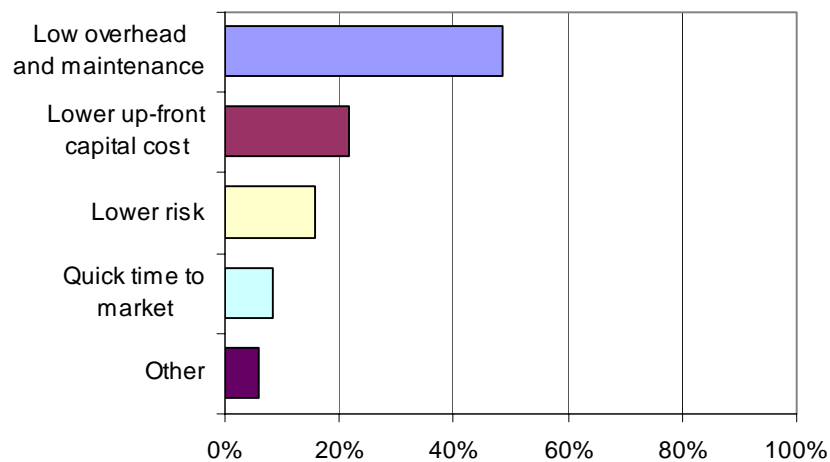


*Respondents could select more than one answer.*

We also wanted to determine the factors that would most influence the decision to choose a hosted solution over a premise mobile solution. In aggregate, reducing costs are viewed as the most critical factor as indicated by roughly 70% of the responses. About half of all respondents indicated that the most important factor is low overhead and maintenance for mobile solutions, while another 20 percent indicated the amount of up-front capital required. Solutions that can satisfy both of these steep requirements may have a competitive advantage over those that do not, and may help explain the growing interest in hosted solutions. According to IDC, worldwide spending on hosted software solutions is expected to reach \$8 billion dollars next year from \$2.3 billion in 2002<sup>1</sup>.

Aside from cost/maintenance factors, respondents also consider the degree of risk in choosing between hosted and premise mobile solutions (over 15 percent). Few respondents (less than 10 percent) appear concerned about time to market when making their choice.

*In your opinion, which among the following business benefits would persuade you the most to choose a hosted solution over a premise mobile solution?*

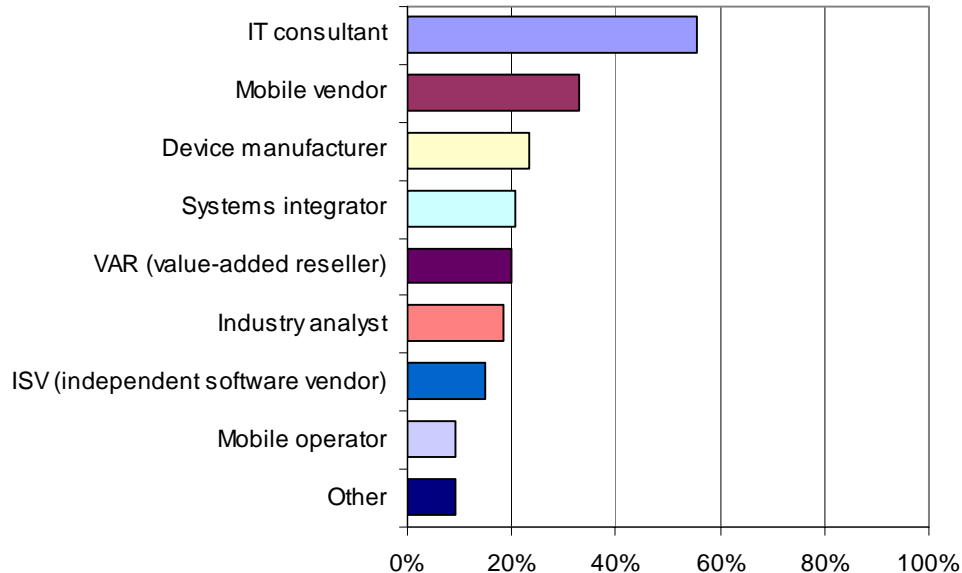


<sup>1</sup> IDC, March 2003

Taken together, these findings reveal that IT professionals recognize what is important to the business end of the enterprise – increasing productivity and reducing capital expenditures. Moreover, they largely agree that extending access to business applications translates into improved decision making, faster access to critical business data, and ultimately, better bottom lines.

To whom do organizations turn for advice about mobile deployments? When making an informed decision, most organizations (over 55 percent) turn to IT consultants, while nearly one-third seek advice from their mobile vendor. In addition to these sources of information, organizations seek advice from device manufacturers (about 23 percent), system integrators (21 percent), and value-added resellers (20 percent). About 18 percent of organizations also look for advice from industry analysts, while nearly 15 percent turn toward independent software vendors for assistance. Mobile operators are a lesser used information resource (less than 10 percent).

*Who does your organization turn to for advice about mobile deployments?*



*Respondents could select more than one answer.*

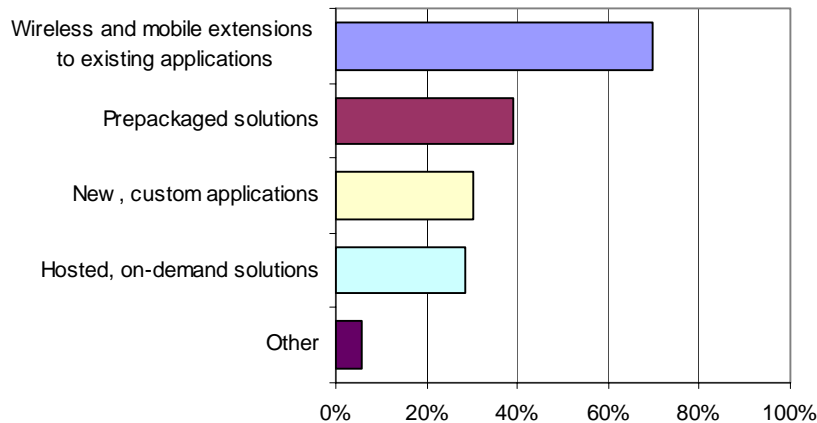
## Extending business applications: Key challenges

In the final section of this study, we take a look at the challenges that IT professionals face in deploying business applications remotely. Specifically, we examine three areas of concern – technical issues related to implementation and maintenance of mobile delivery solutions, personnel issues seen as potential sources of difficulty, and anticipated costs of implementing mobile data and application access solutions. First, we take a broad look at approaches currently used for extending enterprise applications to mobile workers.

We asked respondents to share their organizations' approaches to extending business applications. They could choose all categories that apply. The majority of organizations (nearly 70 percent) approach extending their enterprise applications to mobile workers through adding wireless and mobile extensions to existing applications. In addition, about 40 percent use prepackaged solutions and 30 percent also employ new and custom applications in their approach. In addition to these approaches, just over 28 percent of organizations use hosted, on-demand services in extending their business applications to mobile and remote workers.

While our findings illustrate the diversity with which organizations approach extending their critical business applications, it is evident that they mostly rely on adapting existing solutions to enable remote access. This solution might carry desirable short-term benefits, such as ease of deployment or minimal requirements for training staff and/or end-users. Nevertheless, IT professionals will want to more fully explore options that will benefit their organizations in terms of maintenance and management of critical network resources and reduce overall cost structure in the long run.

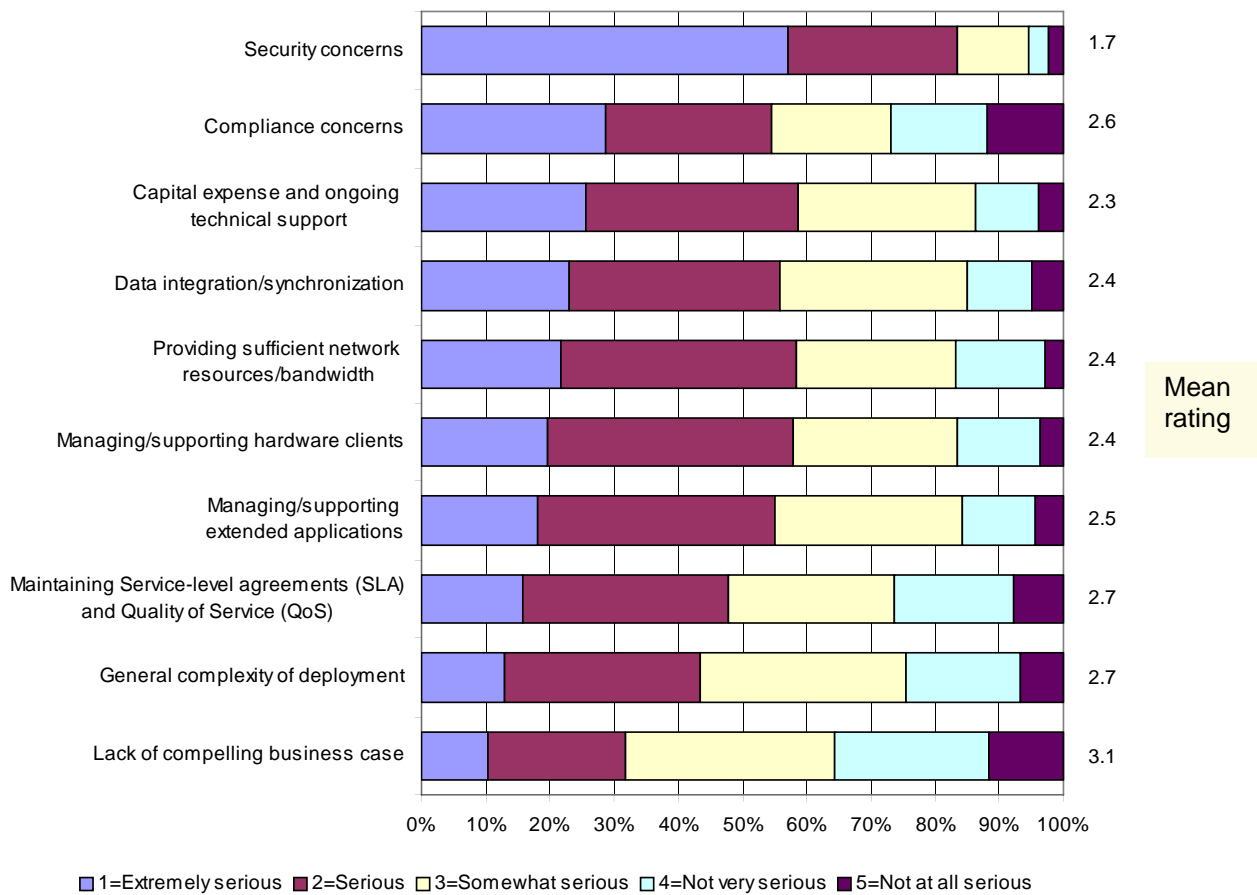
*Which of the following approaches has your organization considered for extending enterprise applications to mobile workers?*



*Respondents could select more than one answer.*

To delve more deeply into areas of concern among our respondents, we asked them to rate a select set of potential technical problems to mobile data and application deployment on a scale of 1 (Extremely Serious) to 5 (Not at All Serious). The top-rated concern is maintaining security (83 percent rated serious to extremely serious). Other important concerns included issues related to capital expenditures and ongoing technical support (rated serious to extremely serious by 59 percent), providing sufficient network resources/bandwidth (rated serious to extremely serious by 58 percent), managing or supporting hardware clients (rated serious to extremely serious by 58 percent), and managing or supporting extended applications (rated serious to extremely serious by 55 percent). Concerns over data integration/synchronization were cited by 56 percent, followed by concerns over meeting compliance (54 percent). Maintaining Service-level agreements (rated as serious to extremely serious by 48 percent), and general complexity of deployment (rated as serious to extremely serious by 43 percent) were of moderate concern to respondents. Of least concern was an inability to make a compelling business case for mobilizing business applications (rated as serious to extremely serious by 32 percent).

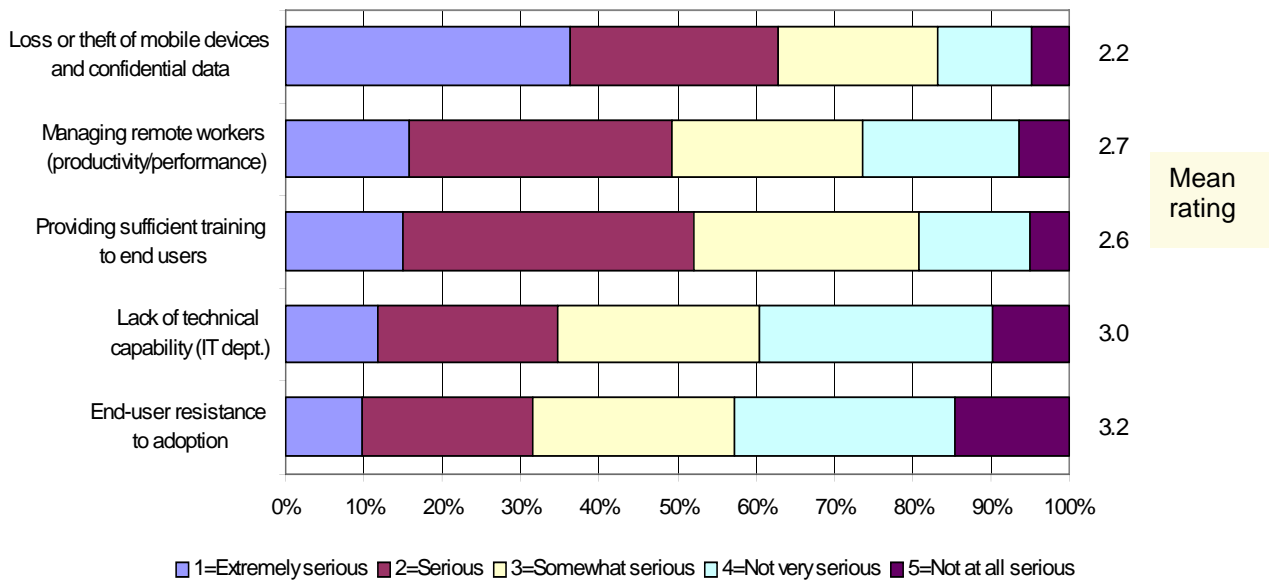
*Please rate the significance of the following technical problems to mobile data and application deployment for your organization*



We followed up on these technical concerns by asking participants to also rate the significance of personnel issues associated with mobile data and application deployment. The same 5-point scale used in the previous question was also used here. Evident from the data presented below is that loss or theft of mobile devices or confidential data is a top concern (rated as extremely serious to serious by just over 60 percent). Over half of respondents also have concerns related to providing sufficient training to end users, followed by nearly 50 percent who see managing the productivity and performance of remote workers as a top concern for their organizations. Lack of technical capability (about 35 percent) and resistance to adoption by the end user (just over 30 percent) were of lesser concerns.

Clearly, whether at the organizational level or the level of the individual employee, IT professionals are most concerned with assuring a high level of security, compliance, and productivity, while minimizing costs to the enterprise. These concerns outpace concerns over issues related to general complexities in deployment, being able to justify the need for remote access capability from the business end, or concerns over existing technical capabilities.

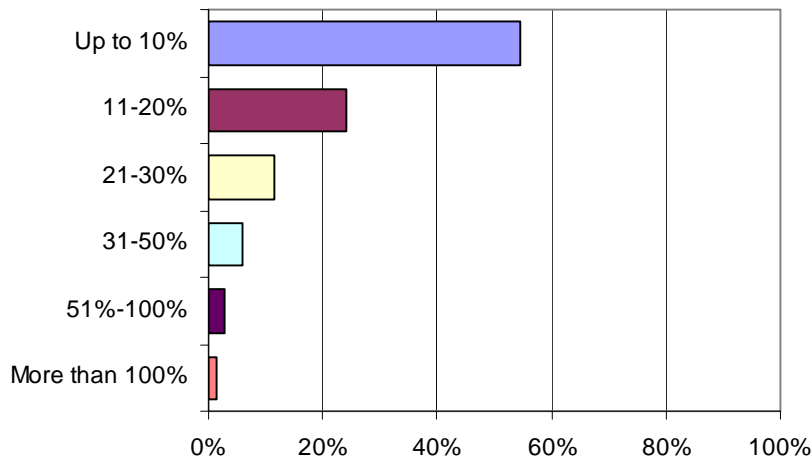
*Please rate the significance of the following personnel issues sometimes associated with mobile data and application deployment for your organization.*



In terms of increased expenditures, most organizations (about 54 percent) anticipate spending up to 10 percent more on mobile data and applications over the next year. Another 24 percent expect a spending increase in the neighborhood of 11% to 20%, followed by just over 10 percent who see an increase of between 21% and 30%. Few respondents (roughly 10 percent) anticipate increasing their spending for mobility data and applications by more than 50%.

These findings imply that increased expenditure is really not an issue for most organizations. While they anticipate some level of increase in cost for making business-critical applications available to remote and mobile workers, such increases are a minor consideration in comparison to satisfying the more important technical and personnel concerns outlined above.

*By how much do you expect your organization's spending to increase on mobile data and applications over the next 12 months?*



Overall, the findings from this study highlight the increasing emphasis that organizations place on extending business applications to mobile and remote workers. Making business applications fully available is well underway in many organizations, and businesses are boosting their capacity to deliver business-critical applications to their mobile workforce. While our findings shed light on the benefits of extending business applications, such as increased productivity and access to real-time information, they also underscore the many challenges that face businesses as they struggle to implement mobile technologies.

***CNET Network's TechRepublic Community Research Programs***

*CNET Networks' TechRepublic Community Research team conducts surveys of the CNET and TechRepublic membership on a project basis. Projects are funded by CNET Networks, Inc. and in some cases by vendors who have particular interests in topical areas. In cases where the project has been sponsored by a third party, the Community Research team leads the effort in developing survey questions and has final approval of all questions. The Community Research team conducts all analyses and writes the final report that is subject to CNET Networks' editorial review. Funding for this project was provided by Sybase, Inc. If you have a topic of interest for either editorial or sponsored research, please e-mail us at [research@techrepublic.com](mailto:research@techrepublic.com).*