Desktop Replacement Productivity Impact Study

Notebook PCs Can Make Your Employees More Productive
Executive Summary

The replacement of desktop PCs with notebook PCs in organizations across the US is driven by a number of factors, including:

- Notebook PCs are more accommodating to a workforce that is more mobile and more diverse than in the past.
- Notebook PC technology, overall performance, and reliability have improved to more than meet the needs of most desktop workers today.
- Notebook prices have come down significantly over the past few years.
- Notebooks can result in more productive employees by increasing the number of hours they can work on their PC.

The objective of this research study is to estimate the increase in worker productivity resulting from the use of a notebook PC vs. a desktop PC. Productivity is defined in this study simply as the number of hours worked, and the information is collected from the end users themselves rather than from executive management or the IT department.

Overall, we found that the average increase in employee productivity (number of hours worked) realized through the use of a notebook PC is 7.7 additional hours per week over the productivity associated with using a desktop PC. Whether it is the ability to work on the road, at home, or on location in meetings, the opportunity that a notebook provides to increase one's productivity is substantial. Adding 7.7 hours per week of productivity for each desktop PC user can result in a dramatic boost in workflow and organizational efficiency, and this needs to be factored against the increased costs that come with a comparable notebook PC.

An online survey was used to reach the goals of this study, completing interviews with 1,000 individuals in businesses, government agencies, and higher education institutions who are full-time employees and use a PC at least 10 hours a week in their job. These PC users (595 currently use a desktop; 405 use a notebook) estimated the number of hours per week of additional productivity they achieve (for current notebook users) or would achieve (for current desktop users) using a notebook PC vs. a desktop PC.

Productivity Increase With A Notebook PC

The overall average across the 1,000 respondents in this study is 7.7 hours of additional productivity per week per employee with a notebook PC.

Current notebook users work an additional 10.8 hours per week with their notebook PC over what they could with a desktop PC. Current desktop users estimate their productivity would increase by 5.7 hours per week with a notebook PC.

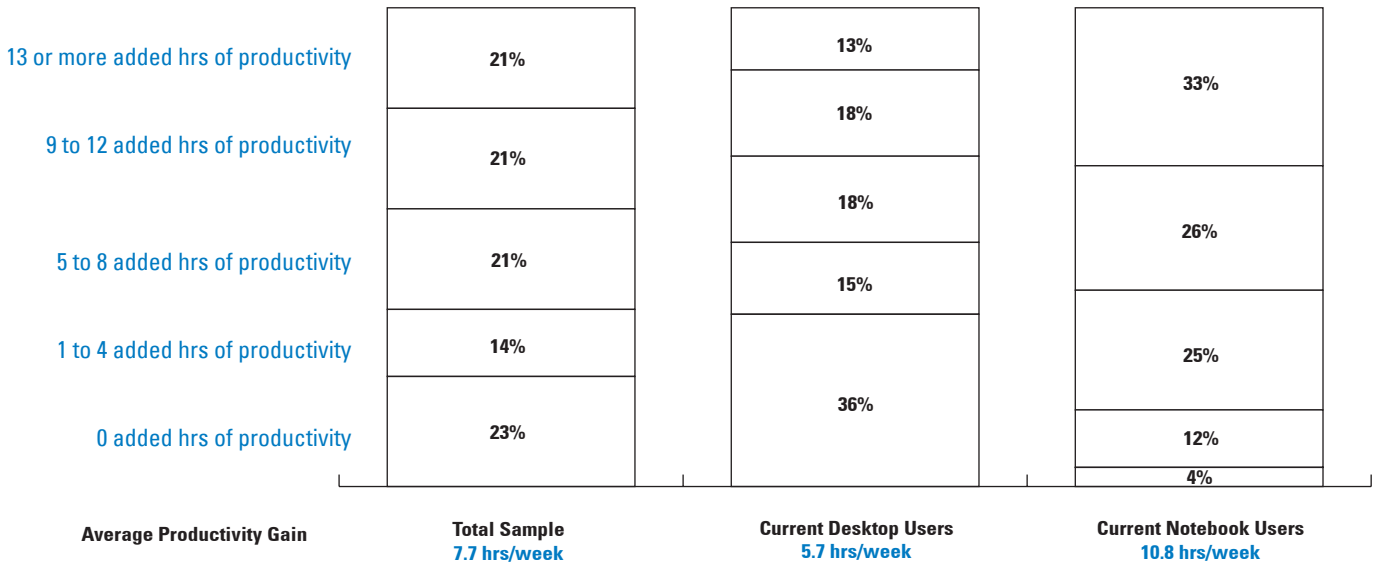
Current notebook users respond with consistently higher productivity gains than current desktop users across all organization types and user groups. One explanation for these differences between current notebook users and desktop users might be that current notebooks users require a notebook because they are more mobile and it has been determined that they need a notebook to increase their productivity. In support of this explanation, the PC usage behavior breakout among current desktop and notebook users is as follows:

Current Desktop Users - 43% are Deskbound; 49% are In and Out; 8% are Travelers
[see next page for category definitions]
Current Notebook Users - 13% are Deskbound; 55% are In and Out; 32% are Travelers

Another explanation for the difference in estimates between notebook and desktop users might be that individuals actually work more than they think they will once they receive a notebook and realize all of the flexibility and opportunities it can afford them.

The distribution of responses for the total sample as well as for current desktop and notebook users is shown below. Two key takeaways from these results are (1) there are a significant percentage of users (23% of the total) who do not estimate any increase in productivity with a notebook PC, and (2) of those who recognize the opportunity a notebook PC could provide them in terms of additional hours of productivity, the increase is sizable for many (42% estimate 9 or more additional hours of productivity per week with a notebook).

Additional Productivity Gain with a Notebook PC vs. a Desktop PC



Adding 7.7 hours per week of productivity for each desktop PC user can result in a dramatic boost in workflow and organizational efficiency, and this needs to be factored against the increased costs that come with a comparable notebook PC.

The results across organization types are relatively consistent, with large business estimating a slightly higher productivity increase and government estimating the lowest increases in productivity.

Average Productivity Gain by Organization Type			
	Average Productivity Gain		Average Productivity Gain
Large Business	8.7 hrs/week	**Higher Education**	7.4 hrs/week
LBiz Desktop Users	6.3 hrs/week	HiEd Desktop Users	5.5 hrs/week
LBiz Notebook Users	11.2 hrs/week	HiEd Notebook Users	11.4 hrs/week
Medium Business	7.9 hrs/week	**Government**	6.9 hrs/week
MBiz Desktop Users	5.4 hrs/week	Gov Desktop Users	5.5 hrs/week
MBiz Notebook Users	10.4 hrs/week	Gov Notebook Users	10.0 hrs/week

Respondents were asked to categorize themselves by their PC usage model, according to the following general definitions:

Which of the following best describes your PC usage model at work? Do not be concerned if none of these descriptions fits you perfectly…please just select the one that is the closest fit to you.

- ❑ *I am at my desk the large majority of the time (90% or so), and somewhere in the office the rest of the time (10% or so). I very rarely travel or work outside the office.*
- ❑ *I am in the office most of the time, but spend a fair amount of time away from my desk, in meetings or other areas inside the office. I occasionally travel or work outside the office.*
- ❑ *I am out of the office a lot (60% or more), spending little time at my desk or inside the office. I frequently travel or work outside the office.*

For convenience throughout the remainder of this report, the first group will be referred to as the "Deskbound" group, as they work at their desk the large majority of the time. The second group will be referred to as "In and Out", and the third category of usage will be called "Travelers".

The average productivity gain for each of these PC usage model groups follows. It is important to note that even among the group of respondents who work at their desk 90% or more of the time (Deskbound), there is a significant increase in productivity that is estimated (5.2 additional hours per week) with the use of a notebook PC vs. a desktop PC.

Average Productivity Gain PC Usage Model	
	Average Productivity Gain
Deskbound	5.2 hrs/week
DB Desktop Users	4.6 hrs/week
DB Notebook Users	7.9 hrs/week
In and Out	7.4 hrs/week
I&O Desktop Users	6.1 hrs/week
I&O Notebook Users	9.1 hrs/week
Traveler	13.3 hrs/week
TR Desktop Users	9.0 hrs/week
TR Notebook Users	14.9 hrs/week

Research Conclusion

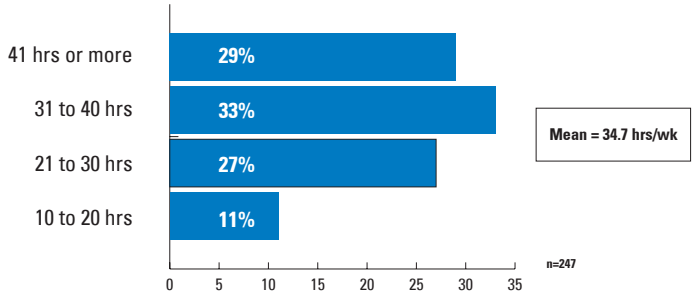
Notebook PCs can increase the productivity of employees currently using desktops. Employees themselves say they currently work or estimate they will work an additional 7.7 hours on average per week with a notebook PC versus having a desktop. This increase in worker productivity should be factored in to any decision of whether or not to pursue a desktop replacement strategy.

Respondent Profile

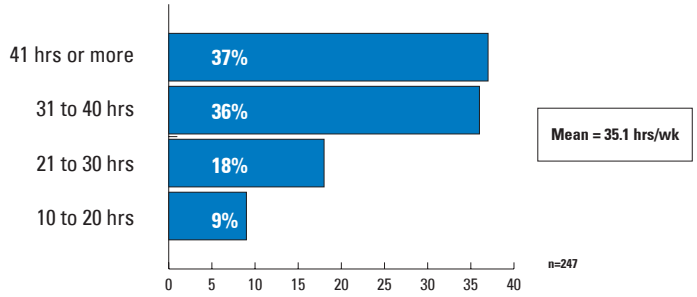
The PC usage profile of these 1,000 respondents is shown below. The question asked about the number of hours a PC is used per week in their job. The average number of hours a PC is used in a typical work week by these respondents is 33 hours.

PC Usage
Average Number of Hours per Week

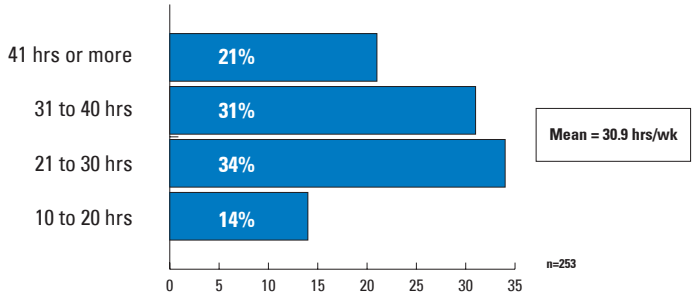
Large Business



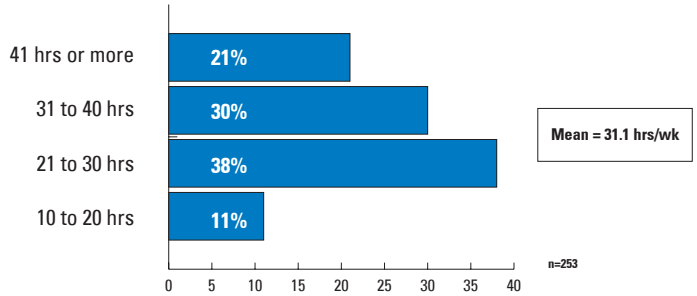
Medium Business



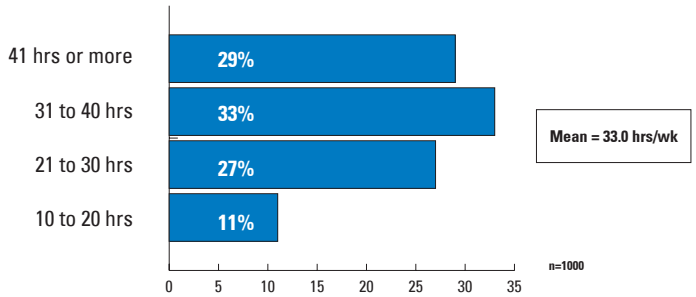
Higher Education



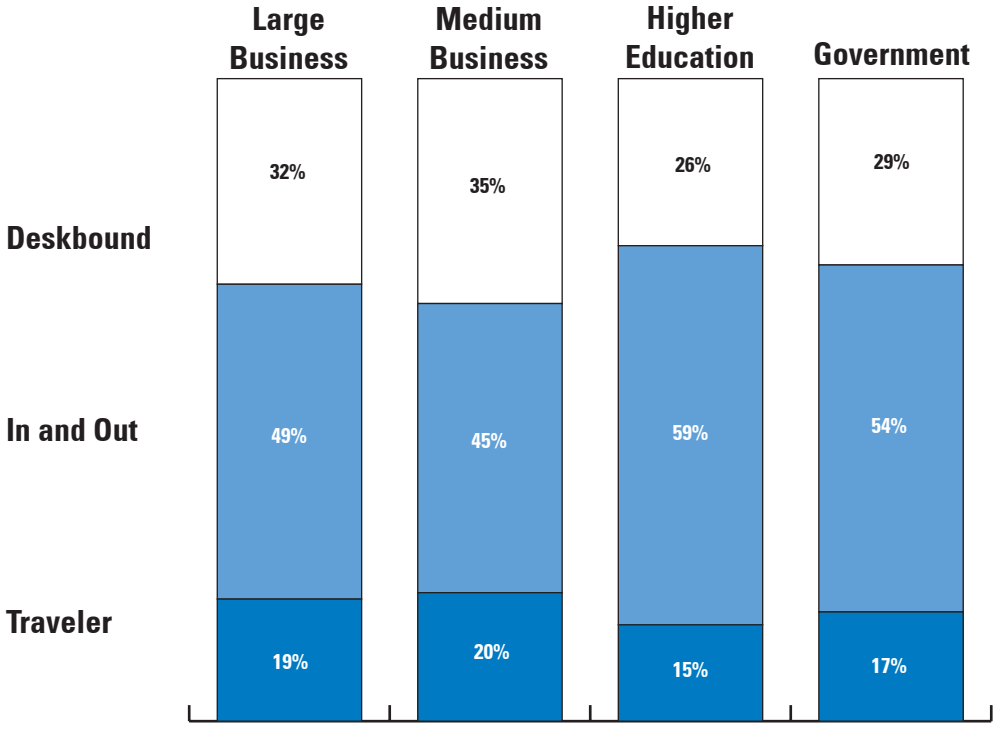
Government



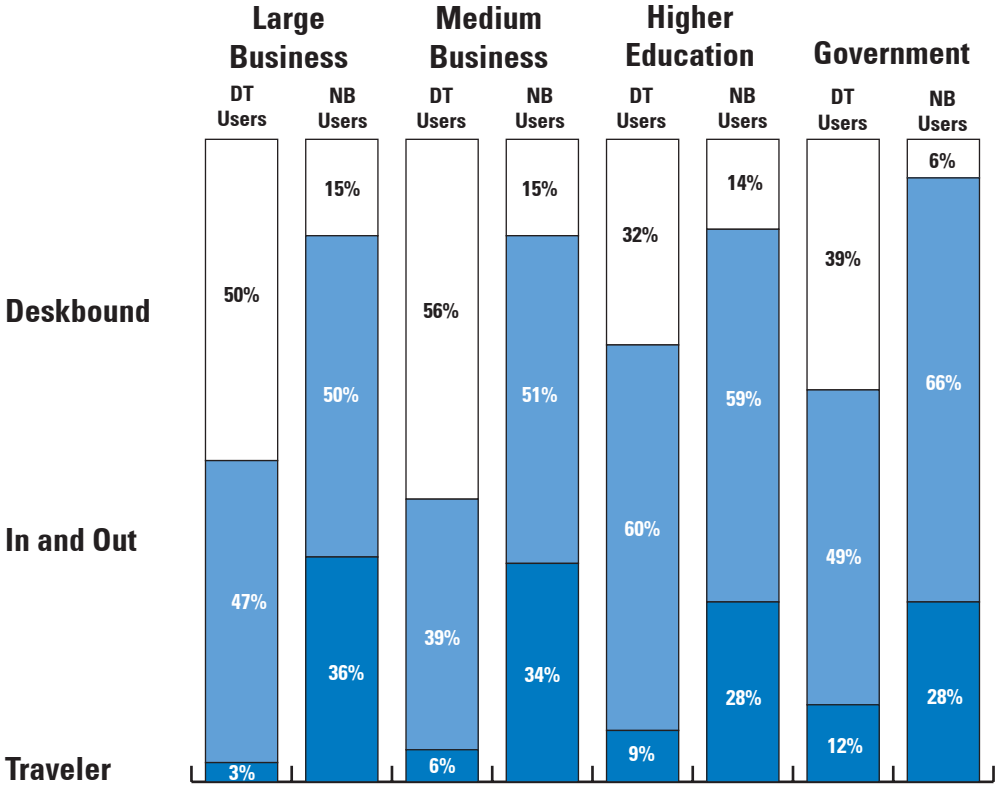
Total Sample



The overall mix of Deskbound / In and Out / Traveler respondents (self-categorized) is 31% Deskbound, 51% In and Out, and 18% Travelers. This distribution does differ by type of organization, as shown below.



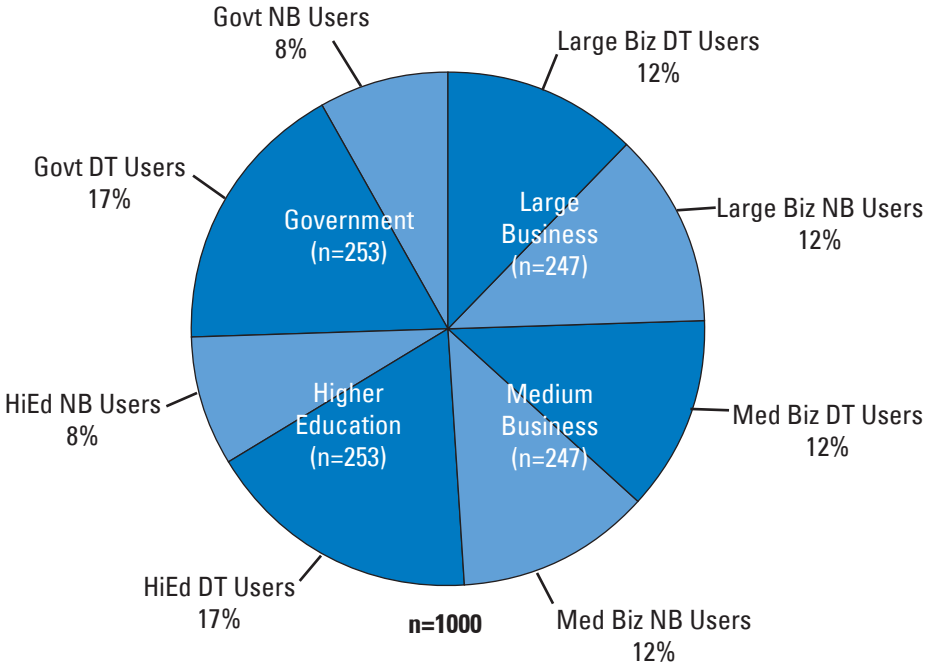
There are more "Travelers" currently using notebooks than desktops and more "Deskbounds" currently using desktops than notebooks. Below is a chart that shows the how the PC usage categories fall out between desktop and notebook users across the organization types.



Research Methodology

UTech Consulting, an independent third party market research firm, conducted 1,000 interviews using an online methodology with qualified respondents in medium and large sized organizations crossing a number of industries, including government and education. All of the respondents are full-time employees who have a PC specifically assigned to them at work and who use a PC at least 10 hours per week for to fulfill their job responsibilities. These online interviews were completed using a 1.5 million member online panel, and were conducted in the first half of April 2004.

Respondent Profile
Type of Organization & Current PC Platform



Statistical Note On The Calculation Of The "Average" Productivity Gain

Any time that an open-ended quantity is collected in a survey, an analysis is done to understand whether or not any outliers or positive skew exists and how they should be handled in order to calculate an average score that best represents the information collected.

In this case, the full distribution of responses to the productivity question (the number of hours question) was analyzed to identify and account for any outliers or positive skew in the data. We calculated the mean, the median, and other detailed measures of dispersion and central tendency for the two measures in order to understand the nature and details of the distribution. The mean for the total distribution is 8.3 hours while the median is 5 hours.

This is a slight positive skew in the data, but not a great one, which is an indication of strong consistency and robustness in this data distribution.

An adjustment was then made to set any score above the 95th percentile to the 95th percentile value (which was 24 hours in this distribution). This is a standard adjustment that is made with distributions of a slight positive skew, and this adjustment brought the mean score down to 7.7 hours (a slight decrease which again indicates that the outlying values are not that extreme and are not having a great impact on the distribution). This adjusted mean is the "average" score shown throughout this report.

About UTech Consulting

UTech Consulting, commissioned by Dell Inc. to perform this study, is a market research firm in Austin, Texas focusing on quantitative research methodologies with particular expertise in the technology arena.

Andy Pyle is a Principal at UTech, and with 15 years of market research experience and an MBA from the University of Texas, brings a unique perspective and level of expertise to the design and delivery of market research. If you have any questions please don't hesitate to contact Andy at andypyle@utech-consult.com, or 512-775-6398.

Market Research Results: Desktop Replacement Productivity Impact Study, June 8, 2004. Dell cannot be responsible for errors in typography or photography or omissions.