Research

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Older PCs in SMB Cost Study – Selected Results

A J.Gold Associates Research Report

"In order to better understand the issues around small to medium business (SMB) using older personal computers, and to assess the challenges and costs associated with deploying older PCs, we conducted a web-based survey consisting of a total of 3297 responses from 16 different countries …"

J.Gold Associates

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Introduction

In order to better understand the issues around small to medium businesses (SMB) using older personal computers, and to assess the challenges and costs associated with deploying older PCs, we conducted a web-based survey consisting of a total of 3297 responses from 16 countries worldwide, as indicated below:

Country	Survey Respondents
USA	200
Japan	220
China	200
India	200
Australia	200
UK	214
Canada	211
Germany	202
France	207
Italy	209
Spain	210
Mexico	205
UAE	207
Turkey	201
Saudi Arabia	208
South Africa	203

The questions asked included several qualifying demographic questions, and 29 questions that were targeted at better understanding the SMB markets in each of the 16 countries as well as providing a combined average across all of the countries surveyed. This data was collected in 2 phases, with the initial phase of collecting data from the first 5 countries conducted in April, 2018, and the second phase of data collection from the remaining 11 countries conducted in July, 2018

This report will highlight selected results of the survey data, and is aimed at exploring the costs associated with using older machines in the SMB environment.

Average Computer Use in Surveyed Companies

We asked the respondents to indicate what percentage of their employees used a PC in their daily work, by making a selection within a range, as shown below.

Q1: Approximately what percentage of your workers currently use or will use company provided Personal Computers in their job?

0%-10%
11%-25%
26%-50%
51%-75%
76%-100%
Don't know
Currently

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Q1: The average number of employees who use a company provided PC is:

	Currently	In 1 Year	In 3 Years
Global	75.03%	77.71%	79.58%
USA	78.88%	80.56%	78.37%
India	77.63%	79.63%	80.94%
Australia	76.25%	78.25%	78.69%
PRC	74.13%	78.88%	78.62%
Japan	73.11%	72.94%	74.93%
UK	74.68%	78.14%	80.64%
Canada	73.66%	76.11%	78.15%
Germany	72.90%	76.21%	79.81%
France	75.32%	78.93%	80.05%
Italy	74.24%	77.68%	79.77%
Spain	75.26%	77.43%	79.14%
Mexico	75.93%	79.00%	82.44%
UAE	73.27%	77.08%	81.68%
Turkey	75.69%	79.28%	78.19%
Saudi Arabia	75.50%	77.68%	80.47%
South Africa	74.33%	76.03%	81.65%

We also asked respondents to indicate the average time employees spend on a computer as shown below:

Q2: On average what is the approximate percentage of time that your employees spend on their Personal Computer during the work day?

0%-10%
11%-25%
26%-50%
51%-75%
76%-100%
Don't know

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Q2: The average percentage of time employees spend on the PC:

Global	**67.4%**
USA	64.4%
India	71.6%
Australia	66.6%
PRC	65.7%
Japan	59.4%
UK	63.9%
Canada	65.3%
Germany	65.9%
France	70.7%
Italy	67.6%
Spain	68.5%
Mexico	72.1%
UAE	64.1%
Turkey	72.6%
Saudi Arabia	70.0%
South Africa	70.7%

How old are the computers in use by responding companies

We asked the respondents to indicate the age of the desktop and laptop computers in use within their companies.

Q4: Approximately how old are the Desktop Personal Computers in use at your company?

	Less than 1 year old	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years old
0%-10%						
11%-25%						
26%-50%						
51%-75%						
76%-100%						
Don't know						

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Q4 Average percentage of desktops by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	20.2%	23.6%	25.2%	19.8%	15.9%	7.7%
USA	18.87%	22.20%	26.15%	17.85%	12.04%	6.62%
India	25.15%	21.00%	22.10%	15.26%	8.91%	6.64%
Australia	19.14%	22.21%	21.19%	18.03%	13.34%	7.07%
PRC	18.10%	26.90%	25.82%	17.72%	7.94%	6.64%
Japan	14.80%	18.92%	30.20%	18.12%	15.90%	6.98%
UK	20.6%	26.9%	25.5%	18.9%	17.8%	7.7%
Canada	19.6%	21.5%	19.8%	18.8%	16.0%	8.6%
Germany	18.8%	24.8%	27.4%	23.6%	19.0%	7.2%
France	24.6%	28.2%	28.2%	23.2%	18.8%	8.7%
Italy	19.9%	21.8%	22.9%	18.6%	15.9%	8.3%
Spain	19.5%	24.6%	25.9%	22.2%	19.3%	8.0%
Mexico	21.5%	22.3%	22.2%	17.9%	16.0%	8.0%
UAE	22.1%	22.6%	24.0%	21.0%	16.1%	9.4%
Turkey	21.1%	21.6%	26.8%	23.0%	16.9%	7.1%
Saudi Arabia	22.3%	24.2%	21.8%	19.2%	20.9%	8.5%
South Africa	14.8%	23.9%	27.9%	20.7%	14.7%	6.6%

Q5: Approximately how old are the Laptop Personal Computers in use at your company?

Less than 1 year old 1-2 years 2-3 years 3-4 years 4-5 years More than 5 years old

0%-10%
11%-25%
26%-50%
51%-75%
76%-100%
Don't know

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Q5 Average percentage of laptops by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	21.85%	25.39%	26.83%	23.19%	11.44%	8.24%
USA	21.30%	25.71%	21.69%	15.90%	10.94%	7.03%
India	28.08%	19.88%	18.64%	13.56%	8.35%	6.59%
Australia	21.95%	21.11%	18.48%	16.05%	11.78%	6.59%
PRC	21.73%	30.07%	24.64%	14.01%	6.79%	6.12%
Japan	15.84%	22.84%	21.45%	20.27%	12.67%	12.15%
UK	21.72%	24.42%	28.80%	26.37%	13.71%	7.46%
Canada	22.15%	23.22%	27.31%	29.36%	11.57%	9.16%
Germany	20.40%	25.82%	24.54%	26.53%	11.45%	8.37%
France	21.00%	27.24%	28.56%	20.18%	10.58%	8.04%
Italy	21.39%	26.18%	28.19%	26.65%	11.45%	7.76%
Spain	20.25%	25.51%	32.81%	22.10%	11.90%	7.86%
Mexico	22.98%	26.52%	29.27%	29.02%	11.51%	8.33%
UAE	21.50%	25.54%	25.33%	25.54%	11.89%	9.36%
Turkey	20.68%	25.10%	34.16%	25.38%	10.09%	6.72%
Saudi Arabia	23.37%	24.38%	26.25%	26.79%	13.08%	9.52%
South Africa	19.49%	26.35%	32.87%	26.65%	10.38%	6.70%

Employee Productivity by Age of PC

We asked respondents to estimate the level of productivity impairment by a percentage range, based on the age of the PC being used.

Q9: Please estimate approximately how much less productive you expect an employee with an older computer to be?

Less than 1 year old 1-2 years 2-3 years 3-4 years 4-5 years More than 5 years old

0%-10%
11%-25%
26%-50%
51%-75%
76%-100%
Don't know

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Q9 Average percentage less productive by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	3.75%	5.82%	12.89%	19.28%	30.13%	43.70%
USA	2.66%	4.03%	8.38%	12.43%	19.16%	27.41%
India	2.25%	4.35%	9.32%	15.36%	25.97%	38.99%
Australia	3.13%	5.43%	9.12%	14.24%	20.54%	27.60%
PRC	2.66%	3.80%	9.10%	13.51%	24.86%	40.04%
Japan	2.49%	3.92%	8.19%	12.34%	19.33%	25.76%
UK	4.22%	6.20%	13.83%	19.65%	31.49%	45.43%
Canada	4.29%	7.15%	16.25%	24.82%	34.53%	48.28%
Germany	3.55%	6.45%	13.74%	20.60%	30.40%	42.81%
France	4.18%	5.59%	13.68%	20.60%	30.95%	44.61%
Italy	3.81%	5.64%	12.59%	18.68%	31.97%	47.21%
Spain	3.84%	6.12%	13.68%	20.71%	29.31%	47.21%
Mexico	4.50%	6.63%	14.14%	21.42%	32.73%	49.13%
UAE	3.88%	5.49%	13.76%	19.80%	30.60%	42.77%
Turkey	3.55%	5.71%	13.42%	19.37%	32.05%	47.60%
Saudi Arabia	4.34%	6.16%	13.91%	19.42%	33.94%	45.54%
South Africa	3.11%	4.89%	11.44%	16.12%	22.61%	30.54%

Calculating the effect of loss of productivity from older machines

Employees on older PCs are less productive than those on newer PCs. In order to assess the cost to organizations of keeping older machines in use, we calculated the opportunity cost to the organization based on the reduced productivity. For this calculation, we took the average percentage less productive from the chart above (Q9), multiplied by the amount of time on average users spend using their PCs (from Q2) to determine how much less productive users are based on the age of their machines. We used the midpoint of the possible selected ranges times the number of selections in each range to compute the averages.

The average percentage of time employees spend on the PC:

Global	**67.4%**
USA	64.4%
India	71.6%
Australia	66.6%
PRC	65.7%
Japan	59.4%
UK	63.9%
Canada	65.3%
Germany	65.9%
France	70.7%
Italy	67.6%
Spain	68.5%
Mexico	72.1%
UAE	64.1%
Turkey	72.6%
Saudi Arabia	70.0%
South Africa	70.7%

We then multiply the loss of productivity figures in Q9 by the average time spent on the computer from Q2, This provides us with both a figure that shows percentage less productive, but also the percentage of additional workers needed to compensate for the reduced productivity.

Additional workers necessary to compensate for lost productivity

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	2.53%	3.92%	8.68%	12.99%	20.30%	29.45%
USA	1.71%	2.59%	5.39%	8.00%	12.33%	17.64%
India	1.61%	3.11%	6.68%	11.00%	18.60%	27.93%

Australia	2.08%	3.61%	6.07%	9.47%	13.67%	18.37%
PRC	1.75%	2.49%	5.97%	8.87%	16.33%	26.30%
Japan	1.48%	2.33%	4.87%	7.33%	11.48%	15.31%
UK	2.70%	3.96%	8.84%	12.55%	20.11%	29.01%
Canada	2.80%	4.66%	10.61%	16.20%	22.54%	31.52%
Germany	2.34%	4.25%	9.05%	13.57%	20.02%	28.19%
France	2.96%	3.95%	9.67%	14.56%	21.88%	31.54%
Italy	2.58%	3.81%	8.52%	12.64%	21.63%	31.93%
Spain	2.63%	4.19%	9.37%	14.19%	20.08%	32.34%
Mexico	3.24%	4.78%	10.19%	15.45%	23.60%	35.42%
UAE	2.48%	3.52%	8.81%	12.69%	19.61%	27.41%
Turkey	2.58%	4.15%	9.74%	14.06%	23.26%	34.55%
Saudi Arabia	3.04%	4.31%	9.74%	13.59%	23.75%	31.87%
South Africa	2.20%	3.46%	8.09%	11.40%	15.99%	21.59%

From the above calculations, we see that using the global result, an employee with a more than 5 year old PC has a productivity loss of 29.45%

Lost productivity costs

Using the above table, which indicates the percentage of additional staffing necessary to compensate for the loss in productivity, we calculated the actual cost to the organization by multiplying the percentage number by the burdened salary of a worker. Because there is such a wide range of salaries across countries and roles within an organization, we have not tabulated lost productivity cost calculations here. But the calculation is:

Percentage of additional workers (from the chart above) X burdened salary of worker = the lost opportunity cost to the organization per worker

As an example, a global worker with a more than 5 year old PC with a 29.45% loss of productivity at a burdened salary of $60,000 costs an organization $17,667 per year and a global worker with a 4 – 5 year old PC with a 20.30% loss of productivity at a burdened salary of $60,000 costs an organization $12,180 per year. Another way to look at this calculation is that a company that provides a more than 5 year old PC to an employee that results in a 29.45% loss of productivity means that the company will have to increase the level of staffing by that same amount (29.45%) to compensate for the loss of productivity. This is especially problematic in those industries where skilled workers are hard to acquire.

Lost Productivity as a Function of PC Start-up Time

We asked the respondents to indicate the time it took to start up a PC based on the age of the PC.

Q11 Based on your experience and/or your employee's experiences, estimate approximately how much longer you think an older Personal Computer takes to start up as compared to a new machine?

	Less than 1 year old	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years old
0%-10%						
11%-25%						
26%-50%						
51%-75%						
76%-100%						
Don't know						

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

The average additional start up time for an older PC:

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	4.57%	8.93%	14.35%	22.46%	30.24%	44.02%
USA	2.74%	5.93%	9.25%	14.28%	21.53%	31.82%
India	2.77%	5.72%	9.54%	14.85%	21.04%	33.57%
Australia	3.12%	6.18%	9.41%	14.06%	19.84%	27.52%
PRC	2.78%	6.60%	10.22%	16.13%	24.02%	38.62%
Japan	2.44%	5.89%	8.83%	13.43%	18.73%	24.85%
UK	4.94%	9.10%	14.48%	24.10%	31.08%	43.44%
Canada	5.72%	11.03%	20.18%	30.79%	37.73%	49.86%
Germany	4.99%	8.94%	15.15%	23.37%	30.04%	42.66%
France	4.65%	8.75%	13.68%	21.54%	30.10%	49.12%
Italy	4.92%	8.89%	15.89%	25.68%	33.50%	46.12%
Spain	4.92%	8.89%	15.89%	25.68%	33.50%	46.12%
Mexico	5.11%	9.44%	15.85%	26.93%	35.17%	52.99%
UAE	5.20%	9.88%	15.34%	23.95%	30.45%	41.94%
Turkey	4.47%	8.72%	14.55%	22.41%	31.31%	47.43%
Saudi Arabia	6.44%	11.93%	17.80%	24.75%	32.68%	44.23%
South Africa	3.92%	7.66%	11.47%	17.78%	22.94%	29.75%

We further asked how long the expected start-up time was, by the age of the PC.

Q12: Based on your experience and/or your employee's experiences, estimate the approximate Start up/Boot time of your company's Personal Computers.

	Less than 1 year old	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years old
0%-10%						
11%-25%						
26%-50%						
51%-75%						
76%-100%						
Don't know						

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of selections, and calculated the average number from that result.

Average minutes for startup time

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	0.69	1.21	1.86	2.90	3.55	4.07
USA	0.51	0.67	1.00	2.31	3.16	3.84
India	0.50	0.67	0.95	2.24	2.99	3.74
Australia	0.54	0.70	1.01	2.32	3.05	3.75
PRC	0.42	0.68	0.94	2.06	3.04	3.86
Japan	0.58	0.87	1.19	2.52	3.44	4.08
UK	0.78	1.38	2.32	3.43	4.06	4.46
Canada	0.78	1.65	2.76	3.60	3.97	4.22
Germany	0.67	1.16	1.92	2.93	3.48	4.11
France	0.67	1.24	1.80	2.60	3.01	3.59
Italy	0.80	1.35	2.19	3.23	3.51	3.88
Spain	0.76	1.51	2.58	3.38	3.79	4.36
Mexico	0.94	1.71	2.51	3.44	4.19	4.41
UAE	0.82	1.46	2.28	3.42	4.09	4.52
Turkey	0.73	1.46	2.14	3.06	3.70	4.07
Saudi Arabia	0.86	1.71	2.49	3.46	4.16	4.49
South Africa	0.60	1.01	1.55	2.42	3.06	3.60

If we assume one startup per day, then the total hours of lost productivity per year are:

Total hours per year of startup time

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	2.01	3.52	5.42	8.46	10.35	11.88
USA	1.42	1.86	2.77	6.43	8.80	10.71
India	1.54	2.06	2.93	6.95	9.28	11.62
Australia	1.55	2.03	2.92	6.69	8.79	10.80
PRC	1.18	1.95	2.68	5.87	8.66	10.98
Japan	1.49	2.24	3.08	6.50	8.87	10.52
UK	2.15	3.83	6.41	9.50	11.24	12.35
Canada	2.22	4.66	7.82	10.19	11.24	11.95
Germany	1.91	3.32	5.47	8.37	9.94	11.74
France	2.07	3.79	5.51	7.95	9.22	11.00
Italy	2.35	3.96	6.41	9.45	10.28	11.36
Spain	2.26	4.47	7.65	10.04	11.24	12.94
Mexico	2.95	5.33	7.83	10.75	13.08	13.78
UAE	2.26	4.05	6.33	9.49	11.36	12.54
Turkey	2.30	4.59	6.72	9.63	11.65	12.79
Saudi Arabia	2.62	5.19	7.56	10.49	12.62	13.63
South Africa	1.84	3.08	4.75	7.42	9.37	11.04

We then multiply the average additional start up time in Q11 by the average time spent on the computer from Q2. This provides us with both a figure that shows the percentage of lost productivity, but also the percentage of additional workers needed to compensate for the reduced productivity.

Additional workers necessary to compensate for lost productivity

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	0.10%	0.17%	0.26%	0.41%	0.50%	0.57%
USA	0.07%	0.09%	0.13%	0.31%	0.42%	0.51%
India	0.07%	0.10%	0.14%	0.33%	0.45%	0.56%
Australia	0.07%	0.10%	0.14%	0.32%	0.42%	0.52%
PRC	0.06%	0.09%	0.13%	0.28%	0.42%	0.53%
Japan	0.07%	0.11%	0.15%	0.31%	0.43%	0.51%

UK	0.10%	0.18%	0.31%	0.46%	0.54%	0.59%
Canada	0.11%	0.22%	0.38%	0.49%	0.54%	0.57%
Germany	0.09%	0.16%	0.26%	0.40%	0.48%	0.56%
France	0.10%	0.18%	0.27%	0.38%	0.44%	0.53%
Italy	0.11%	0.19%	0.31%	0.45%	0.49%	0.55%
Spain	0.11%	0.22%	0.37%	0.48%	0.54%	0.62%
Mexico	0.14%	0.26%	0.38%	0.52%	0.63%	0.66%
UAE	0.11%	0.19%	0.30%	0.46%	0.55%	0.60%
Turkey	0.11%	0.22%	0.32%	0.46%	0.56%	0.61%
Saudi Arabia	0.13%	0.25%	0.36%	0.50%	0.61%	0.66%
South Africa	0.09%	0.15%	0.23%	0.36%	0.45%	0.53%

From the above calculations, we see that using the global result, an employee with a more than 5 year old PC has a productivity loss due to start up time of .57%

Lost productivity costs

Using the above table, which indicates the percentage of additional staffing necessary to compensate for the loss in productivity, we can calculate the actual cost to the organization by multiplying the percentage number by the burdened salary of a worker. Because there is such a wide range of salaries across countries and roles within an organization, we have not tabulated lost productivity cost calculations here. But the calculation is:

Percentage of additional workers (from the chart above) X burdened salary of worker = the lost opportunity cost to the organization per worker

As an example, a global worker with a more than 5 year old PC with a .57% loss of productivity at a burdened salary of $60,000 costs an organization $342.78 per year. Another way to look at this calculation is that a company that provides a more than 5 year old PC to an employee that results in a .57% loss of productivity means that the company will have to increase the level of staffing by that same amount (.57%) to compensate for the loss of productivity. This is especially problematic in those industries where skilled workers are hard to acquire.

Cost of Failures or Malfunctions by Age of PC

We asked the respondents to indicate the expected failure rates based on the age of the PC.

Q13: Based on your experience and/or your employee's experiences, estimate the percentage of Personal Computers being used by your employees that Break or Malfunction each year.

Less than 1 year old 1-2 years 2-3 years 3-4 years 4-5 years More than 5 years old

0%-10%
11%-25%
26%-50%
51%-75%
76%-100%
Don't know

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of times selected, and calculated the average number from that result.

Average yearly failure rates by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	5.16%	10.12%	15.89%	22.63%	31.50%	43.42%
USA	4.51%	8.98%	13.01%	17.89%	24.78%	31.95%
India	4.18%	8.68%	12.56%	19.54%	29.10%	41.74%
Australia	5.32%	9.67%	13.42%	18.32%	26.14%	34.47%
PRC	2.89%	7.74%	11.61%	17.30%	28.89%	39.46%
Japan	5.01%	9.90%	14.90%	21.28%	28.21%	38.67%
UK	5.88%	11.92%	18.57%	25.18%	33.74%	44.19%
Canada	5.89%	11.73%	19.39%	28.16%	35.93%	47.57%
Germany	5.09%	9.88%	15.44%	21.54%	27.93%	39.95%
France	5.83%	9.77%	14.45%	19.21%	34.12%	46.13%
Italy	5.78%	10.82%	18.51%	25.60%	33.79%	46.24%
Spain	5.18%	10.29%	15.81%	21.42%	29.53%	40.94%
Mexico	6.18%	11.91%	20.03%	29.52%	38.61%	53.57%
UAE	5.41%	10.15%	16.44%	24.37%	33.95%	43.91%
Turkey	5.39%	10.38%	17.69%	26.26%	35.39%	45.44%
Saudi Arabia	5.52%	10.97%	18.20%	26.84%	36.56%	51.23%
South Africa	4.30%	8.84%	13.78%	18.25%	22.17%	31.66%

In a previous study, *"Keeping Notebooks Past Their Prime", J.Gold Associates, LLC. Copyright 2009,* our research indicated that the failure of a PC under warranty cost a company $1070 for each failure, and the cost of failure for a machine out of warranty was $1525. We can allocate a cost per user per year based on the above calculated costs of failure (assuming an in warranty failure cost for year one and a non-warranty failure cost for all other years).

Cost = average failure rate X cost of warranty X the average usage from Q2

Cost per user per year for PC failures by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	$55.17	$154.30	$242.29	$345.07	$480.43	$662.20
USA	$48.23	$136.91	$198.36	$272.82	$377.90	$487.20
India	$44.70	$132.29	$191.50	$297.95	$443.74	$636.57
Australia	$56.90	$147.51	$204.69	$279.30	$398.56	$525.71
PRC	$30.87	$118.07	$176.98	$263.75	$440.53	$601.73
Japan	$53.65	$150.98	$227.16	$324.58	$430.19	$589.69
UK	$62.96	$181.81	$283.18	$383.97	$514.55	$673.85
Canada	$62.98	$178.84	$295.71	$429.47	$547.89	$725.43
Germany	$54.50	$150.72	$235.40	$328.54	$425.94	$609.22
France	$62.37	$148.93	$220.38	$292.88	$520.36	$703.54
Italy	$61.86	$165.04	$282.31	$390.37	$515.27	$705.17
Spain	$55.39	$156.89	$241.18	$326.70	$450.28	$624.27
Mexico	$66.08	$181.59	$305.53	$450.10	$588.88	$816.87
UAE	$57.84	$154.79	$250.74	$371.59	$517.75	$669.61
Turkey	$57.72	$158.36	$269.79	$400.51	$539.65	$692.97
Saudi Arabia	$59.11	$167.31	$277.50	$409.28	$557.50	$781.32
South Africa	$45.99	$134.88	$210.12	$278.35	$338.05	$482.85

Cost of a Malware Attack or Security Breach

We asked the respondents to indicate what percentage of PCs had a security breach, by age of the PC.

Q18: Can you please estimate the percentage of machines that have had malware attacks and/or hacks by the age of the machine?

Less than 1 year old 1-2 years 2-3 years 3-4 years 4-5 years More than 5 years old

0%-5%
6%-10%
11%-15%
16%-25%
26%-50%
More than 50%
Don't know

We calculated an average by taking the midpoint of the ranges possible to be selected times the number of times selected, and calculated the average number from that result.

Average percentage of hacked machines by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	5.92%	10.40%	12.29%	17.90%	24.38%	34.47%
USA	3.18%	4.67%	6.52%	8.62%	11.14%	16.17%
India	2.99%	5.29%	7.72%	12.00%	17.51%	25.92%
Australia	4.52%	6.98%	10.05%	14.15%	17.78%	22.52%
PRC	1.68%	3.10%	4.75%	7.25%	10.58%	15.05%
Japan	3.05%	5.38%	7.81%	10.88%	14.45%	18.62%
UK	6.24%	11.47%	16.92%	25.78%	33.64%	43.28%
Canada	6.66%	12.44%	20.87%	29.89%	36.70%	46.18%
Germany	5.40%	10.99%	16.77%	21.97%	28.35%	36.67%
France	7.48%	11.72%	16.83%	23.52%	30.04%	39.64%
Italy	5.74%	10.67%	17.40%	26.03%	31.40%	43.19%
Spain	5.92%	10.33%	16.59%	25.18%	33.61%	40.00%
Mexico	5.75%	10.64%	17.92%	24.64%	33.13%	44.18%
UAE	5.71%	10.39%	18.28%	25.15%	33.36%	42.37%
Turkey	6.92%	10.97%	17.66%	27.09%	33.84%	44.88%
Saudi Arabia	6.40%	11.37%	18.69%	23.67%	31.81%	41.86%
South Africa	6.05%	10.83%	16.70%	23.66%	30.32%	38.61%

To find the malware/breach costs for each event, we use the average cost per breach determined in Q20.

Average cost of a malware/data breach (from Q20)

Global	**$103,705**
USA	$126,889
India	$114,958
Australia	$143,038
PRC	$73,462
Japan	$74,845
UK	$91,017
Canada	$100,718
Germany	$104,508
France	$103,134
Italy	$94,416
Spain	$123,602
Mexico	$130,807
UAE	$93,194
Turkey	$110,950
Saudi Arabia	$103,736
South Africa	$68,713

Allocating the cost of a malware attack or data breach by employee can be calculated by the following formula:
Cost per employee = average percentage that have had a breach X the average cost of the breach

We have provided these calculations below.

Cost of malware/data breach per employee by age of PC

	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years
Global	$6,136	$10,783	$12,747	$18,567	$25,286	$35,745
USA	$4,029	$5,926	$8,270	$10,938	$14,139	$20,515
India	$3,431	$6,078	$8,869	$13,789	$20,132	$29,797
Australia	$6,465	$9,984	$14,372	$20,236	$25,432	$32,205
PRC	$1,234	$2,279	$3,486	$5,326	$7,769	$11,054
Japan	$2,281	$4,026	$5,843	$8,143	$10,815	$13,935
UK	$5,679	$10,442	$15,397	$23,464	$30,615	$39,389

Canada	$6,706	$12,527	$21,017	$30,108	$36,968	$46,513
Germany	$5,646	$11,485	$17,522	$22,958	$29,629	$38,320
France	$7,715	$12,088	$17,354	$24,260	$30,985	$40,884
Italy	$5,419	$10,076	$16,433	$24,580	$29,648	$40,777
Spain	$7,315	$12,768	$20,504	$31,122	$41,541	$49,436
Mexico	$7,521	$13,922	$23,446	$32,236	$43,335	$57,789
UAE	$5,317	$9,685	$17,040	$23,439	$31,085	$39,484
Turkey	$7,678	$12,170	$19,596	$30,052	$37,549	$49,798
Saudi Arabia	$6,638	$11,798	$19,393	$24,550	$33,003	$43,423
South Africa	$4,154	$7,441	$11,473	$16,254	$20,832	$26,531

Conclusions

As can be seen from the above selected data points, older PCs in an SMB environment can have significant negative cost implications, and the older the machines, the more costly they are to run in terms of worker productivity impairment and increased cost of maintenance. Further, older machines are much more susceptible to data breaches, and the cost of such breaches is high.

While the above results are only a portion of the data obtained in our research study, it supports the strong conclusion that older PCs are costing small businesses a significant loss of productivity and ultimately a good deal of money. We recommend that PCs be updated/replaced on a relatively short (2-3 year) timeframe for maximum productivity and minimum cost of operations.

About J.Gold Associates

J.Gold Associates provides insightful, meaningful and actionable analysis of trends and opportunities in the computer and technology industries. We offer a broad based knowledge of the technology landscape, and bring that expertise to bear in our work. J.Gold Associates provides strategic consulting, syndicated research and advisory services, and in-context analysis to help its clients make important technology choices and to enable improved product deployment decisions and go to market strategies.

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