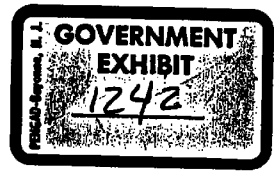
OS ADOPTION AND MIGRATION RESEARCH

- Desktop Analysis -

February,1998



COMPAQ

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OS MIGRATION RESEARCH

Background

In September, 1996, Compaq's Commercial Desktop and Portable divisions conducted a quantitative research study to evaluate OS migration -- currently installed operating systems and plans for OS migration.

As a follow-up to this study, these divisions are interested in re-evaluating the adoption rate of operating systems as well as identifying the preferred pre-installed operating system for purchase in 1998 and later.

This information will be useful in the determination of solutions to develop for corporate customers and aid Compaq in the development of industry partnerships and hardware optimization strategies.

OS MIGRATION RESEARCH

Objectives

1. Identify the current operating systems installed in customer environments
2. Identify the operating system that was installed on new desktop and portable purchases in 1997
   - Measure the driving need for the OS installed on desktops and portables purchased in 1997
3. Determine the preferred OS to be delivered on desktops/portables to be purchased in 1998
4. Determine the rate of complete reformatting of hard drives for new purchases (desktops and portables)
5. Identify the manufacturer (desktop and portable) that delivers the optimum alternatives for:
   - Software delivery
   - OS system support
   - Availability of drivers

OS MIGRATION RESEARCH

Sample and Method

Research was conducted among a total of 283 PC decision makers at companies across the U.S. using telephone interviews. Sample was derived from Dun & Bradstreet and the Competitive Intelligence database.

Respondents were screened to meet the following criteria:

- Employee size of 20+
- MIS/PC decision makers who select or recommend the brands and models of PCs their companies purchase
- Have responsibility and/or knowledge about the setup procedures for end users
- Have X86 compatible computers
- Have desktop PCs or desktop and/or portable PCs currently installed in their company
- Must have purchased at least one desktop and one laptop PC (non Apple) in the past 12 months.
- For company sizes of 20 to 99 employees, must have at least 5 desktops and 2 portables; for 100-999 employees, must have 10% desktops and 5 portables; for 1000+ employees, must have 10% desktops and 10 portables.

Interviews were conducted from January 15 to February 20, 1998.

OS MIGRATION RESEARCH

Key Findings

- As seen in 1996, usage of more than one type of operating system on desktops is common.
  - Windows 95 is the dominant operating system, with roughly 70% of businesses using this OS in 1996 and over 95% of businesses using it in in 1997.
  - Win 3.X maintains solid base of installed users in all company sizes, with about 60% using this OS.
  - Windows NT adoption is up substantially, with about one-half of companies using this operating system. As seen in 1996, Windows NT adoption is much higher for large businesses, with 69% using this OS.

- Windows 95 and Windows NT 4.0 are the operating systems of choice for planned installation for desktops, with about one-half preferring each of these operating systems. Migration to Windows NT is highest for large businesses.
  - Only 5% are planning to migrate to Win 98 in 1998.

OS MIGRATION RESEARCH

Key Findings - Continued

- Most respondents continue to prefer having the operating system pre-installed on desktops.
  - Preference for pre-installed OS is highest for large firms (83%).

- Familiarity with Windows NT Workstation 5.0 is not yet universal, with about 70% aware of this OS. Of those familiar, planned usage is small (about 10% of all DTs). Medium and larger companies indicate a higher likelihood to migrate than small companies.
  - Planned migration is slow. Of those planning migration, 5 to 7 months is the expected timeframe, with the majority of large companies likely to wait more than 6 months after introduction.

OS MIGRATION RESEARCH

Key Findings - Continued

- Planned migration to Windows 98 on current desktops is low.
  - About one-third of all company sizes indicate plans to use Windows 98.
  - Planned migration time is about 6 to 7 months. Similar to Windows NT Workstation 5.0, large companies are the least likely to implement Win 98 in the near term.

- About 80% of companies wipe or reformat the hard drives of new desktops.
  - This is substantially higher than that seen for laptops, measured at about 50%.
  - On average, about 25% of desktops will be reformatted. Small businesses reformat at the highest rate, with 43% of their hard drives being reformatted.
  - The operating system re-installed most often are OSR2 and the retail version of Windows 95. Large businesses lean more toward the retail version of Windows 95.

OS MIGRATION RESEARCH

Key Findings - Continued

- In terms of file systems, no one will be used universally among businesses.
  - Small businesses favor FAT 32 and NFTS, medium businesses prefer FAT 32 and large businesses prefer FAT 16, FAT 32 and NFTS equally.
  - Few (less than one-third) plan to transition to a new file system in the next 12 months.
  - Large businesses are most likely to transition (32%), with FAT 32 and NFTS being the the likely systems selected.

- About 70% of all businesses are running a Web Browser on their desktops.
  - Among those with Web Browsers installed, Microsoft leads in the number of desktops installed, followed closely by Netscape.
  - Preferred Web Browser preferences for future desktop purchases are split about evenly between Netscape and Microsoft Internet Explorer for all company sizes.

OS MIGRATION RESEARCH

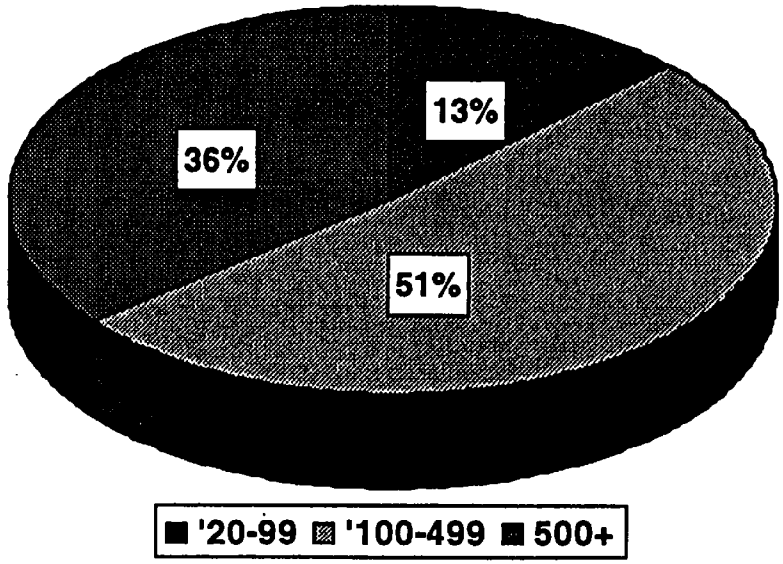
Key Findings - Continued

- When asked to rate Compaq, HP, IBM and Dell for *availability of drivers*, *OS support* and *software delivery*, responses are varied.
  - HP is regarded as having the best availability of drivers and OS support. They are slightly behind Compaq and Dell for software delivery.
  - Compaq's slight weakness is in the area of OS support.
  - IBM generates the weakest ratings in all areas.

OS MIGRATION RESEARCH

How many employees work for your organization?

- Due to recruiting difficulties, sample primarily consists of medium 100-999 (N=146) and large 1000+(N=101) companies.
- Medium sized companies average 289 employees with an installed base of 179 desktops.
- Large companies have average 16,485 employees with an installed based of 5,975 desktops .



	Small 20-99	Medium 100-999	Large 1000+
Average Number of Employees	58	289	16,485
Avg DT Installed Base	50	179	5,975

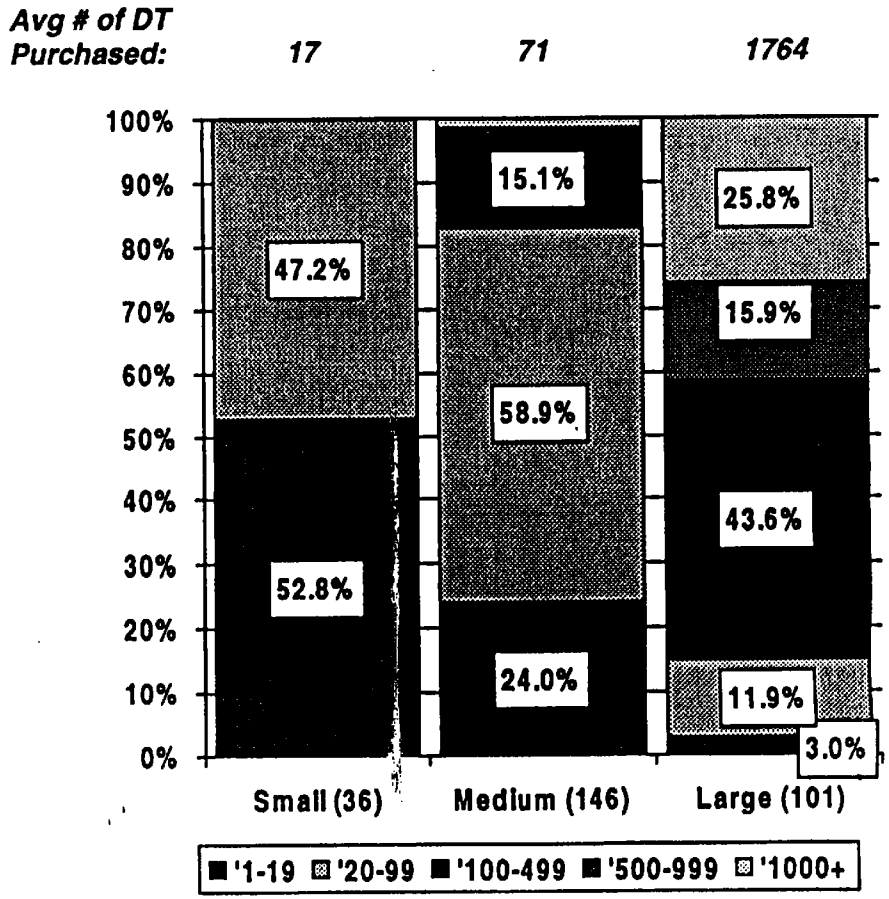
N Size = Small 36, Medium 146, Large 101

Base: 283 respondents

OS MIGRATION RESEARCH

Approximately how many X86 Desktop PCs did your organization purchase in the past 12 months?

- About 30% to 40% of desktops owned have been purchased in the past 12 months.
- Medium sized companies have purchased at the highest rate.

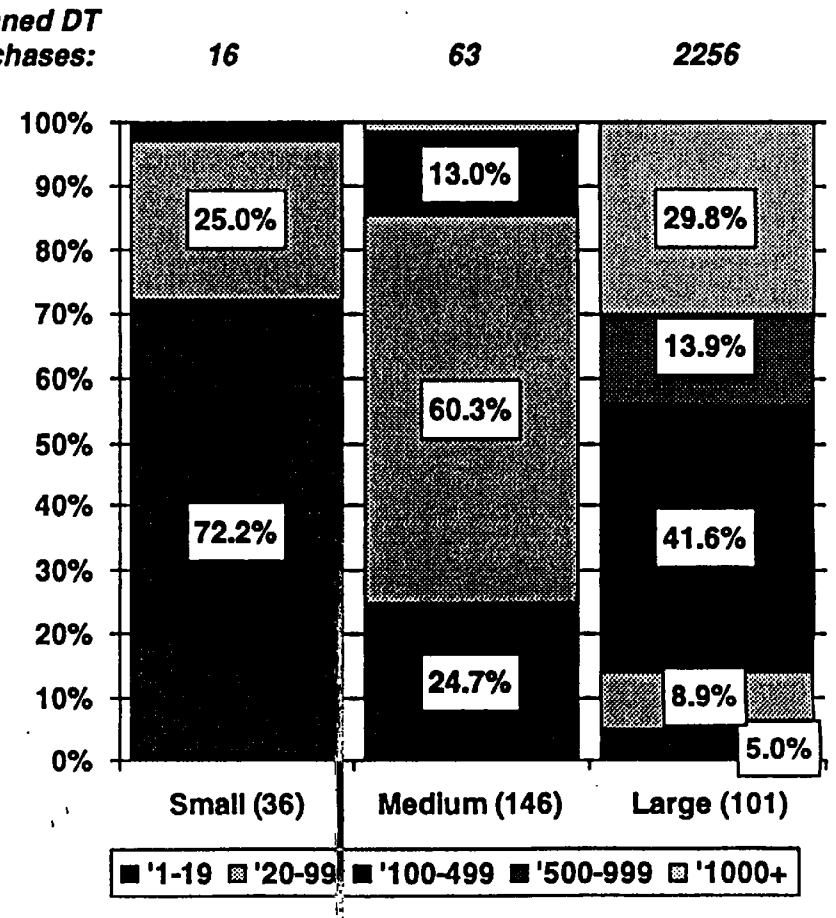


Base: All Respondents

OS MIGRATION RESEARCH

Approximately how many X86 Desktop PCs will your organization purchase in the next 12 months?

- Small and Medium companies plan to purchase about the same amount of desktops in the next 12 months as they did the previous 12 months.
- Large companies plan to purchase slightly more.

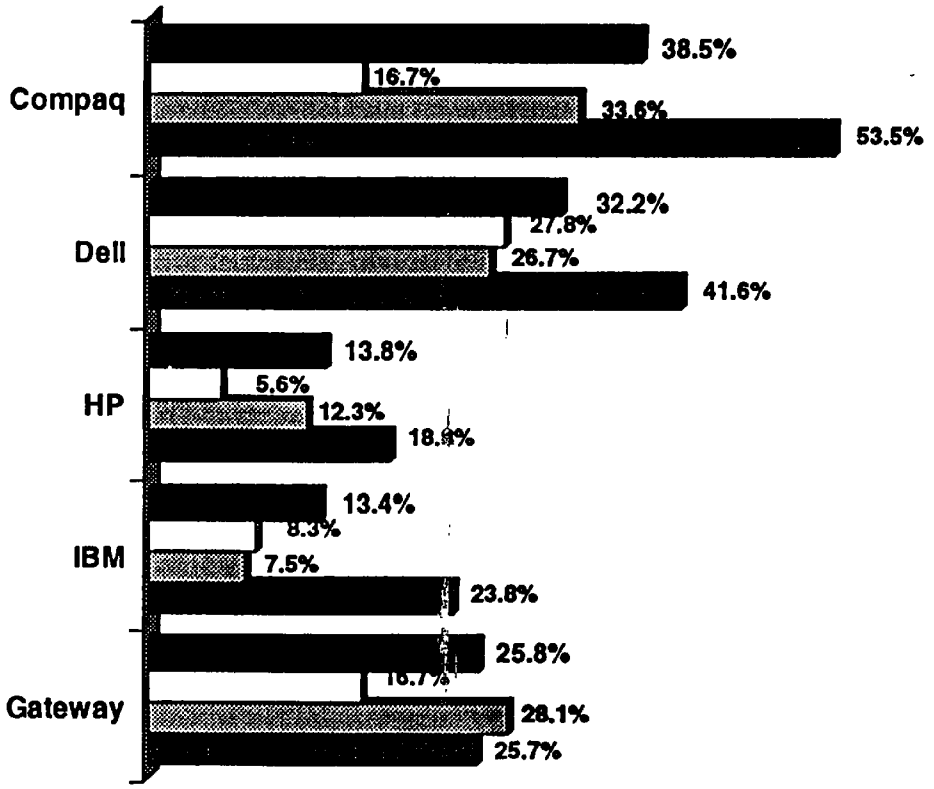


Base: All Respondents

OS MIGRATION RESEARCH

Top brands of desktop PCs purchased in the past 12 months (Mentioned by at least 5% of respondents)

- Compaq leads as the most widely purchased desktop. Not surprisingly, strengths lie in large business with weaknesses in small.
- Dell is second in DT purchases followed by Gateway, HP and IBM respectively.

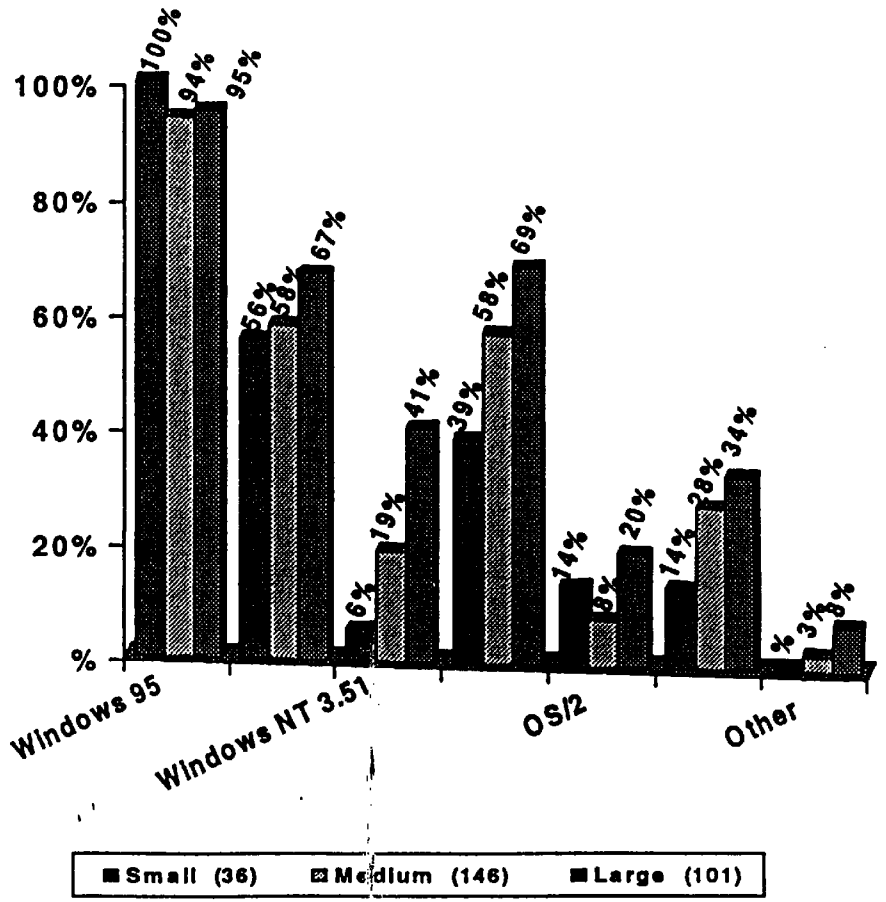


Base: All Respondents

OS MIGRATION RESEARCH

Which of the following operating systems are <u>currently in use</u> on the X86 Desktop PCs throughout your organization?

- ❑ Current usage of more than one OS system is not uncommon.
- ❑ Legacy is problematic among all company sizes.
- ❑ Win 95 is the standard used on most desktop PCs.
- ❑ Surprisingly, Win 3.X continues to have in all company sizes.
- ❑ NT adoption is highest among large and medium companies.

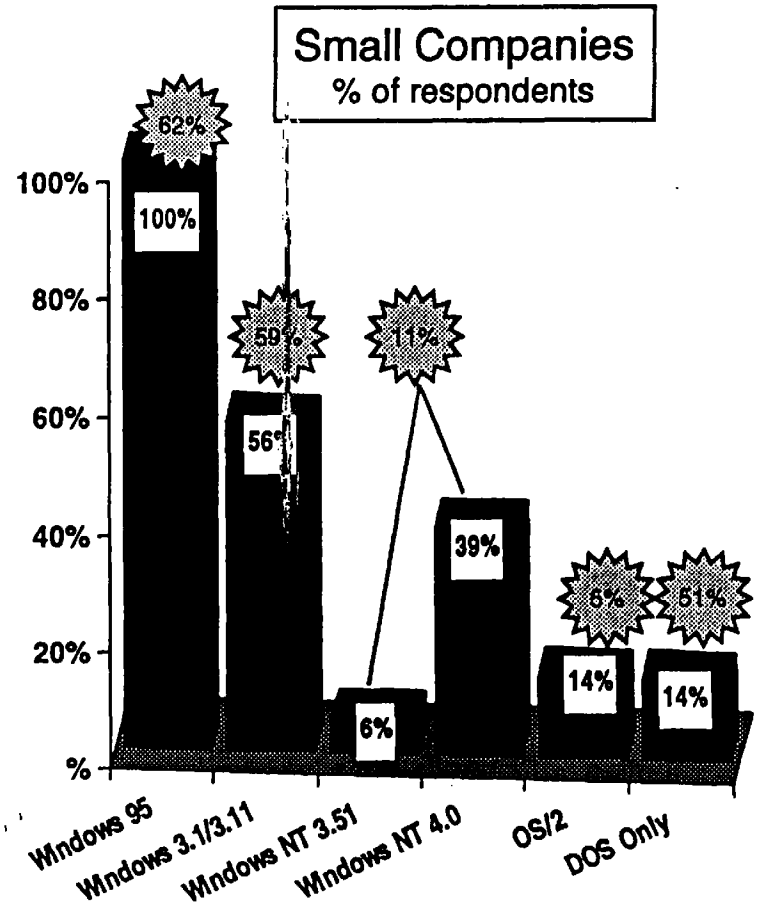


Base: Respondents

OS MIGRATION RESEARCH

Which of the following operating systems are <u>currently in use</u> on the X86 Desktop PCs throughout your organization?

- Adoption of Win 95 is up vs. previous study.
- Win 95 is the standard used on most desktop PCs.
- Surprisingly, Win 3.X usage is flat Vs. previous wave.
- NT usage is up significantly.
- DOS usage fell dramatically vs. previous study.
- OS/2 is slightly up.

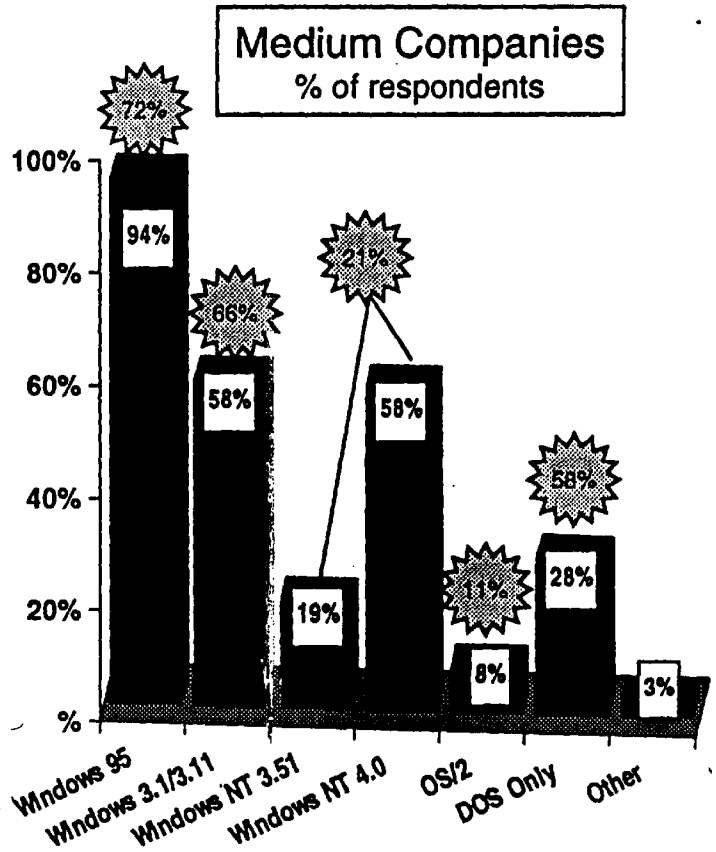


Base: Small Companies 36

OS MIGRATION RESEARCH

Which of the following operating systems are <u>currently in use</u> on the X86 Desktop PCs throughout your organization?

- ❑ **Win 95 usage is up significantly vs. YAGO.**
- ❑ **Use of Win 3.X is falling.**
- ❑ **NT adoption is up substantially.**
- ❑ **DOS usage has declined.**

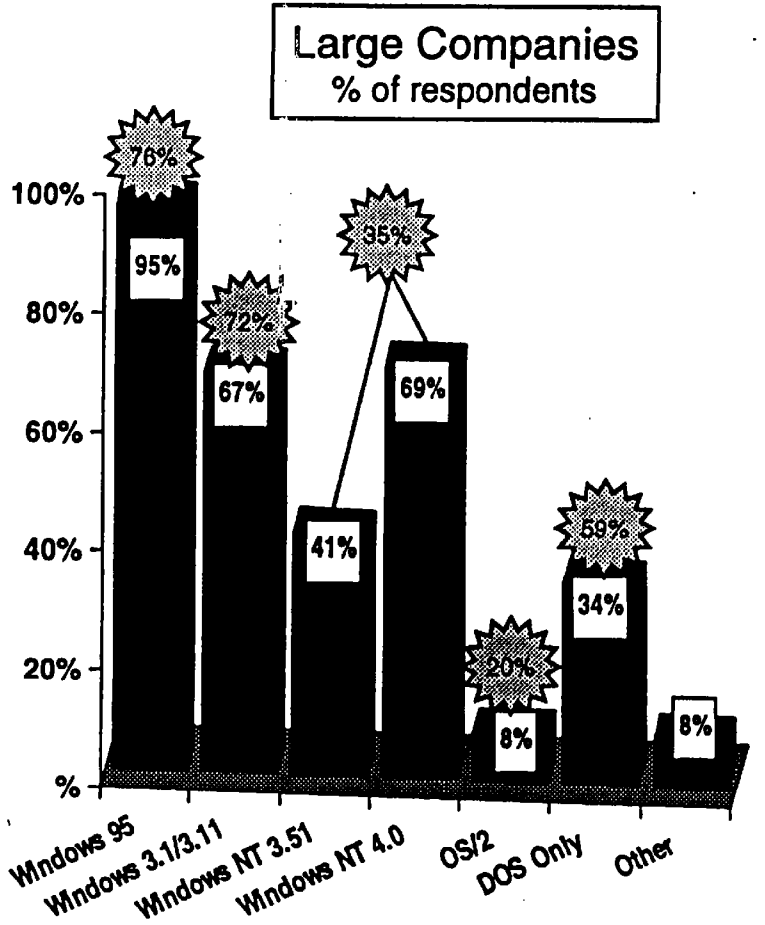


Base: Medium Companies 146

OS MIGRATION RESEARCH

Which of the following operating systems are currently in use on the X86 Desktop PCs throughout your organization?

- Usage of multiple OS is greatest among large companies.
- Win 95 is the standard on most desktop PCs, up from a year ago.
- Win 3.X usage has slightly declined and is being replaced by NT 4.0.
- NT adoption rate is highest among large companies.
- DOS and OS/2 rates have declined.

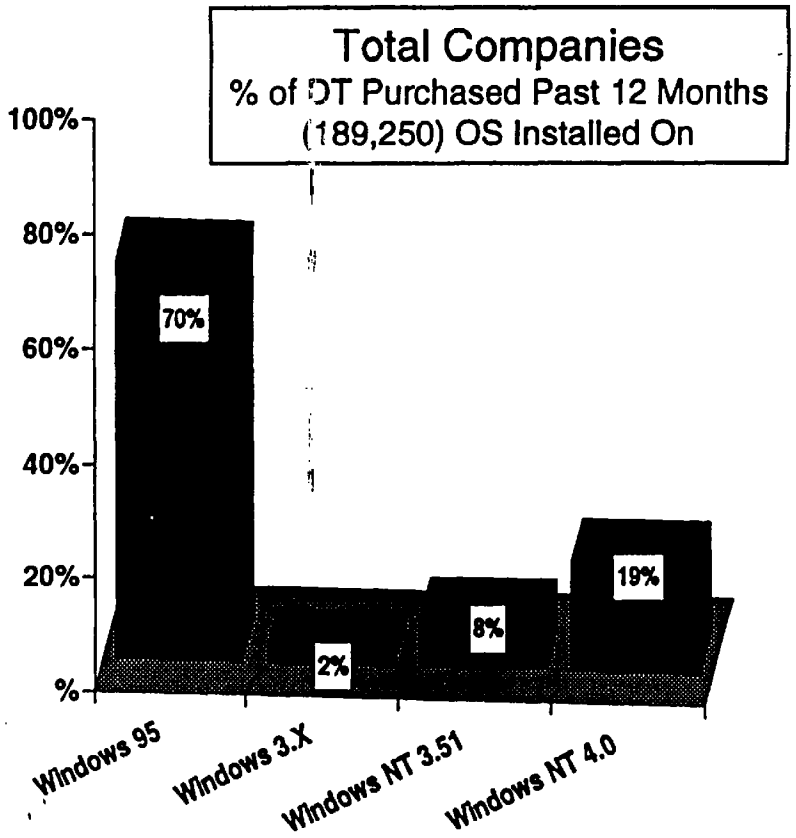


Base: Large Companies 101

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you have purchased in the <u>past 12 months</u>, what percentage have each of the following operating systems installed?

- The overwhelming OS installed on purchases in the past 12 months is Windows 95.
- Windows NT is slowly emerging with it being installed on 1 in 5 of last years DT purchases.
- Windows 3.X continues to have a small, albeit decreasing, installed base.
- DOS and OS/2 use has decreased to almost non-existent levels.



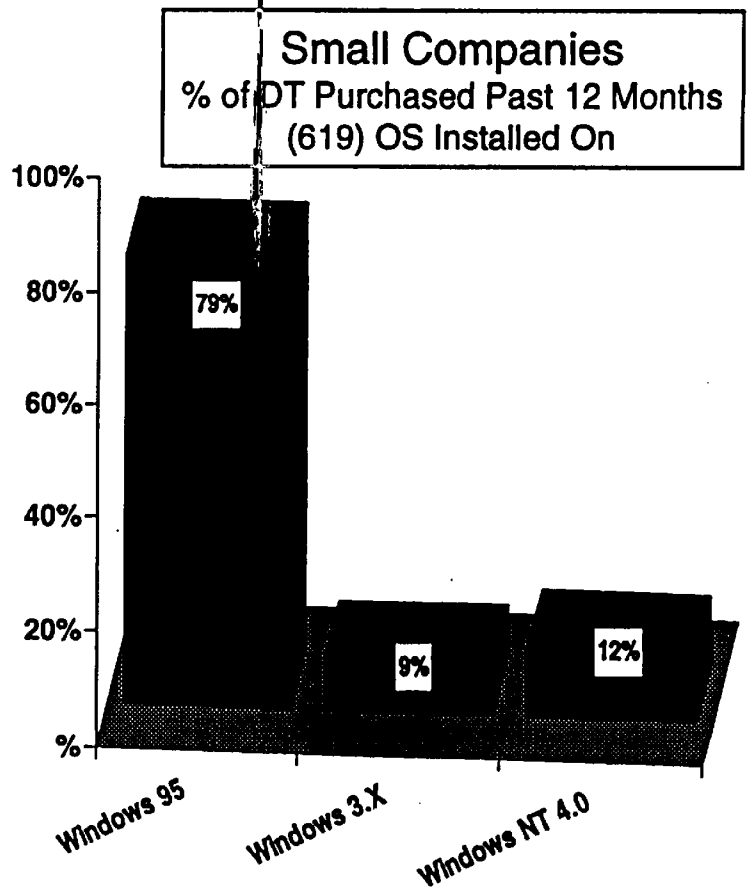
Base: Total Companies

Note: Percentages of less than 1/2 of 1% are not shown.

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you have purchased in the past 12 months, what percentage have each of the following operating systems installed?

- Clearly Windows 95 was the preferred OS to install on DT purchased in the past 12 months.
- Windows NT 4.0 is gaining popularity with one in eight of all DTs purchased in the past 12 months having the OS installed.
- Windows 3.X was installed on a select few DT purchased in past 12 months.
- Use of OS/2 has deteriorated with installation on less than 1% of DTs purchased in the past 12 months.



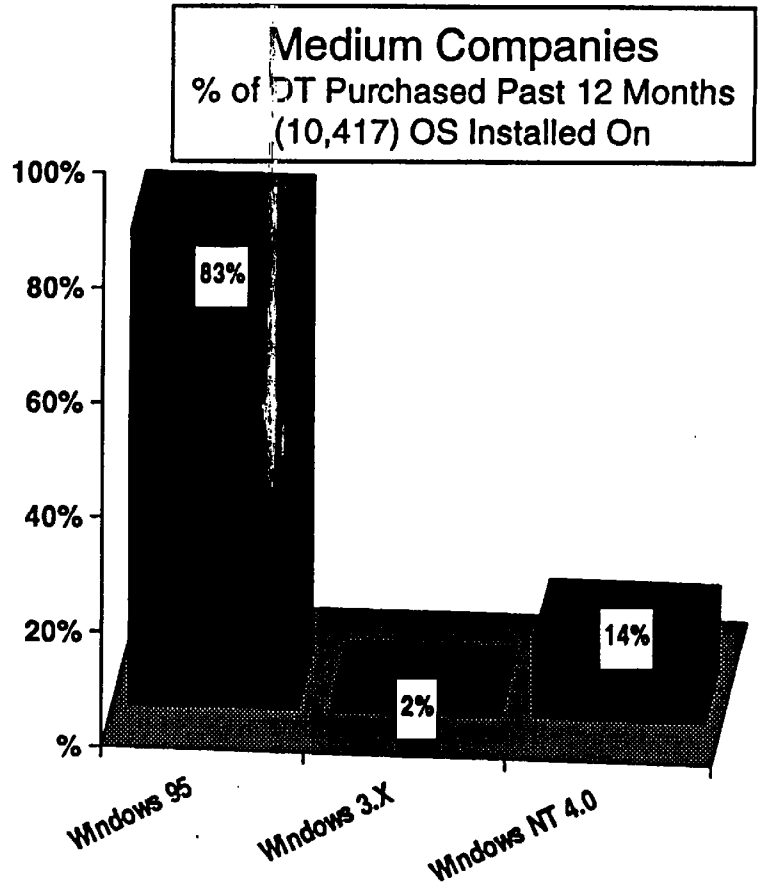
Base: Small Companies 36

Note: Percentages of less than 1/2 of 1% are not shown.

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you have purchased in the <u>past 12 months</u>, what percentage have each of the following operating systems installed?

- Similar to Small Businesses, Windows 95 is the preferred OS to install on DTs in Medium Businesses.
- Windows NT 4.0 is gaining popularity with over one in eight of all DTs purchased in the past 12 months having the OS installed.
- Windows 3.X has a very small user base.
- Use of OS/2 has deteriorated with installation on less than 1% of DTs purchased in the past 12 months.



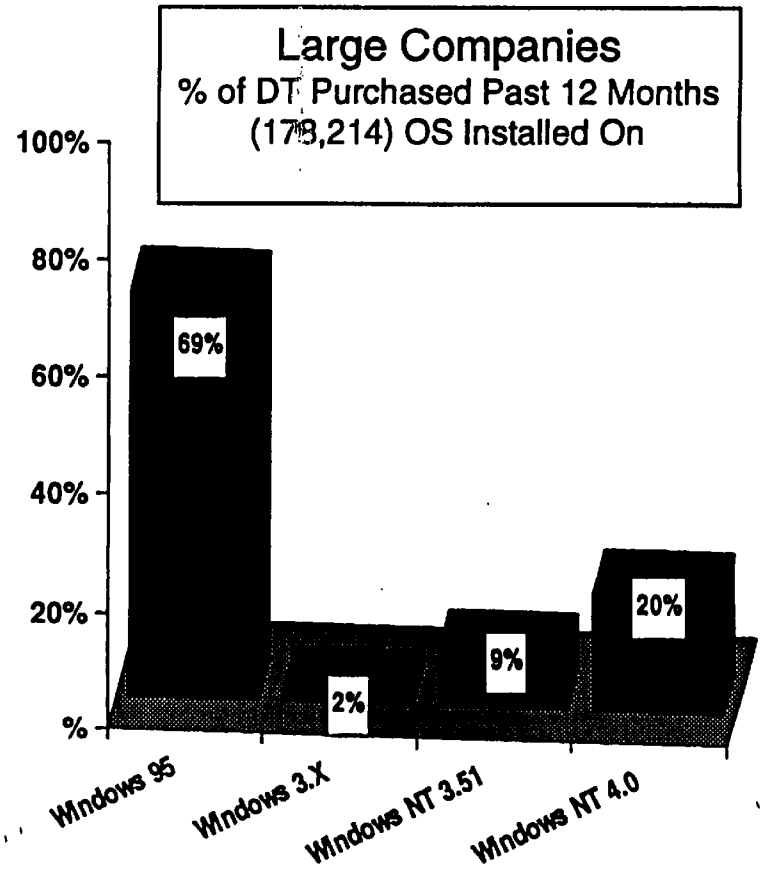
Base: Medium Companies 146

Note: Percentages of less than 1/2 of 1% are not shown.

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you have purchased in the past 12 months, what percentage have each of the following operating systems installed?

- As no surprise to anyone, Windows 95 is the primary OS installed on desktops purchased in the past 12 months.
- Windows NT use is increasing, installed on one-fifth of all DTs purchased in the past 12 months.
- Although shrinking, Windows 3.X continues to hold a small position in the market.
- DOS and OS/2 have become almost non-existent players.



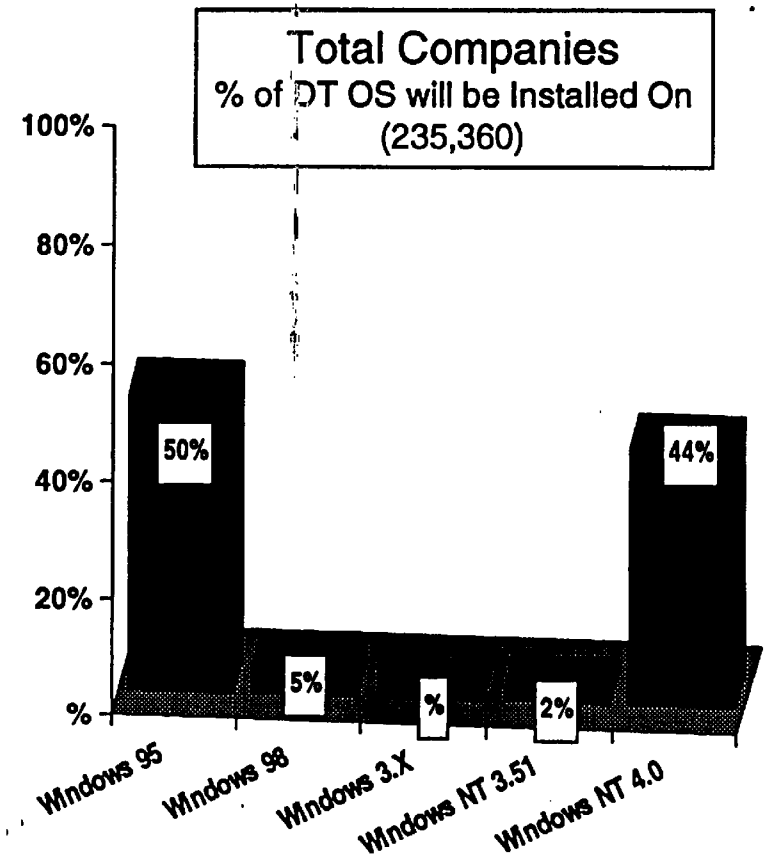
Note: Percentages of less than 1/2 of 1% are not shown.

Base: Large Companies 101

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you plan to purchase in the next 12 months, what percentage will have each of the following operating systems installed?

- Planned installation of Windows 95 continues to be the OS of choice, followed closely by NT 4.0.
- Apparently most companies will be taking a "wait-and-see" attitude with Win 98 in '98.
- Driven by large companies, NT is gaining a stronghold in the enterprise.
- Windows 3.X, DOS only and OS/2 use continues to decline with less than 1% of planned purchases running the OS.

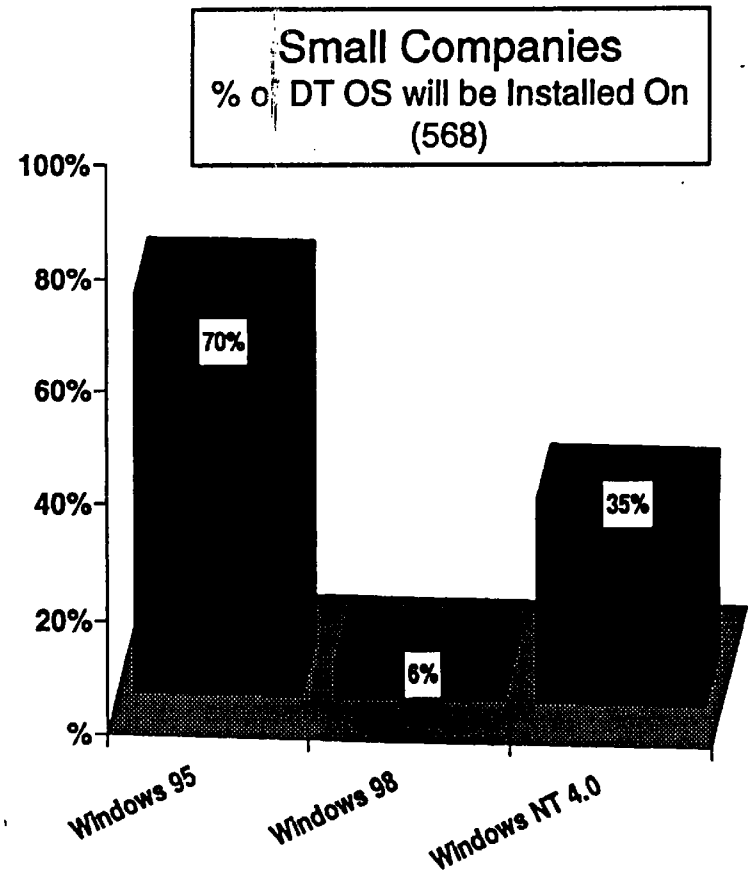


Base: % of desktops plan to install 235,360

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you plan to purchase in the next 12 months, what percentage will have each of the following operating systems installed?

- Windows 95 and NT 4.0 dominate planned installation in small companies.
- NT4 use will be relatively strong in small companies with over one-third of all DT purchased in the next 12 months having the OS installed.
- Win 98 will gain some use in small companies in the next 12 months.
- The weaning of Win 3.X appears to have worked with less than 1% of new PCs installing the OS.

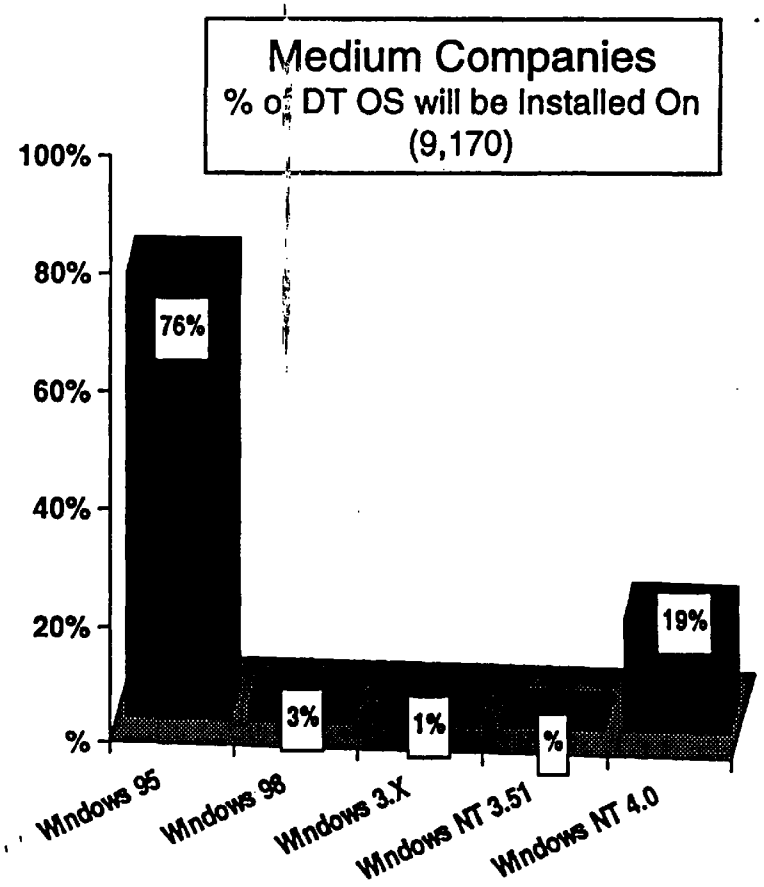


Base: % of desktops plan to install 568

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you plan to purchase in the next 12 months, what percentage will have each of the following operating systems installed?

- Windows 95 is the preferred OS to be installed on DTs.
- Use of Windows 98 in the next 12 months appears to be small among Medium companies.
- Windows NT 4.0 numbers a far second in planned installation.
- Windows3.X use is falling to very low levels.
- DOS, and OS/2 fall off the map on planned installation.

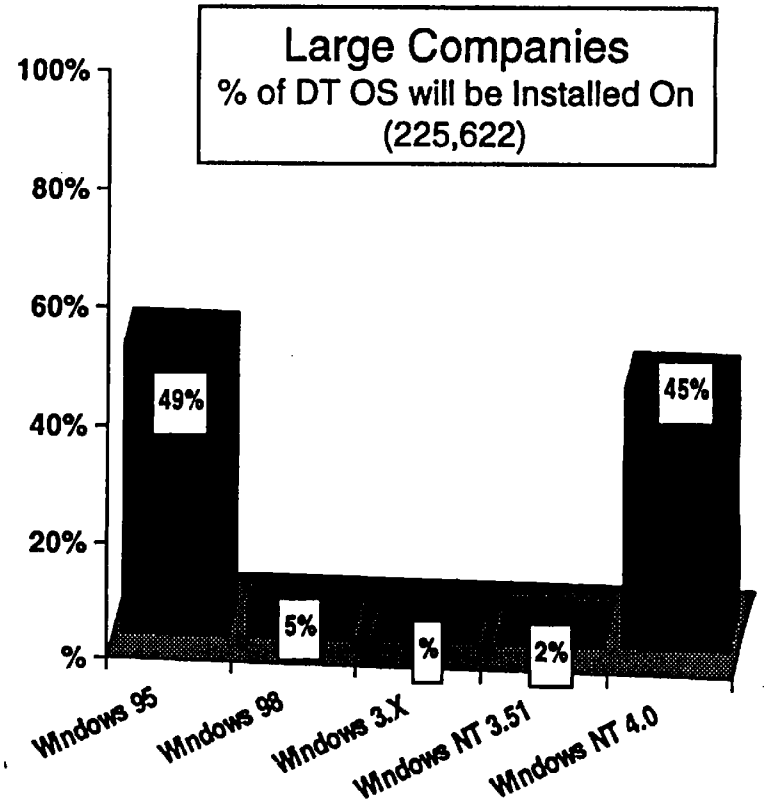


Base: % of desktops plan to install 9170

OS MIGRATION RESEARCH

Of the X86 Desktop PCs you plan to purchase in the next 12 months, what percentage will have each of the following operating systems installed?

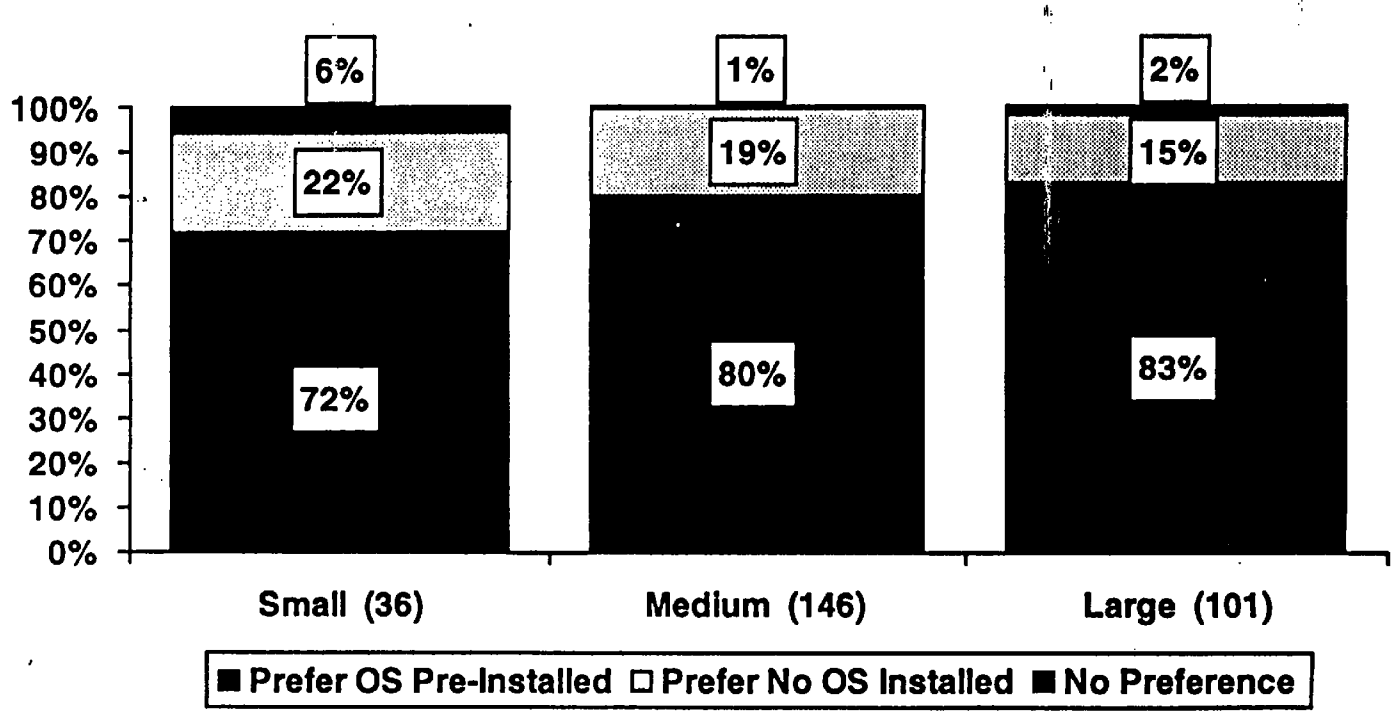
- Windows 95 and NT 4.0 dominate planned installation in large companies.
- NT4 use will be highest among large companies with nearly half of all DT purchased in the next 12 months having the OS installed.
- Apparently Win 98 will gain some beta use in large companies in the next 12 months.
- The weaning of Win 3.X appears to have worked with less than 1% of new PCs installing the OS.



Base: % of desktops plan to install 225,622

OS MIGRATION RESEARCH

Respondents preferred delivery of operating system...



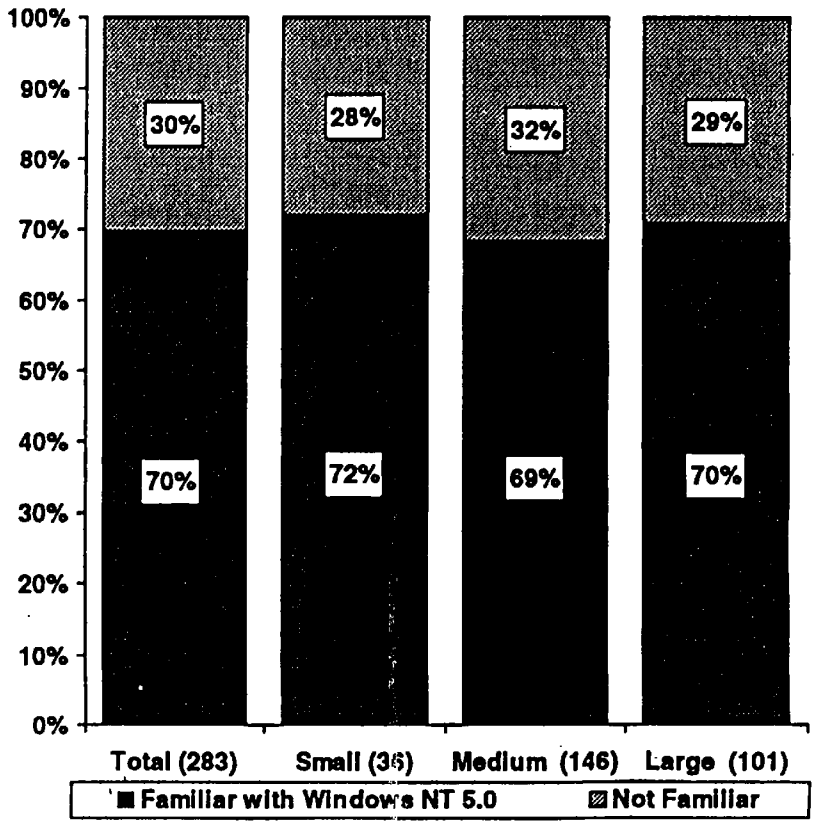
- The large majority of companies prefer to have the OS pre-installed, particularly medium and large firms.

Base: 283 Respondents

OS MIGRATION RESEARCH

Awareness of NT 5.0 on current Desktop PCs

- Familiarity with Windows NT 5.0 Workstation is not yet universal, with about 70% familiar with this OS.
- Familiarity is similar across company sizes.

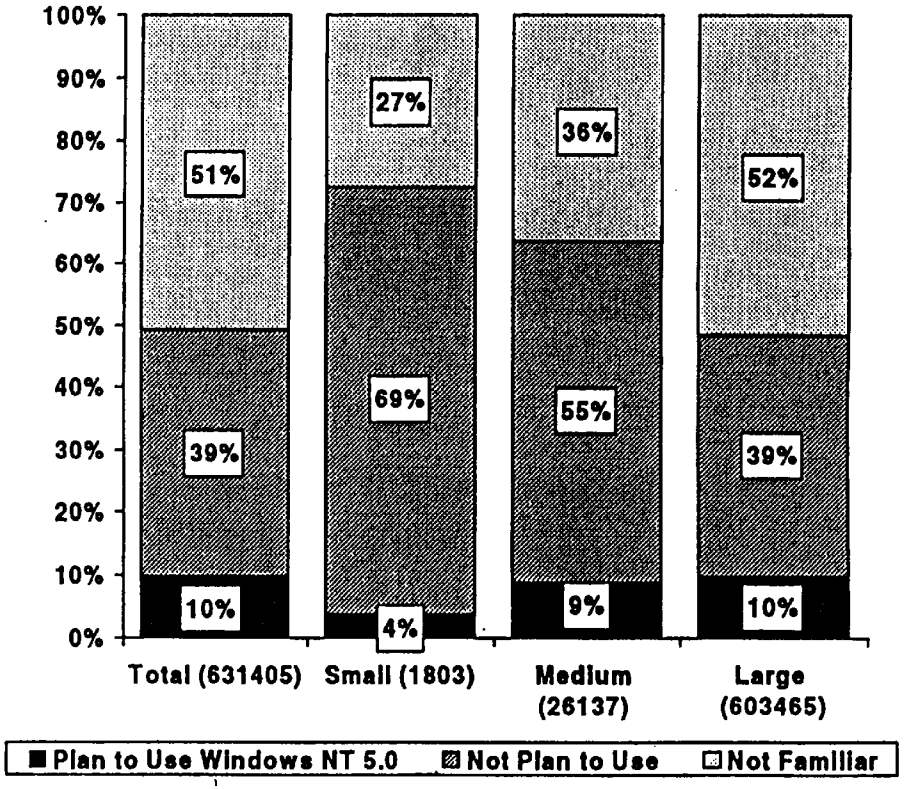


Base: 283 Respondents

OS MIGRATION RESEARCH

Planned use of NT 5.0 on currently installed desktop PCs
Base - PCs

- Of all businesses, planned usage of NT 5.0 is only about 10% of desktops.
- Medium and larger companies indicate a higher likelihood to migrate to Windows NT 5.0 than small companies.



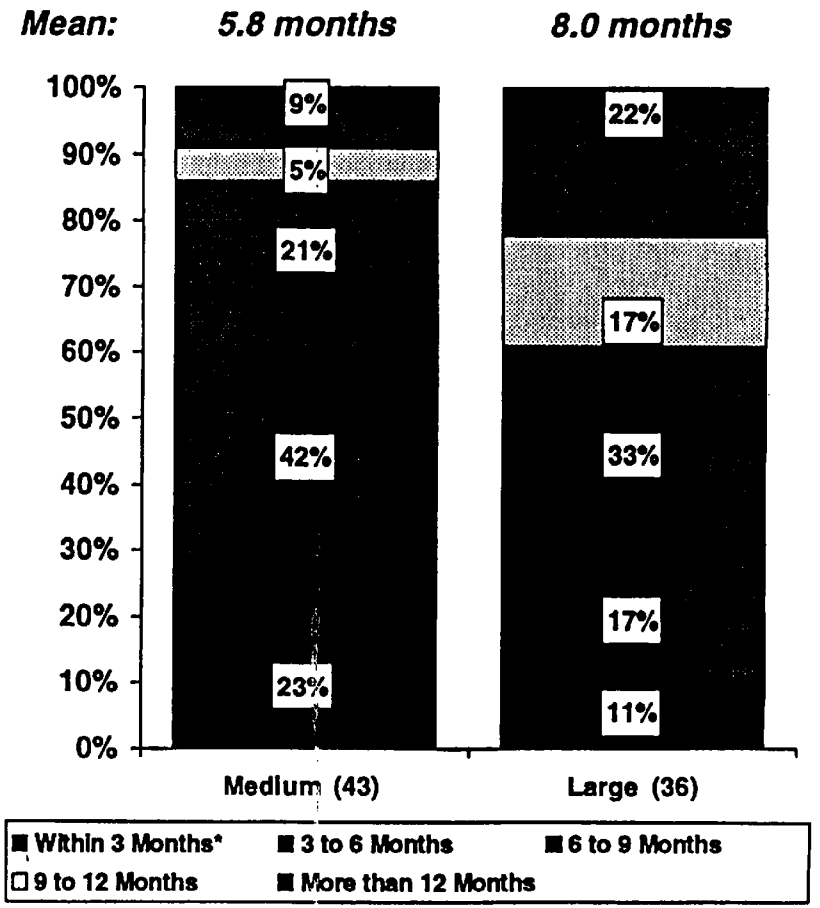
Base: Current Desktop PCs

OS MIGRATION RESEARCH

Over what time frame will the conversion to Windows NT Workstation 5.0 take place for Desktop PCs?

Base - Companies Planning to Use NT 5.0

- Companies are apparently pessimistic regarding NT 5.0.
- Planned migration is slow and varies by company size...
  - Medium size companies average 6 months and are more likely to adopt in the first six months
  - Large companies average 8 months and are much more likely to wait *more* than six months.



Caution: Small base sizes

Base: Plan to Use Windows NT Workstation 5.0 on Desktop PCs

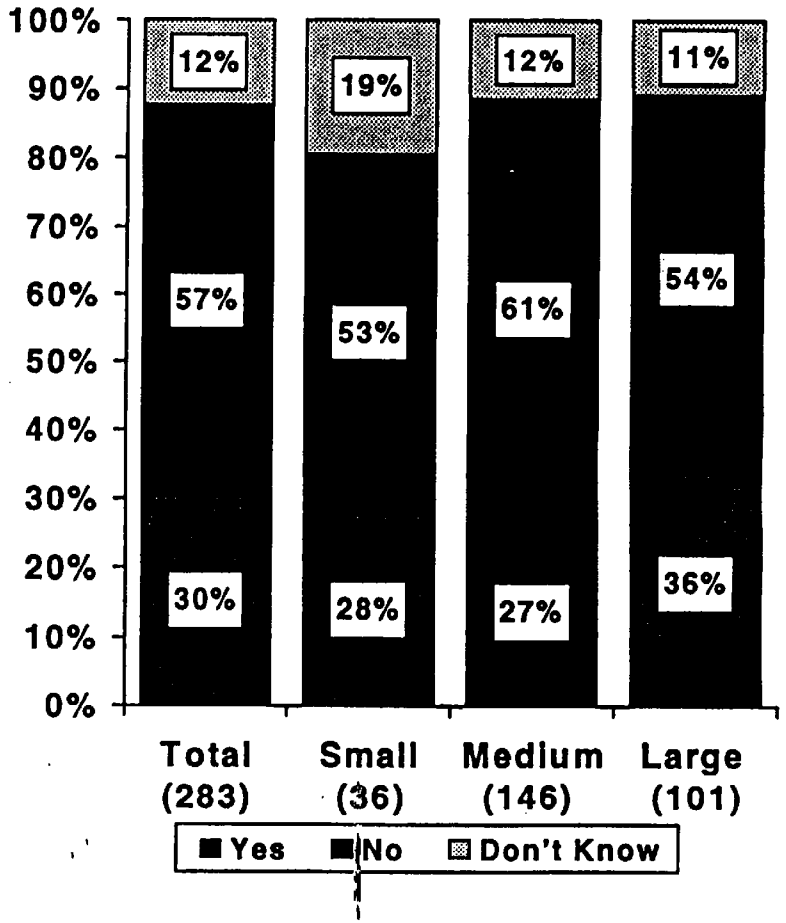
* After Introduction

OS MIGRATION RESEARCH

Respondents planned usage of Windows 98 on any desktop PCs?

Base - Respondents

- Planned migration to Windows 98 on desktop PCs is low.
  - Approximately one fourth of small and medium companies indicate plans to use Windows 98.
  - Over one third of the large companies indicate plans to use Win 98 on desktops.



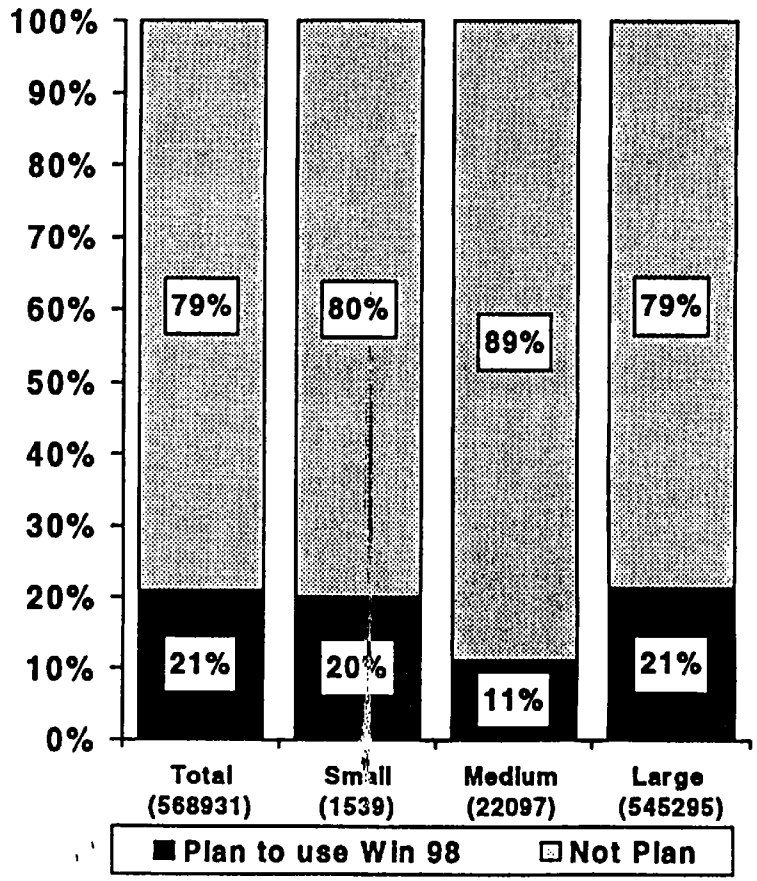
Base: Respondents

OS MIGRATION RESEARCH

Desktops plan to use Windows 98 on...

Base - PCs

- Businesses expect to run about one in five desktop PCs with Win 98.
  - Planned usage is highest for small and large companies.



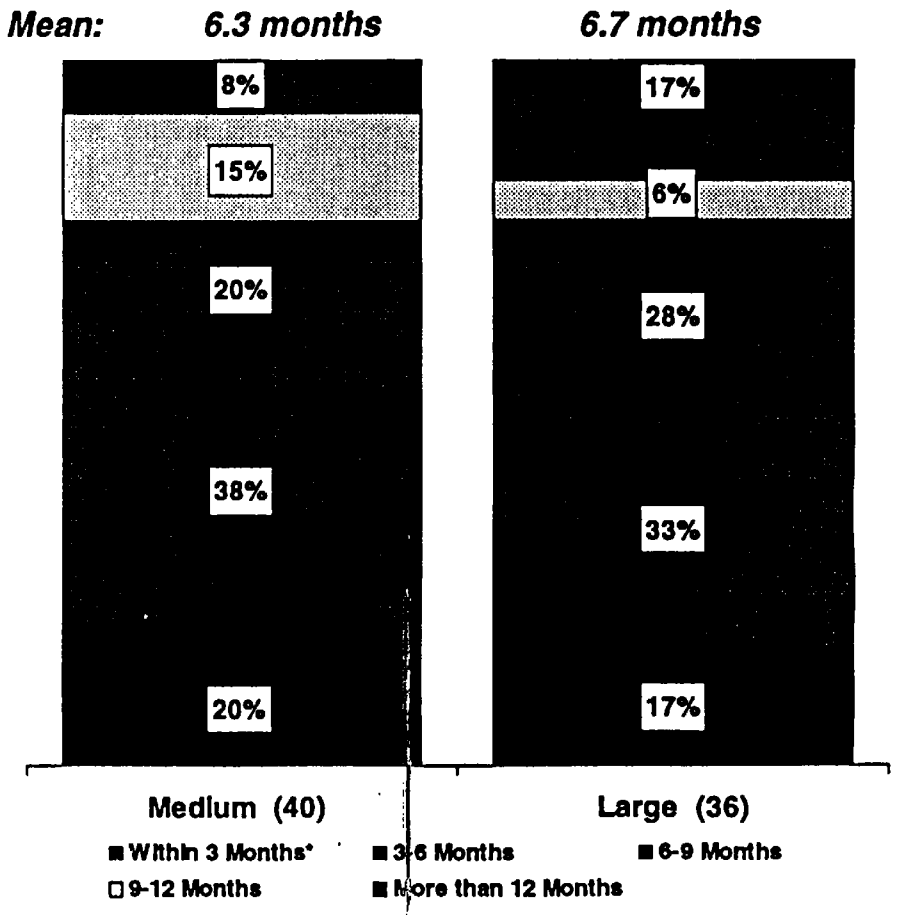
Base: Current Desktop PCs minus "not sure if will run Win 98"

OS MIGRATION RESEARCH

Over what time frame will the conversion to Windows 98 take place for Desktop PCs?

Base - Respondents

- Planned migration time for Windows 98 is, on average, about 6 months for all companies.
- Large companies appear to be slightly less like to implement Win 98 in the near term.



Caution: Small base sizes

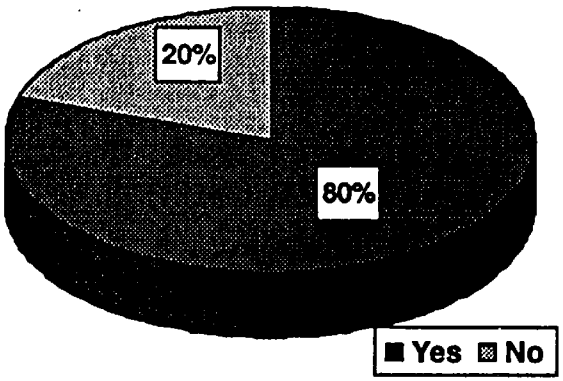
Base: Plan to Use Windows 98 on Desktop PCs

* After Introduction

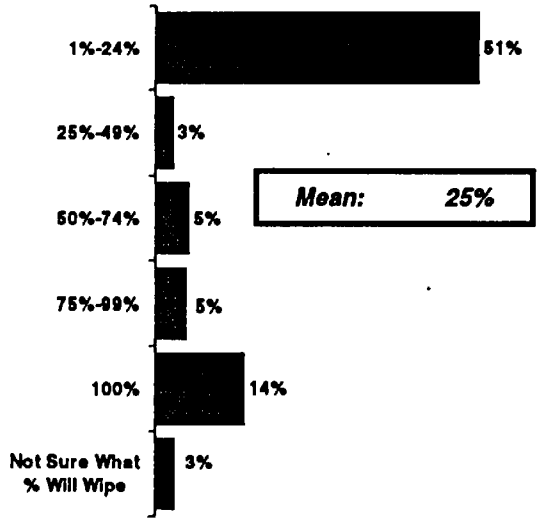
OS MIGRATION RESEARCH

Total Business - Wiping or Re-formatting of Hard Drive

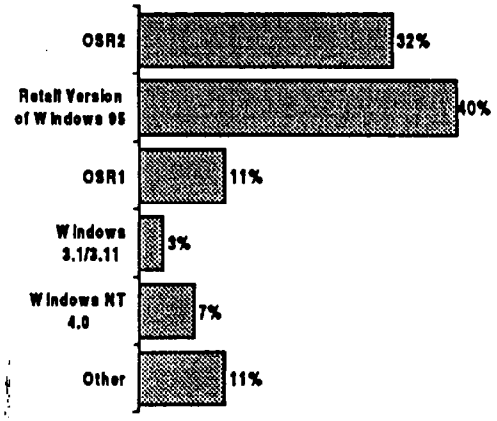
Respondents who wipe/ reformat & re-installation of new OS on new DT purchases...



% of new DTs typically wipe or reformat and install a new OS...



OS system reinstalled...



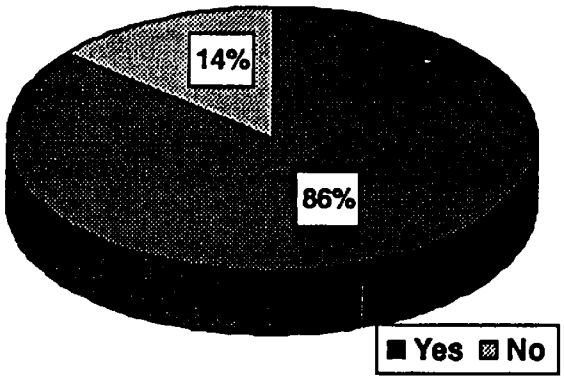
- The large majority of businesses (80%) wipe or re-format the hard drives on some of their new desktop purchases.
- Of the businesses who wipe or re-format, a large percentage will wipe between 1% and 24% of their Desktops. On average companies wipe 25% of their new desktop purchases and reinstall a different OS.
- OSR2 and the retail version of Windows 95 are the most frequently reinstalled OS.

Base: Total Respondents (283)

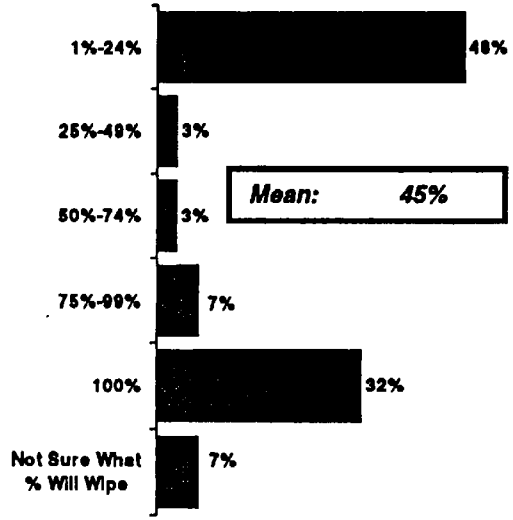
OS MIGRATION RESEARCH

Small Business - Wiping or Re-formatting of Hard Drive

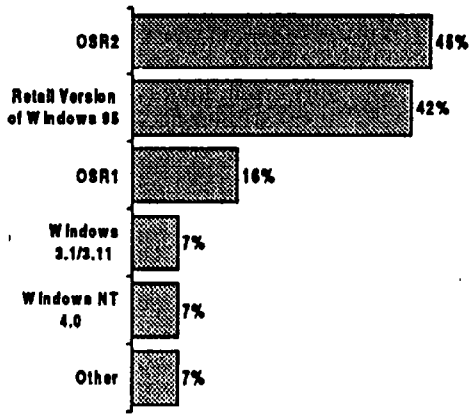
Respondents who wipe/ reformat & re-installation of new OS on new DT purchases...



% of new DTs typically wipe or reformat and install a new OS...



OS system reinstalled...



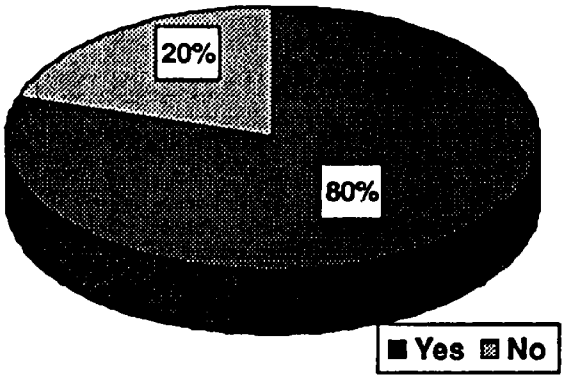
- The majority of Small Businesses wipe or re-format the hard drives of new Desktops.
- Of the Small Businesses who will wipe or re-format, a large percentage will wipe between 1% and 24% of their Desktops. However, a third will wipe 100% of their Desktops.
- Operating systems reinstalled most often are OSR2 and the retail version of Windows 95.

Base: Small Business Respondents (36)

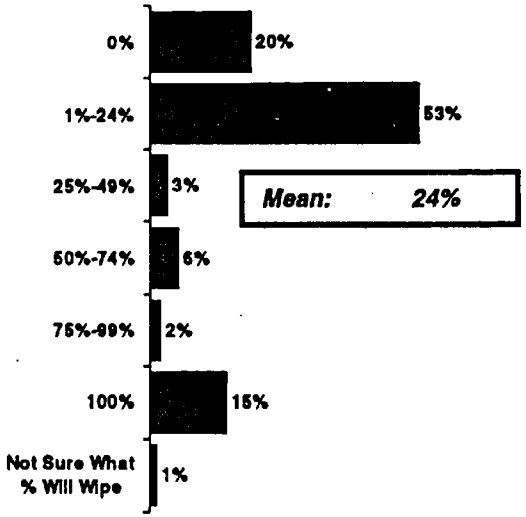
OS MIGRATION RESEARCH

Medium Business - Wiping or Re-formatting of Hard Drive

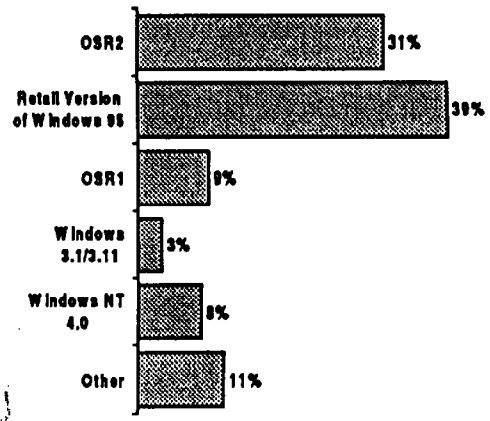
Wipe or reformat & re-installation of new OS on new DT purchases...



% of new DTs you typically wipe or reformat and install a new OS...



OS system reinstalled...



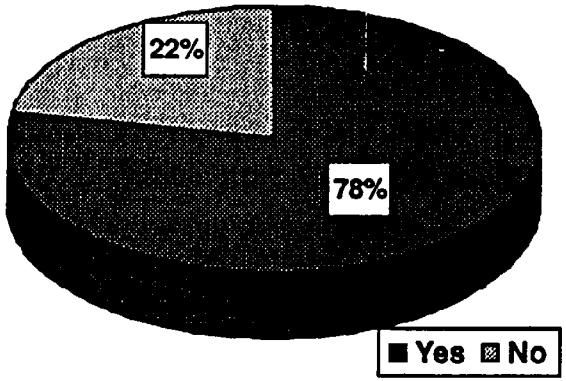
- The majority (80%) of Medium Businesses wipe or re-format the hard drives of new Desktops.
- Of the Medium Businesses who will wipe or re-format an average of one-fourth of all new DT purchases.
- Operating systems reinstalled most often are the retail version of Windows 95 and OSR2.

Base: Medium Business Respondents (146)

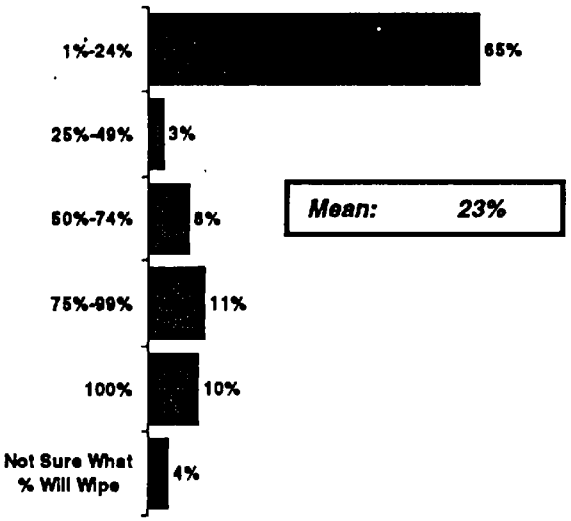
OS MIGRATION RESEARCH

Large Business - Wiping or Re-formatting of Hard Drive

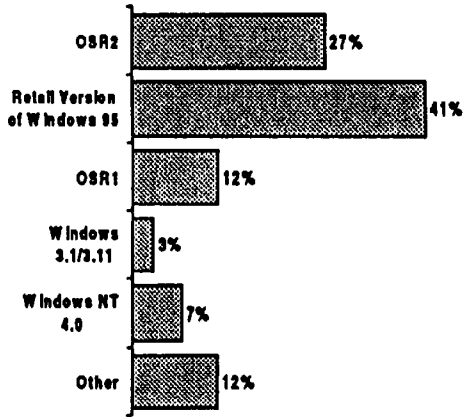
Wipe or reformat & re-installation of new OS on new DT purchases...



% of new DTs you typically wipe or reformat and install a new OS...



OS system reinstalled...



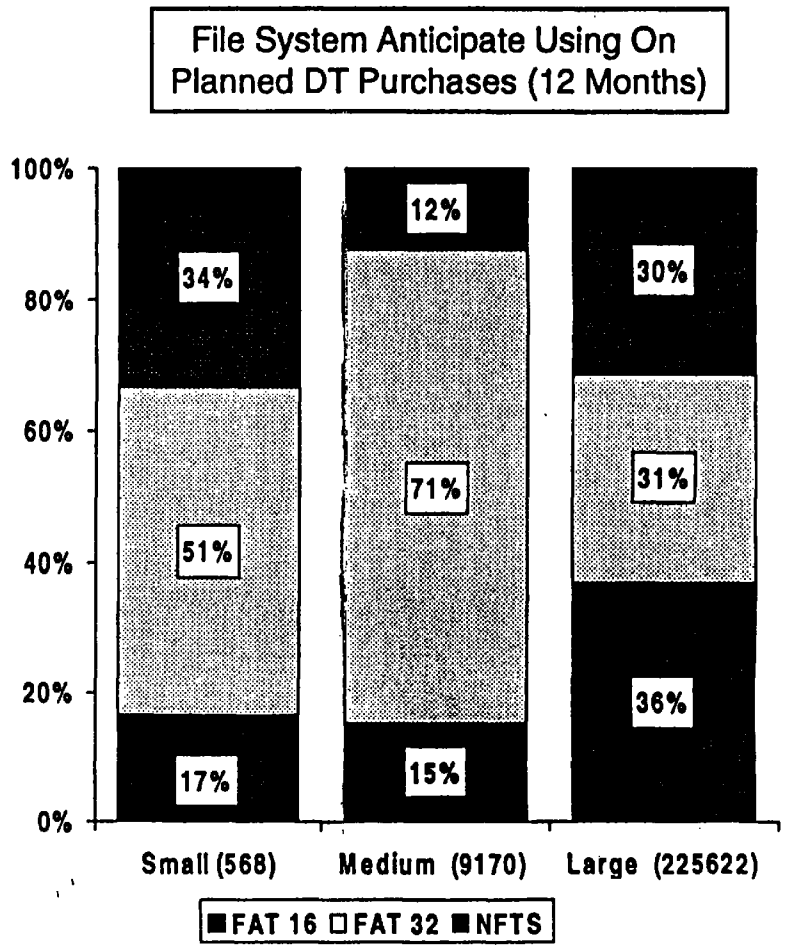
- The majority (78%) of Large Businesses wipe or re-format the hard drives of new Desktops.
- Similar to Medium Businesses, of the Large Businesses who will wipe or re-format, a majority of them will wipe between 1-24% of their DTs. On slightly less that one-fourth of all new purchases have the hard drive wiped or reformatted.
- Operating systems normally reinstalled are the retail version of Windows 95 and OSR2 and OSR1.

Base: Large Business Respondents (101)

OS MIGRATION RESEARCH

Thinking of your future X86 Desktop PCs, which of the following file systems do you anticipate using?
Base - Desktop PCs

- Apparently no one file system will be universally used on desktop purchased in the next 12 months...
  - Small businesses tend to favor FAT 32 and NFTS
  - Medium businesses prefer FAT 32
  - Large businesses are more likely than small/medium to prefer FAT 16.



Base: Desktop PCs Plan to Purchase Next 12 Months

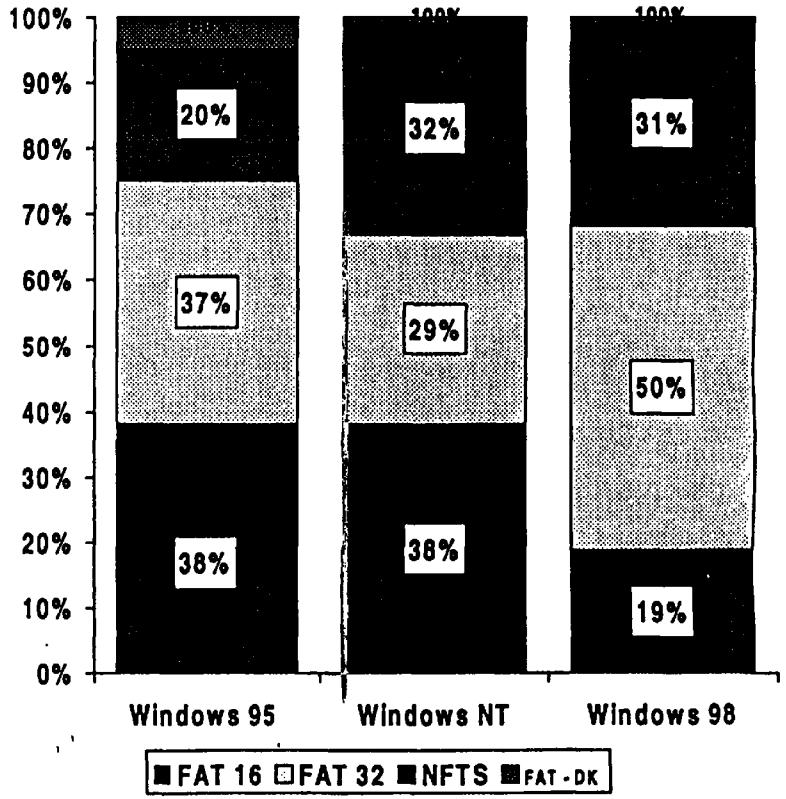
OS MIGRATION RESEARCH

Planned usage of file system by OS...

Base - Respondents Weighted by Desktop PCs

- By OS, no file system is preferred...
  - FAT 16 appears to have the strongest foothold.
  - Preferences for FAT 32 and NTFS are similar.
  - Although relatively few will adopt Windows 98, it appears FAT 32 will be the file allocation system of choice.

File System Anticipate Using On New DT Purchases in The Next 12 Months by OS
(Respondents Weighted by Desktops)

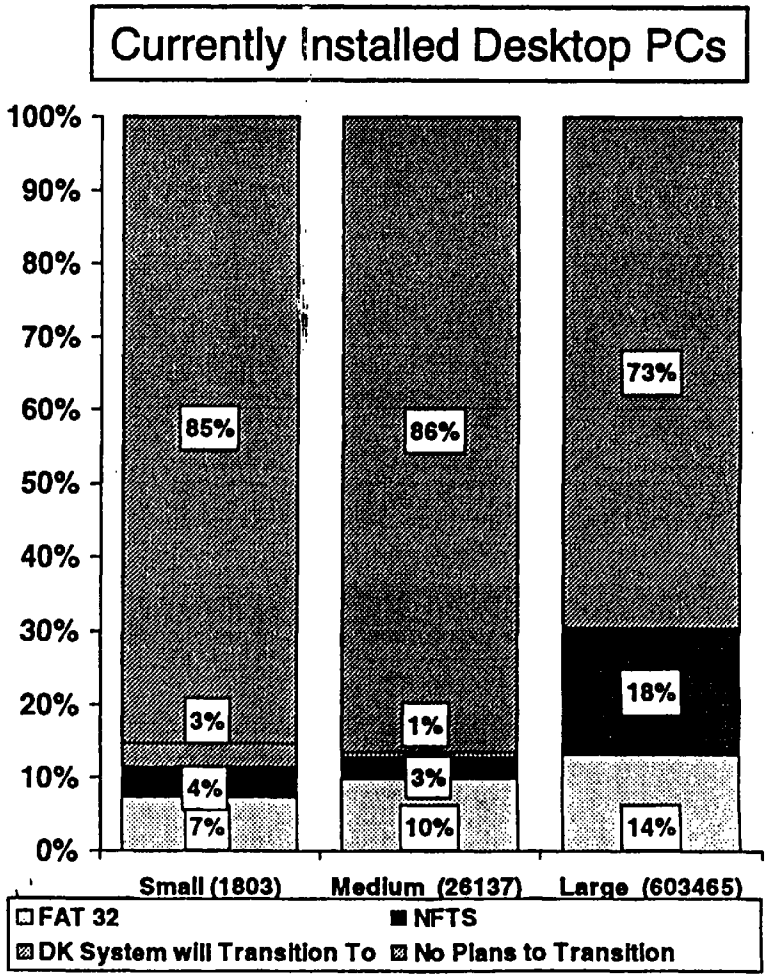


Base: Respondents (283) weighted by desktops

OS MIGRATION RESEARCH

What file system(s) are you planning to transition your existing Desktop PCs to?
Base - PCs

- Few plan to transition to a new file system in the next 12 months.
- Large businesses are the most likely, but of the minority planning the transition, NFTS and FAT 32 are equally chosen.

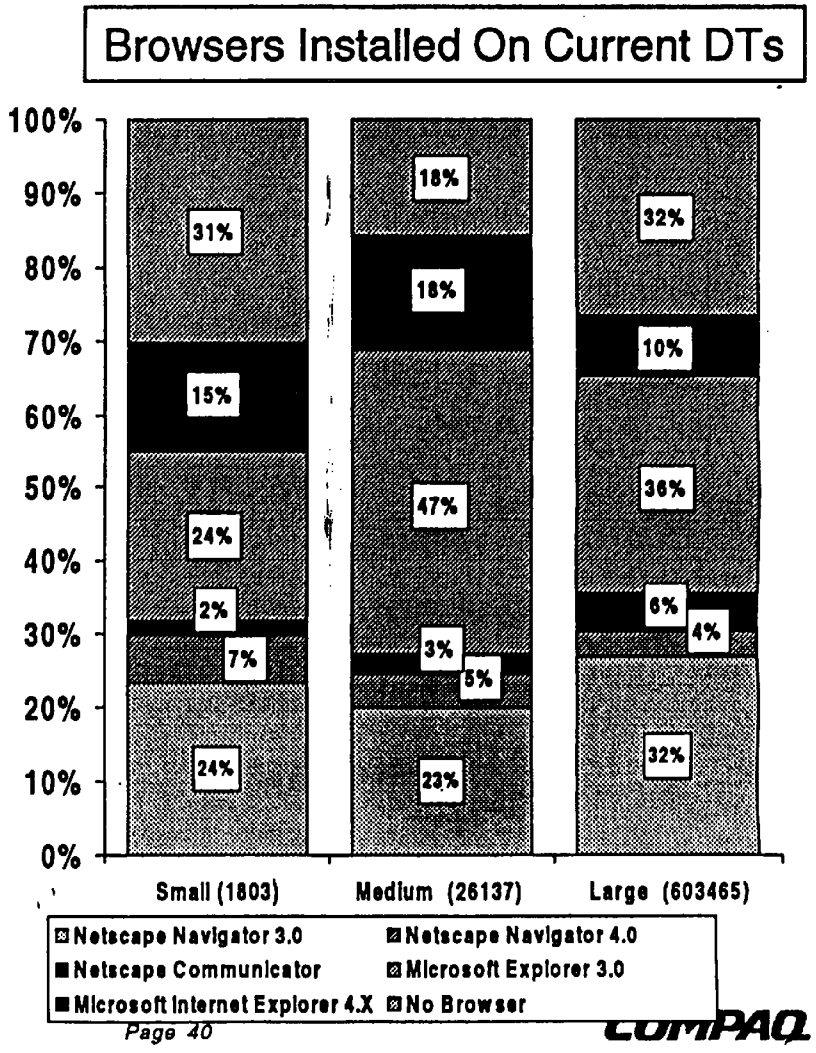


Base: Current Desktop PCs

OS MIGRATION RESEARCH

Thinking of your current X86 Desktop PCs, which of the following web browsers are currently installed?
Base - PCs

- Surprisingly, a large portion of desktops in all companies (Small=31%, Medium=18% & Large=32%) were not running any browser.
- Netscape continues to have a solid installed based in all companies.
- However Microsoft leads in number of desktops installed on in all company sizes.

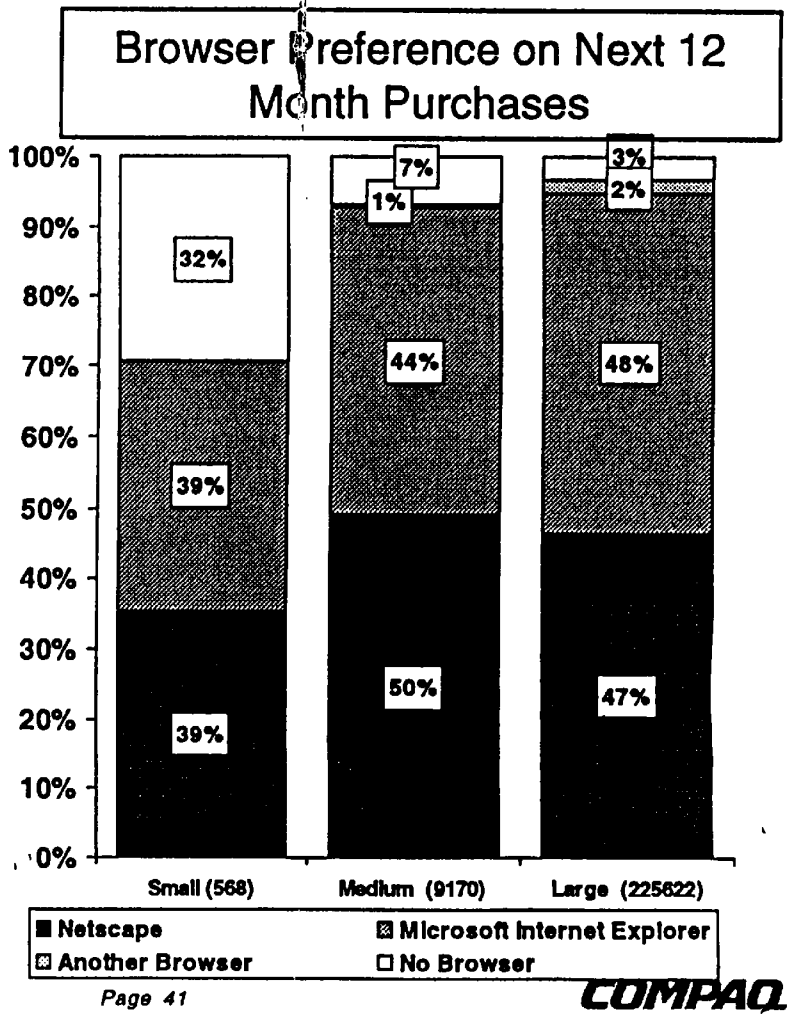


Base: Current Desktop PCs

OS MIGRATION RESEARCH

Thinking of the X86 Desktop PCs you will purchase in the next 12 months, which of the following web browsers would you like to have installed? Base - PCs

- **Preferred Web Browser preferences are split evenly between Netscape and Microsoft Internet Explorer for all company sizes.**

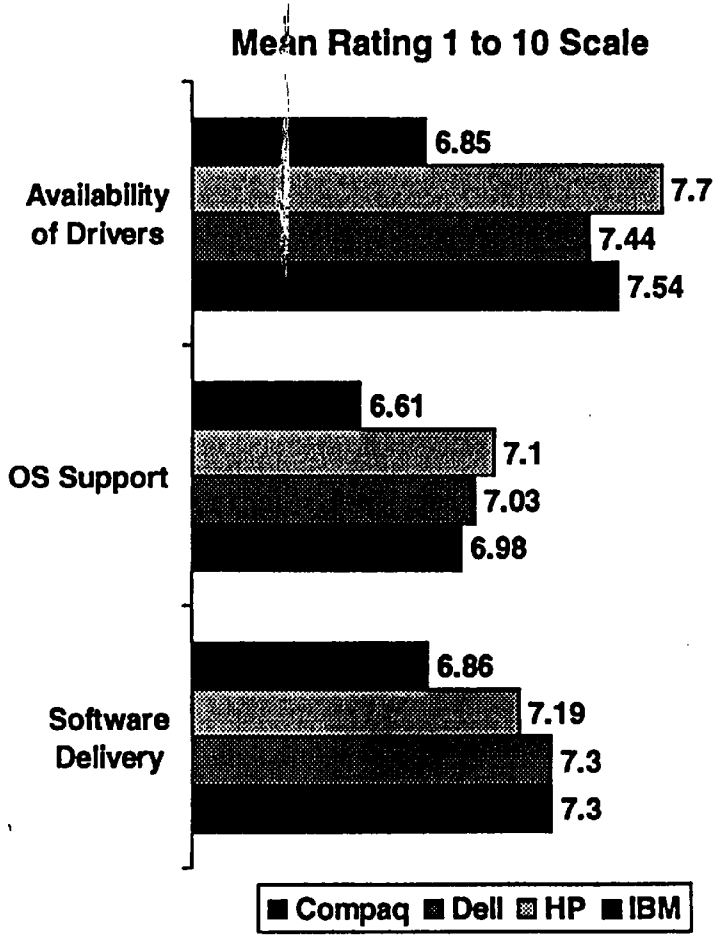


Base: Desktop PCs Plan to Purchase Next 12 Months

OS MIGRATION RESEARCH

Based on your personal knowledge and/or perceptions, how would you rate the following manufacturers on each of the following characteristics?

- HP is regarded as having the best availability of drivers and OS support. They are slightly behind Compaq and Dell for software delivery.
- Compaq's slight weakness is in the area of OS support.
- IBM generates the weakest ratings in all areas.



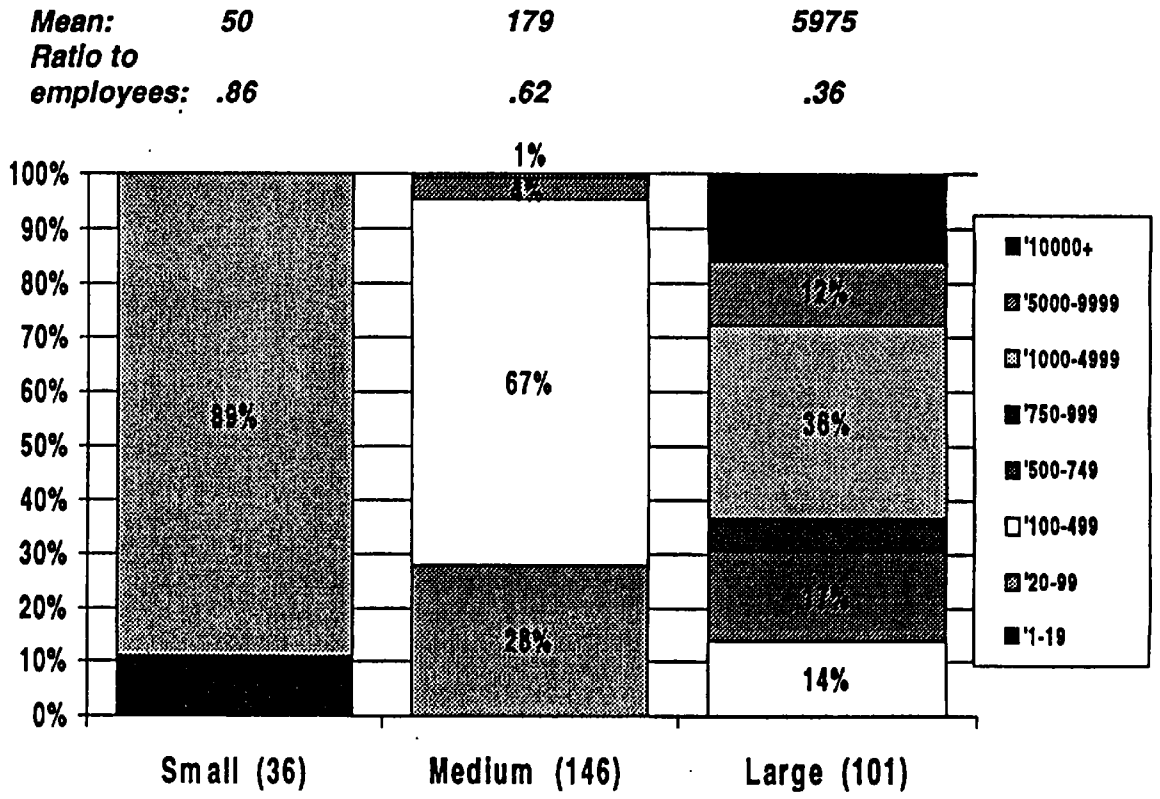
Base: Total companies 283

APPENDIX

OS MIGRATION RESEARCH

Approximately how many X86 Desktop PCs are currently in use in your organization?

- **Larger companies, on average, have fewer desktops relative to the number of employees than smaller firms.**



Base: Respondents

OS MIGRATION RESEARCH

What is your exact job title?

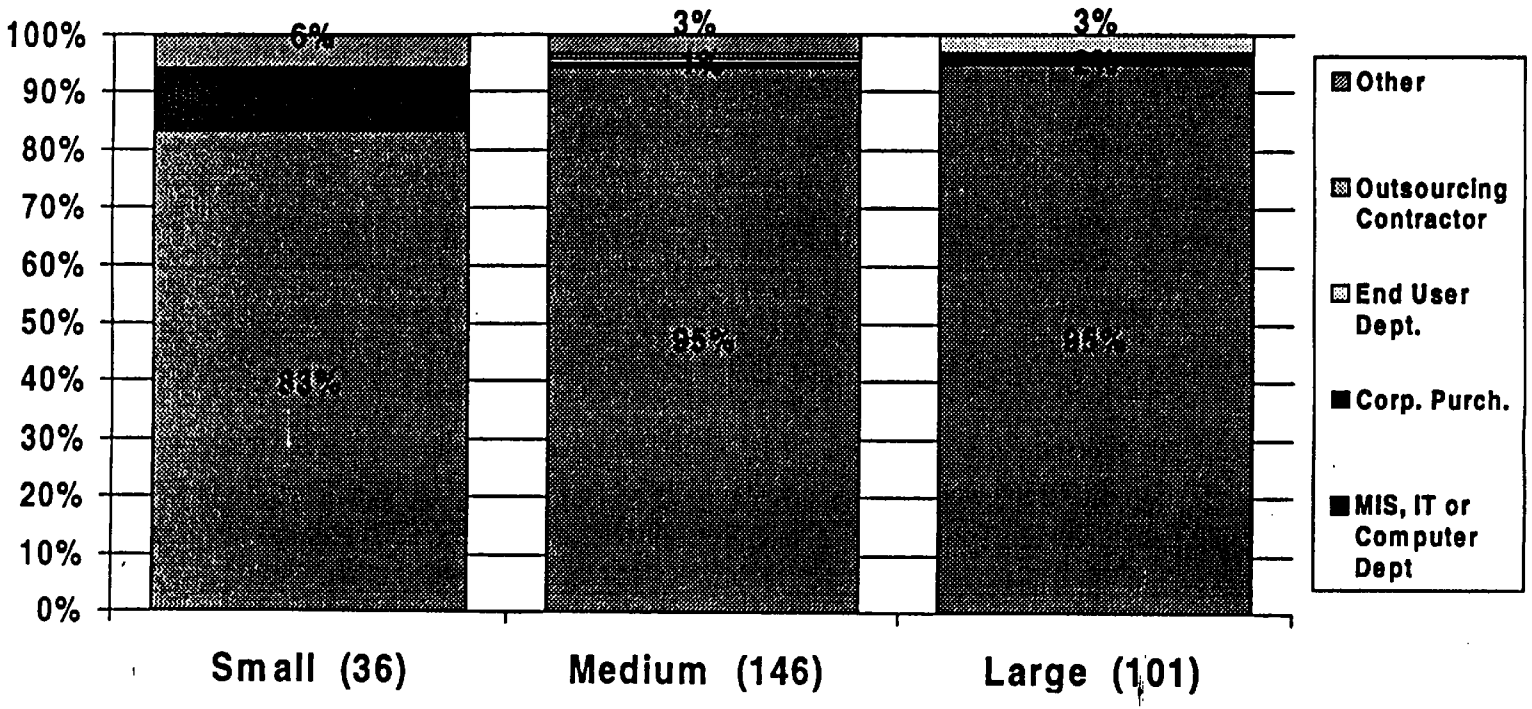
	#
Network Administrator/Manager/Supervisor	30
Vice President/Administrator/Director/Manager Of Information Systems	25
Mis Vice President/Director/Manager/Administrator	23
Systems Administrator/Manger/Integrator/Engineer	20
Is Director/Supervisor/Manager	18
Director/Administator/Manager Of Information Services	11
Vice President/Director/Manager Of Information Technology	10
Supervisor/Director/Manager Of Technical Services	9
Lan Administrator/Supervisor/Manager	8
Network Engineer/Technician/Analyst/Specialist	7
Systems Analyst/Engineer	7
Vice President/Manager Of Operations	5
Mis Coordinator/Specialist	5
Director/Supervisor/Manager Of Computer Department/Operations/Services	4
Administrator/Manager Of Network Operations/Systems/Services	3
Administrator/Manager Of Desktop Support	3
Director/Manager Of Materials	3
End User Consultant/Manager	2
Senior Computer Engineer	2
Programmer Analyst	2
Project Manger/Leader	2
Chief Information Officer	2
Cio	2
Director (N.S.)	2
Manager Of Sight Infrastructure Services	2
Technical Support Administrator/Team Leader	2
Systems Coordinator	2
Data Processing Operation Vice President/Manager	2
Partner	1
Information Technical Secretary	1

	#
Pc Network Coordinator	1
Chief Architect	1
It Manager/Director	1
Senior Systems Administrator	1
Comp Tech3/Web Master	1
Operations Support Manager	1
Director Of Aux Services	1
It Manager	1
Merchandise Manager	1
President	1
Vice President In Cso	1
Computer And Networking Administrator	1
Senior Technical Support Analyst	1
Vice President/Chief Information Offices	1
Senior Director Of Technology Services	1
Executive Administrator Assistant	1
Help Desk Supervisor	1
Resource Specialist	1
Director Of Plant Networking	1
Mis And Service Manager	1
Information Systems Specialist	1
Network Systems Specialist	1
Computer Systems Administrator	1
Senior Process Control Engineer	1
Application Developer	1
Technical Purchasing Agent	1
Internet Network Administrator	1
Data Center Director	1
Director Of Information And Corporate Services	1
Manger Of Network Support Services	1

	#
Senior Hardware Support Services	1
Inside Sales And Technical Support	1
Information Tech Spec 4	1
Principal	1
Technician (N.S.)	1
Senior Project Specialist	1
Lan Admis. Technician	1
Is Hardware Manager	1
Designer (N.S.)	1
Pc Network Manager	1
Project Engineer	1
Dest-Nt Support Manager	1
Is Project Director	1
Senior Technical Manger	1
Network Communications Manager	1
Manager Of User Support	1
Data Processing Manager	1
Systems Architect	1
Production Support Development Manager	1
Assistant Analyst Programmer	1
Internet Working Manager	1
Technology Director	1
Mis	1
Senior It Specialist	1
Is Technician	1
Director Of Parts Operation	1
Information Center Manager	1
Desktop Technician	1
Assistant Network Administrator	1
Supervisor Of International Marketing	1

OS MIGRATION RESEARCH

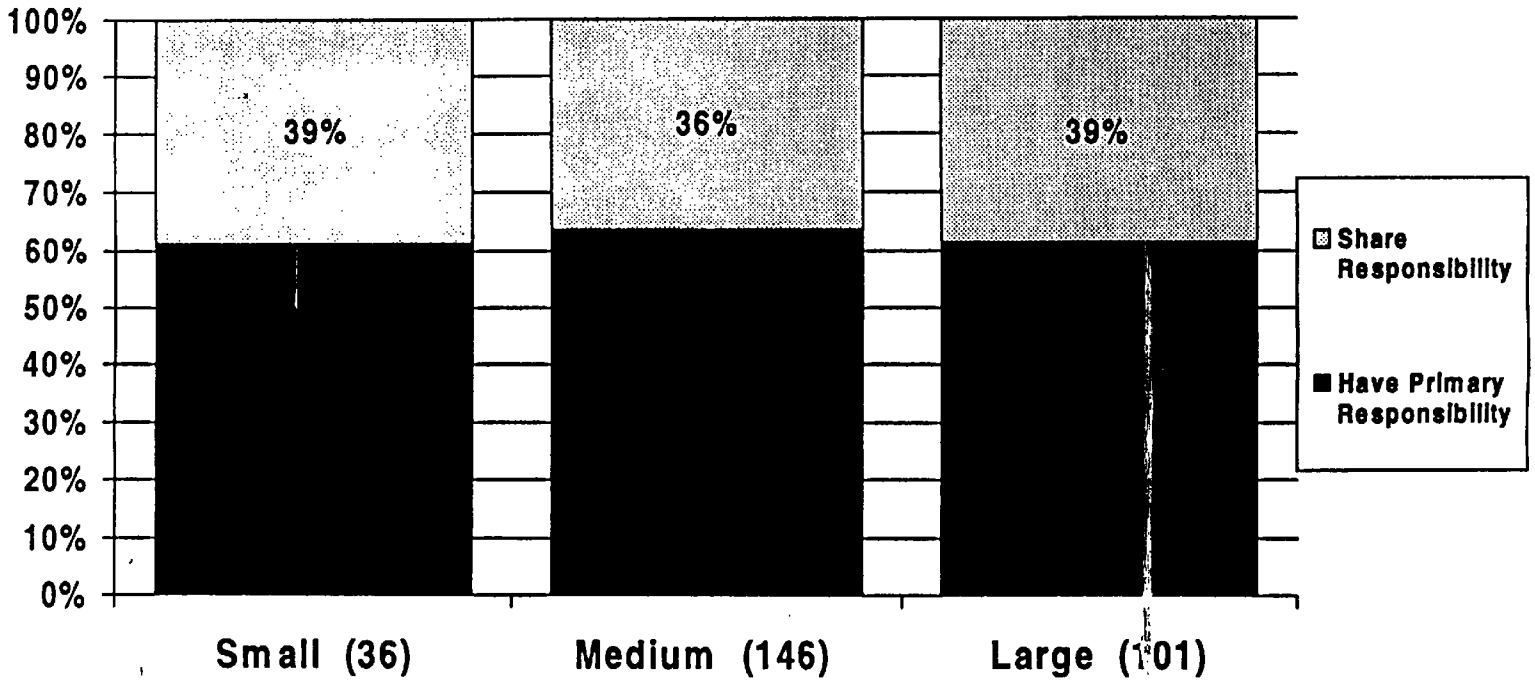
Which of the following best describes the group you work in?



Base: Respondents

OS MIGRATION RESEARCH

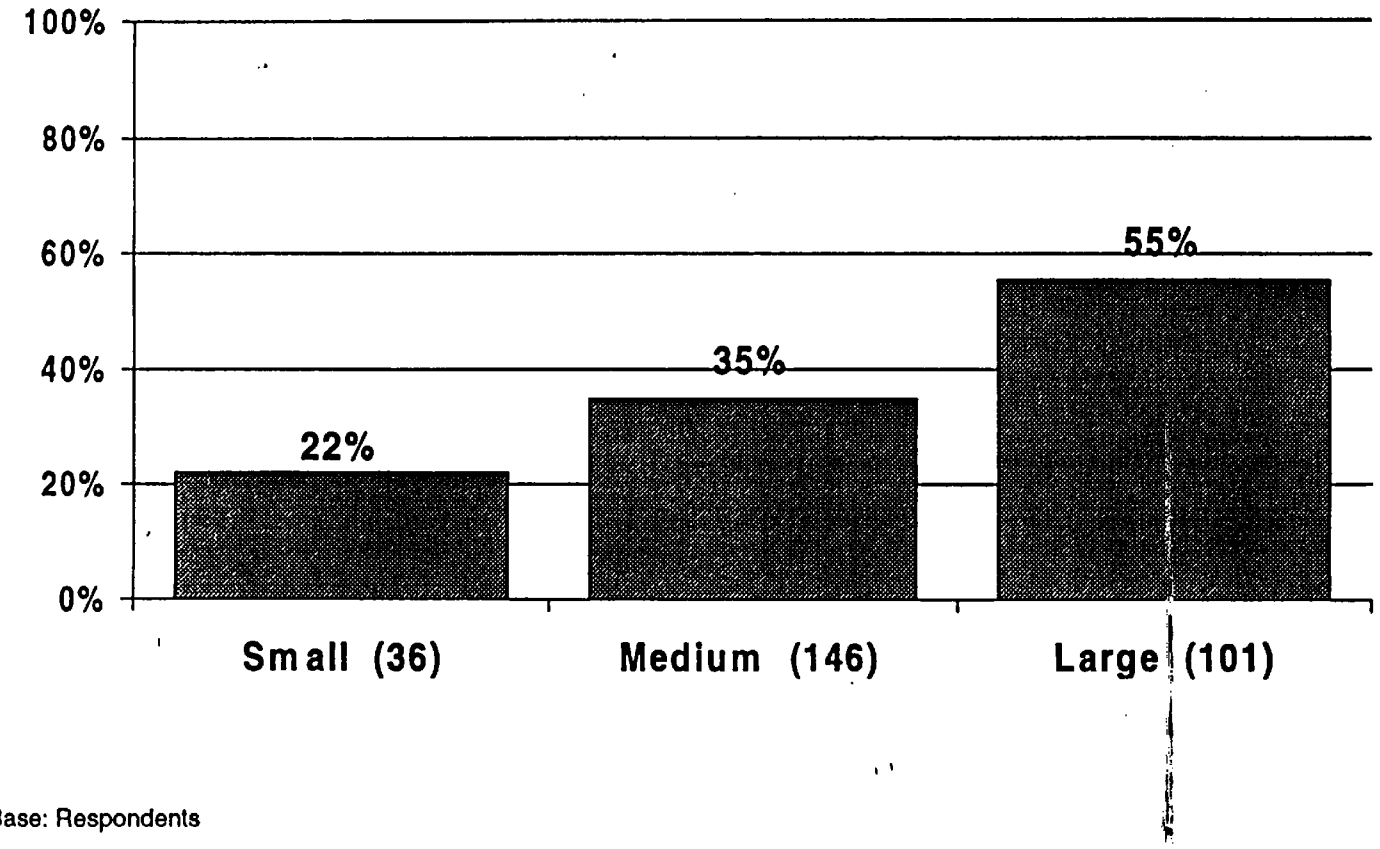
Regarding the role you play in PC purchase decisions for your company, do you...?



Base: Respondents

OS MIGRATION RESEARCH

Do you have a VAR (Value Added Retailer), PC Specialist/ Consultant or Systems Integrator who loads or otherwise configures the operating system on new PCs on your behalf?



Base: Respondents