

*The Impact of OS/Platform  
Selection on the Cost of ERP  
Implementation, Use and  
Management*

*Executive Summary*

---

September 28, 2001



**Table of Contents**

**STUDY OVERVIEW ..... 3**

*Introduction ..... 3*

*Analysis Overview ..... 3*

*Survey Participants Demographics ..... 4*

*Industry Distribution ..... 5*

*Size Distribution ..... 5*

*Staffing Cost Calculations ..... 6*

*Considerations ..... 6*

**O/S ENVIRONMENTS ONE YEAR HARDWARE AND SOFTWARE TOTAL COST ALLOCATION ..... 7**

*Windows NT Environments One Year Hardware and Software Total Cost Allocation ..... 7*

*Windows 2000 Environments One Year Hardware and Software Total Cost Allocation ..... 8*

*Solaris Environments One Year Hardware and Software Total Cost Allocation ..... 8*

**O/S ENVIRONMENTS ONE-YEAR TOTAL COST OF OWNERSHIP ANALYSIS ..... 9**

**O/S ENVIRONMENTS THREE-YEAR TOTAL COST OF OWNERSHIP ANALYSIS ..... 11**

**CONCLUSIONS ..... 13**

**META GROUP CORPORATE OVERVIEW ..... 14**

*About META Group*

META Group is a leading research and consulting firm, focusing on information technology and business transformation strategies. Delivering objective, consistent, and actionable guidance, META Group enables organizations to innovate more rapidly and effectively. Our unique collaborative models help clients succeed by building speed, agility, and value into their IT and business systems and processes. Connect with [www.metagroup.com](http://www.metagroup.com) for more details.



## *Study Overview*

### *Introduction*

The overall objective of this research effort was to have the ability to compare the actual Total Cost of Ownership (TCO) of various Operating System (O/S) environments supporting respondents operational Enterprise Resource Planning (ERP) systems. Over 2000 hours were invested by senior members of the META Group consulting and analyst team to define the objectives of the research effort, produce the survey instrument, contact prospective respondents, collect detailed data, analyze data and produce the final report. The respondent companies also invested thousands of hours of effort to provide META Group with accurate details about their environments. Without their cooperation and willingness to share information, this report would not have been possible.

### *Analysis Overview*

The focus of the Total Cost of Ownership (TCO) analysis was on the cost of ownership of various O/S environments and the comparison of those O/S environments based on actual respondent data. META Group defined the O/S environment in this research effort to include server centric expenses for hardware, software, maintenance, application software, implementation and support services. The workstation and network components were deemed a “neutral factor” in the analysis and therefore not included in the survey process. Over half of the total Part One respondents were not willing or able to provide detailed financial data on the cost of their ERP implementation.

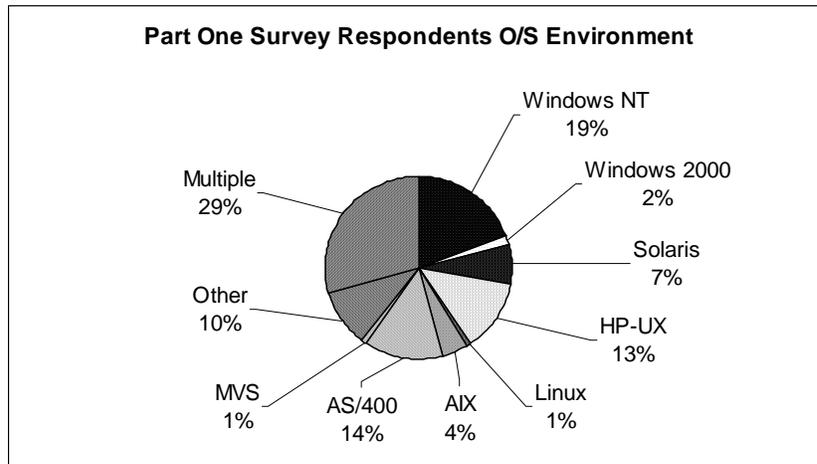
The “average number of concurrent ERP users” was the most consistent factor reported by respondent organizations to measure the value across different ERP environments. ERP systems are real time/on-line systems as compared to environments like Sales Force Automation (SFA) where many users can be working disconnected from a server complex on laptop computers. In the SFA environment the measurement variable for number of users would be more appropriately the “number of named or registered users”. During the analysis phase, the “number of concurrent ERP users” factor was used to normalize costs across all environments by dividing the cost elements by the “number of concurrent ERP users” to determine the average cost attributed per concurrent user.



*Survey Participants Demographics*

META Group contacted over 12,000 domestic U.S. firms during the first half of 2001 to solicit participation in the primary study. The study sponsors provided no contact lists. Four hundred forty eight (448) companies completed the first part (Part One) of the survey that consisted of sixteen (16) questions focused on respondent demographic, environmental and decision-making process questions. In most respondent companies a single individual completed this section of the questionnaire.

The Part One survey respondent data contained 128 respondents with “Multiple O/S” in support of the respondents ERP environments. Sun Solaris was installed in fourteen (14) organizations, Windows NT was installed in 94 organizations, Windows 2000 was installed in 48 organizations, combinations of Sun Solaris and Windows were installed in eight (8) organizations and both Windows NT and Windows 2000 were installed in 40 of respondent organizations.

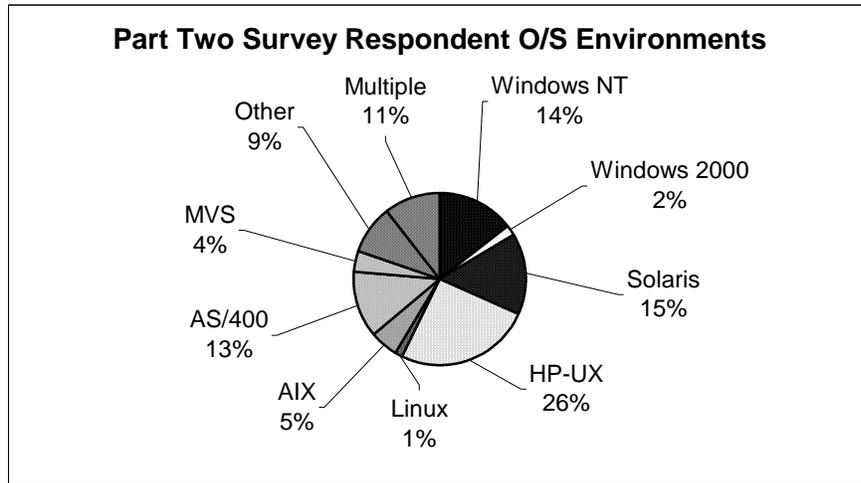


Out of the 128 organizations (29% of Part One respondents) that used multiple O/S environments, the vast majority used Windows NT and/or Windows 2000 to support their Application Server environments. The Data Base servers were a mix of other platform environments including AIX, AS/400, HP-UX, MVS, Solaris and others. We believe these combinations indicate that the cost differences highlighted in the Cost of Ownership analysis sections of this summary factored into the respondent’s choice of Application Server environments.



*Survey Participants Demographics (CONTD)*

One hundred ninety-five (195) companies (out of the original 448) completed the second part (Part Two) of the survey that consisted of seven (7) pages of detailed questions about costs, staffing requirements, and the platform particulars of the respondent's ERP implementation. In most respondent companies multiple individuals participated in completing this section of the questionnaire.



The Part Two survey respondent data contained combinations of “Multiple O/S” in support of the respondents ERP environments. Out of the sixteen (16) organizations (11% of Part Two respondents) which used multiple O/S environments, Sun Solaris was installed in three (3) organizations, Windows NT was installed in ten (10) organizations, combinations of Sun Solaris and Windows NT were installed in three (3) organizations.

*Industry Distribution*

In reviewing the total pool of Part One respondents, the bulk of ERP implementations were in manufacturing oriented companies independent of the type of manufactured goods or processes. In the survey, manufacturing orientated respondents accounted for 53% (228 of 434 respondents) of all implementations while 47% (206 of 434 respondents) provided some sort of services to consumers or businesses.

*Size Distribution*

The range of company sizes (measured by corporate revenue) doing ERP implementations varied greatly - from less than \$10M to \$43B. 50% of all projects are in companies whose revenues ranged from \$500M to \$2B. Based on the respondents, the largest percentage of installed ERP applications is in companies with over 1,000 employees.



### *Staffing Cost Calculations*

The O/S environment staffing costs have been calculated using respondent data to determine operational and support staff “Full Time Equivalent (FTE) allocations per active user” with an average FTE cost value of US \$78,000. Staffing costs included Operations Support, Technical Support and ERP Applications Support positions. A separate META Group research effort concluded that staff costs for Information Technologies (I/T) personnel were similar across O/S platforms for similar positions (Note: The staffing cost differences highlighted on Pages 9 & 11 are as a result of differences in the quantity of support staff, not salaries). Average FTE cost was calculated based on a base salary of US \$60,000 plus an additional 30% uplift for benefits and other overhead.

### *Considerations*

The following tables depict the “average cost per active user” segmented by O/S platform. The data is presented in summary defined by the respondent companies number of “active users.” In evaluating the data, we determined that the costs for ERP implementation with twenty (20) or less users across all O/S platforms were highly variable. To simplify analysis and reduce variability in the low end of the respondent active user cost ranges, we have excluded this data from the calculations.

The number of respondents using each operating system platform is not evenly distributed and not all respondents provided complete information. All tables and graphs are annotated to indicate the number of responses involved.

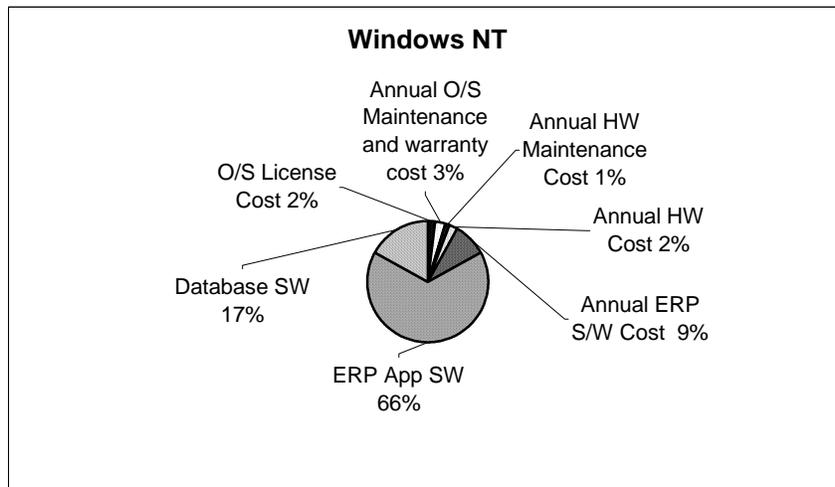


***O/S Environments One Year Hardware and Software Total Cost Allocation***

For the purposes of this summary we have focused our comparison to the Sun Solaris, Microsoft Windows NT and Windows 2000 O/S environments.

The following tables represent one-year aggregate views of the respondent's ERP TCO for hardware and software, exclusive of staff costs and implementation consulting. Respondents were asked to provide this information so that we could better understand what the annual costs associated with the ERP initial implementation. Subsequent tables include three-year views and include staff costs and implementation consulting expenditures.

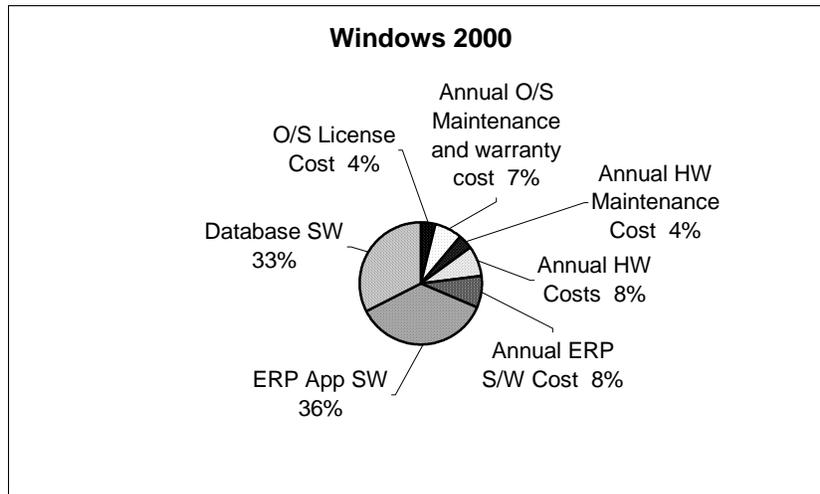
***Windows NT Environments One Year Hardware and Software Total Cost Allocation***



There were 25 respondents for this section. The majority of expense is related to the cost of the ERP application itself and associated maintenance (75%). The hardware and the O/S platform combined account for 9% of costs.

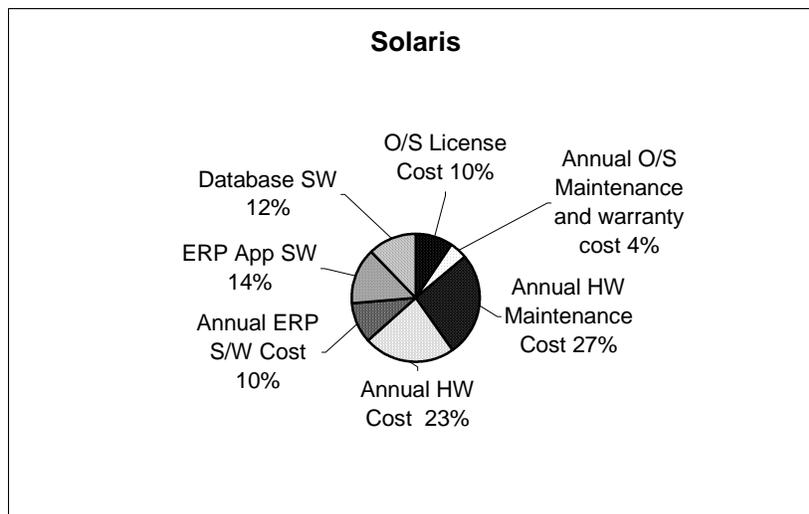


*Windows 2000 Environments One Year Hardware and Software Total Cost Allocation*



There were three (3) respondents for this section. The majority of expense is related to the cost of the ERP application itself and associated maintenance (44%). The hardware and the O/S platform combined account for 23% of costs. Given the small sample size, the confidence in the relative accuracy of the ratio is low.

*Solaris Environments One Year Hardware and Software Total Cost Allocation*



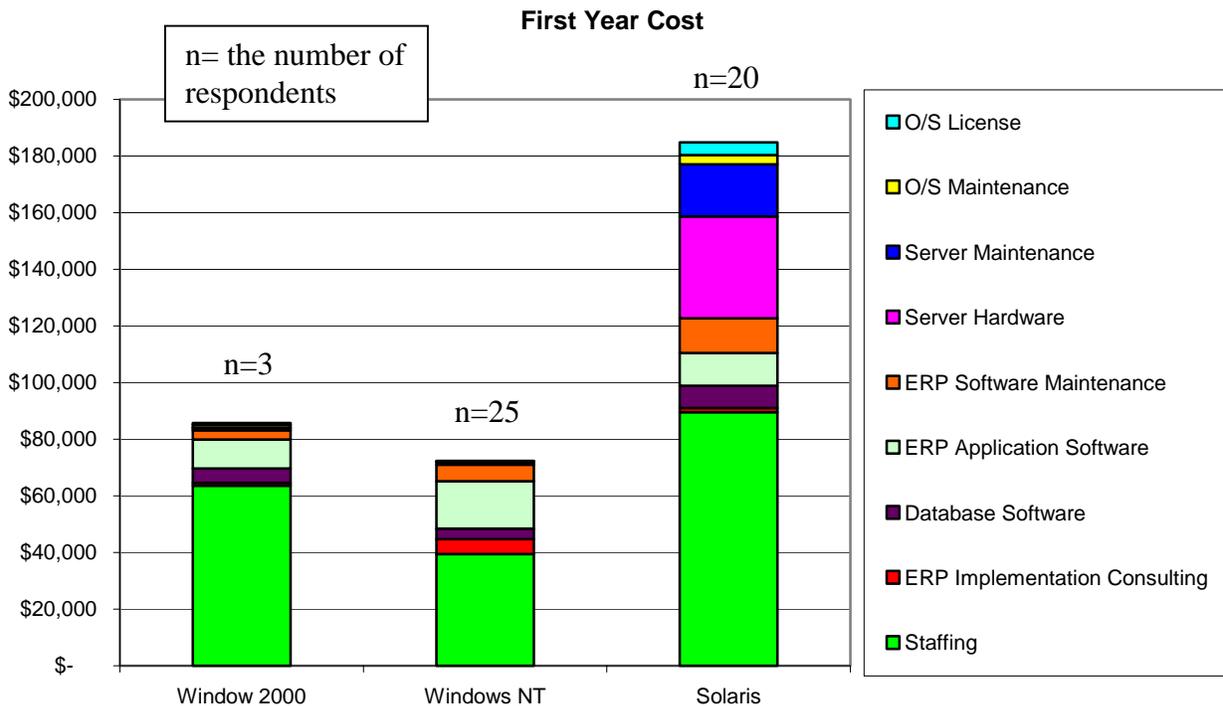
There were 20 respondents for this section. The majority of expenses are related to the cost of the hardware and the O/S platform (64%). The ERP application itself and associated maintenance combined account for 24% of costs.



***O/S Environments One-Year Total Cost of Ownership Analysis***

For the purposes of this summary we have focused our comparison to the Sun Solaris, Microsoft Windows NT and Windows 2000 O/S environments.

The following table represents the sum of all the hardware and software “first year” TCO cost elements provided by respondents and captured in the analysis. These include one-time O/S license cost, annual O/S maintenance cost, one-time server hardware cost, annual hardware maintenance cost, one-time ERP software cost, annual ERP application maintenance cost, one-time database cost, one-time implementation cost and Information Technology support staff allocation.



The “number of concurrent ERP users” factor (reflected as “per concurrent user” below) was used to normalize costs across all environments by dividing the cost elements by the “number of concurrent ERP users” to determine the average cost attributed per concurrent user. Based on respondent data for costs and user counts, comparisons of the one-year costs of each O/S environment yield average values of:

- O/S License Costs - Sun Solaris was \$4,457 per concurrent user, Windows NT was \$129 per concurrent user and Windows 2000 was \$600 per concurrent user.
- O/S Maintenance Costs - Sun Solaris was \$3,240 per concurrent user, Windows NT was \$225 per concurrent user and Windows 2000 was \$983 per concurrent user.
- Server Maintenance Costs - Sun Solaris was \$18,415 per concurrent user, Windows NT was \$98 per concurrent user and Windows 2000 was \$198 per concurrent user.
- Server Hardware Costs - Sun Solaris was \$35,983 per concurrent user, Windows NT was \$955 per concurrent user and Windows 2000 was \$758 per concurrent user.



*One-Year Total Cost of Ownership Analysis (CONTD)*

- ERP Software Maintenance Costs - Sun Solaris were 3X higher costs than Windows 2000, and 2X higher cost than Windows NT.
- ERP Application Software Costs - Windows NT is almost 2X higher costs than Windows 2000, and almost 2X higher cost than Sun Solaris.
- Database Software Costs - Sun Solaris is 2X higher costs than Windows NT, and almost 2X higher cost than Windows 2000.
- ERP Implementation Costs - Windows NT is 5X higher cost than Windows 2000 and 3X higher cost than Sun Solaris.
- Staffing Costs – Sun Solaris is 2X higher cost than Windows NT, and 40% higher cost than Windows 2000.

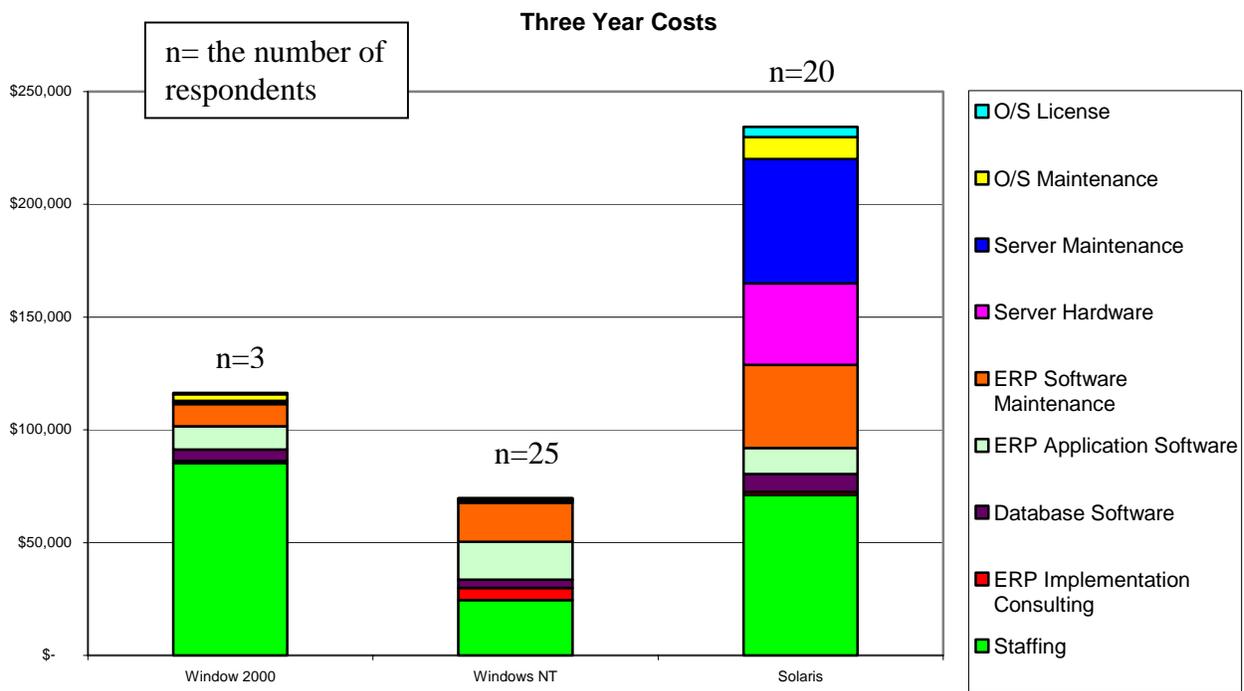
Overall, on a per concurrent user basis the Solaris O/S environment is 2X the cost of Windows NT and Windows 2000 environments. Windows NT has the lowest one-year costs.



***O/S Environments Three-Year Total Cost of Ownership Analysis***

For the purposes of this summary we have focused our comparison to the Sun Solaris, Microsoft Windows NT and Windows 2000 O/S environments.

The following table represents the sum of all the hardware and software “three-year” TCO cost elements captured in the analysis. These include one-time O/S license cost, annual O/S maintenance cost, one-time server hardware cost, annual hardware maintenance cost, one-time ERP software cost, annual ERP application maintenance cost, one-time database cost, one-time implementation cost and Information Technology support staff allocation.



The “number of concurrent ERP users” factor (reflected as “per concurrent user” below) was used to normalize costs across all environments by dividing the cost elements by the “number of concurrent ERP users” to determine the average cost attributed per concurrent user. Based on respondent data for costs and user counts, comparisons of the three-year costs of each O/S environment yield average values of:

- O/S License Costs - Sun Solaris was \$4,457 per concurrent user, Windows NT was \$129 per concurrent user and Windows 2000 was \$600 per concurrent user.
- O/S Maintenance Costs - Sun Solaris was \$9,721 per concurrent user, Windows NT was \$674 per concurrent user and Windows 2000 was \$2,950 per concurrent user.
- Server Maintenance Costs - Sun Solaris was \$55,245 per concurrent user, Windows NT was \$295 per concurrent user and Windows 2000 was \$594 per concurrent user.
- Server Hardware Costs - Sun Solaris was \$35,983 per concurrent user, Windows NT was \$955 per concurrent user and Windows 2000 was \$758 per concurrent user.



*Three-Year Total Cost of Ownership Analysis (CONTD)*

- ERP Software Maintenance Costs - Sun Solaris is 3X higher costs than Windows 2000, and 2X higher cost than Windows NT.
- ERP Application Software Costs - Windows NT is almost 2X higher costs than Windows 2000, and almost 2X higher cost than Sun Solaris.
- Database Software Costs - Sun Solaris is 2X higher costs than Windows NT, and almost 2X higher cost than Windows 2000.
- ERP Implementation Costs - Windows NT is 5X higher cost than Windows 2000 and 3X higher cost than Sun Solaris
- Staffing Costs - Windows 2000 is 3X higher cost than Windows NT, and 20% higher cost than Sun Solaris.

Overall, on a per concurrent user basis the Solaris O/S environment is more than 3X the cost of Windows NT and 2X the cost Windows 2000 environments. Windows NT has the lowest three-year costs.



### *Conclusions*

Based on respondent data, Windows NT and Windows 2000 have a lower Total Cost of Ownership than Sun Solaris in ERP environments.

- For an average One year Total Cost comparison, Solaris O/S environment is 2X the cost of Windows NT and Windows 2000 environments. Windows NT has the lowest one-year costs.
- For an average Three year Total Cost comparison, Solaris O/S environment is more than 3X the cost of Windows NT and 2X the cost Windows 2000 environments. Windows NT has the lowest three-year costs.

It must be noted that all data reported is representative of our survey sample only and may not represent the overall market. In our analysis we found that respondents can only accurately report on the data they know, in areas they are responsible. We found the ERP “environment” crosses job responsibilities and departmental boundaries within organizations. There were, in most respondent companies, no single individual responsible for managing and tracking all the ERP project related cost and benefits. Consideration then must be given for the propensity of the respondents to give their “best estimate” on cost elements that they don’t directly manage.



## ***META Group Corporate Overview***

### Bottom-Line Guidance for IT and Business Transformation

#### *What We Do*

Simply put, META Group helps companies transform their business through technology. Since 1989, we've provided consistent information technology (IT) research, analysis, and consulting so that our clients can accelerate the delivery of technology solutions — saving time and enhancing profitability.

Publicly traded (Nasdaq: METG) since December 1995, META Group offers proven models to ensure that organizations are fully prepared to seize market opportunities, counter competitive threats, and avoid expensive mistakes. Serving as each clients' personal radar screen, META Group monitors the IT/business world to deliver an accurate, unbiased view of what works (and what doesn't) to speed innovation and keep pace with the new economy.

Our dialog with thousands of IT users and vendors — ranging from global giants and government organizations to midsize companies and small, bleeding-edge technology vendors — provides us with the necessary perspective to offer comprehensive best practices. And because this dialog is ongoing, we're able to continually hone our vision and provide timely, targeted “best methods” for our clients' diverse challenges.

Every day, in more than 35 countries around the globe, META Group addresses thousands of complex issues for a growing client base. Our world-class, industry-leading analysts and seasoned consultants — the mindspring behind our quality research — provide the fresh thinking our clients need to surpass their performance goals.

Using a straightforward approach, we also provide the clear direction our clients need to transform their businesses. META Group is the only organization in the industry to deliver structured methodologies and innovative programs that speed the business transformation of our clients — ensuring continued effective performance as they change.