

Gartner Dataquest Market Databook

Market Statistics

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Chapter 1

Introduction and Overview

Introduction

This document presents Gartner Dataquest's latest consolidated view of the worldwide IT and telecommunications (telecom) market and its major subsegments from 1999 through 2005. This view is the result of aggregating the latest available individual forecasts for the variety of products and services Gartner Dataquest's corps of market analysts regularly research and forecast.

This is the latest in a series of reports Gartner Dataquest has published at least once a year for the past three years, the most recent edition of which was published in September 2000. It reflects changes in Gartner Dataquest's view of IT and telecom markets since September of 2000 as reflected in updates to its periodic market forecasts. The report also incorporates historical data revisions suggested by Gartner Dataquest's ongoing market statistics research.

The format of this report has been extensively revised as a result of recent changes to Gartner Dataquest's research architecture and the repositioning of this report within that architecture. Once positioned outside Gartner Dataquest's various research programs as a stand-alone product, this report is now a complementary product to Gartner Dataquest's various research Clusters. As a result, the size and scope of the book have been altered to provide more of an overarching and contextual view of the worldwide IT market and its subsegments. For more detail about market size or market opportunities for specific IT products and/or particular geographies, readers are encouraged to examine the offerings of Gartner Dataquest's research Clusters.

Gartner Dataquest's latest consolidated view of the worldwide IT and telecom market is presented in Chapter 2 in a series of tables, which are organized as follows:

- Tables 2-1 and 2-2 summarize the overall worldwide IT and telecom markets by technology segment and by region, respectively.
- Tables 2-3 and 2-4 detail the worldwide IT and telecom markets by technology segment and region.
- Table 2-5 details the worldwide IT and telecom markets by technology segment and subsegment.
- Tables 2-6 and 2-7 detail the hardware segment of the worldwide IT and telecom markets by subsegment and region.
- Tables 2-8 and 2-9 detail the software segment of the worldwide IT and telecom markets by subsegment and region.
- Tables 2-10 and 2-11 detail the services segment of the worldwide IT and telecom markets by subsegment and region.
- Tables 2-12 and 2-13 detail the telecommunications segment of the worldwide IT and telecom markets by subsegment and region.
- Tables 2-14 through 2-21 detail the various regional IT and telecom markets by technology segment and subsegment.

Forecast Variables and Segmentation

Gartner Dataquest regularly forecasts a variety of IT and telecom products and services as part of its ongoing research of markets, the focus of which varies somewhat in terms of the variables forecast. The majority of our forecasts are focused on such vendor-related data as vendor unit shipments and vendor revenue. Fortunately, these variables are closely related to end-user spending and can provide a sound basis for estimating it, which is exactly what we have done. Consistent with our goal of providing estimates of end-user spending on IT and telecom, we have re-expressed all forecasts used in our aggregation in terms of end-user spending. In general, this has entailed adding appropriate distribution markups to forecasts of vendor revenue or applying estimates of end-user prices paid to forecast vendor unit shipment data. Moreover, because our goal is to estimate only spending by the final consumers of IT products and services, we have discounted or simply eliminated forecasts for intermediate products and services that would introduce double-counts into our spending tally. Examples of possible double-counts would include intermediate products and services and items involved in transactions between IT and telecom vendors in the process of creating final products and services for IT end users. As such, their value is included in the value of all final products and services sold to IT and telecom end users. Thus by adjusting our aggregated forecasts for their value, we have provided a truer estimate of end-user spending on IT and telecom.

IT Market Segmentation

Gartner Dataquest segments the worldwide IT and telecom market into four broad technology segments, each of which is then further divided into various subsegments as follows:

- Computing hardware and peripherals (hardware)
 - Client computing
 - PCs
 - Workstations
 - Enterprise computing
 - Servers
 - Server appliances
 - Storage subsystems
 - Direct-attached redundant arrays of independent disks (RAID) storage
 - Fabric-attached RAID storage
 - Storage management software
 - Other storage subsystems
 - Document management
 - Copiers
 - Printers
- Software
 - Infrastructure software
 - Applications development and middleware
 - Information management
 - System and network management

- Applications software
 - Front office/customer relationship management (CRM)
 - Back office/enterprise resource planning (ERP) and supply chain
 - Collaborative and personal
 - Engineering
- Services
 - Product support
 - Hardware maintenance and support
 - Software maintenance and support
 - Professional services
 - Consulting
 - Development and integration
 - Education and training
 - Business process management
 - Management services
 - Transactions processing
- Telecommunications (telecom)
 - Telecom equipment
 - Carrier equipment
 - Premise-based equipment
 - Remote access equipment
 - Mobile handsets
 - Telecom services
 - Fixed voice services
 - Fixed data services
 - Mobile services

Detailed definitions for these various market segments and subsegments may be obtained by consulting the Gartner Dataquest Guides that provide definitions for this report. Note: for purposes of this report, storage subsystems include only storage products that end users purchase independent of computing hardware. Storage products such as hard disk drives or optical disk drives included in the purchase of computing hardware or purchased as part of a computing hardware transaction are included in the value of computing hardware and are excluded from storage subsystems to avoid double-counts.

Regional Segmentation

Gartner Dataquest forecasts IT and telecom spending according to the following segmentation:

- United States
- Canada
- Latin America — Includes Argentina, Brazil, Chile, Colombia, Mexico, Peru, Puerto Rico, Venezuela and Rest of Latin America.
- Western Europe — Includes Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Switzerland, United Kingdom and Rest of Western Europe.

- Central and Eastern Europe — Includes the Baltic Republics (Estonia, Latvia, and Lithuania), Belarus, Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, Ukraine and Rest of Eastern Europe.
- Japan
- Asia/Pacific — Includes shipments to Australia, China, Hong Kong, India, Indonesia, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan, Thailand, Vietnam and Rest of Asia/Pacific.
- Rest of World — Includes Middle East and Africa.

In this report, IT and telecom user spending is forecast at the regional level. Country-level forecasts of varying detail are available for several of the products and services included in our aggregation. Readers interested in these details should consult the offerings of Gartner Dataquest's research Clusters.

Forecast Methodology and Technique

Individual Product and Service Forecasts

In general, Gartner Dataquest's forecasts for individual products and services are developed in accordance with a multistep methodology, the details of which are formally discussed elsewhere. The methodology prescribes a highly structured approach to forecasting that involves following broad process steps:

- The latest available market data are carefully reviewed and compared with the most recently completed forecast.
- The methodology then directs the formulation of precise assumptions about the future with due consideration given to factors that could cause the forecast to stray in either direction. On this score, the methodology commands forecasters to consider the complete range of influences that might impinge on a forecast, including general macroeconomic conditions and exchange-rate fluctuations.
- Finally, the methodology dictates an iterative approach to a final forecast in which successive preliminary forecasts are reviewed, critiqued and revised by all those involved in the forecast process. An integral part of this final step involves comparing preliminary forecasts with related forecasts that either flow into or flow from them. In the case of PCs, for example, this means carefully examining and taking into account related semiconductor and storage forecasts. Consequently, the ranks of those involved in the forecast of any given product or service frequently extend beyond the core group of analysts responsible for the forecast.

Gartner Dataquest's structured methodology leaves issues of technique open to the forecasters' discretion. In general, Gartner Dataquest uses a variety of forecasting techniques, depending on the product or service being forecast. Although Gartner Dataquest's historical record for many IT products and services is quite extensive and, as such, amenable to rigorous quantitative methods, experience has shown that sole reliance on sophisticated statistical techniques tends to produce inferior forecasts. Consequently, analysts commonly use a mix of quantitative statistical and qualitative judgmental methods to generate a forecast. Statistical techniques are heavily used in the early parts of the forecast to anchor preliminary forecasts in historical fact. Judgmental techniques are then used to shape the final forecast by analysts who apply their feel for the market to reach a consensus.

Aggregated IT and Telecom Spending Forecast

This forecast is an aggregation of the most recent individual product and service forecasts generated by Gartner Dataquest's research Clusters. As such, it relies on the forecast methodology just discussed. However, there are additional issues related to the task of aggregating individual forecasts and arranging them uniformly vis-a-vis a fixed hierarchy of IT and telecom market segments and regions. First and foremost is the matter of expressing forecasts in terms of a common denominator that can serve as the basis for aggregation. As noted earlier, the market metrics forecast by Gartner Dataquest vary by research Cluster. Gartner Dataquest analysts generally focus on vendor-related variables such as vendor revenue and vendor unit shipments. But other metrics are forecast as well, depending on the position of a given product or service within the IT and telecom value chain. Consistent with our purpose here, all individual forecasts used in this aggregated forecast have been re-expressed in terms of end-user spending and then aggregated. Naturally, we have simply ported over forecasts already expressed in this key variable where appropriate. For forecasts originally expressed in something other than end-user spending, the forecasts have been translated into end-user spending before aggregation. The specifics for doing this vary depending on the original forecast metric. In general, however, it has involved applying a distribution-related markup to estimated revenue or applying estimated end-user prices to forecast unit shipments.

Second, there is the matter of avoiding double-counts. There is significant overlap across IT and telecom products and services, so simply adding together the individual forecasts from Gartner Dataquest's various research Clusters would produce an inflated estimate of end-user IT and telecom spending. Accordingly, we have taken great care to avoid the double-counting individual Gartner Dataquest forecasts when aggregating them to produce our estimate of overall IT and telecom end-user spending.

Consider the case of PCs and hard drives. Gartner Dataquest's PC research Cluster forecasts total PC spending assuming an average PC configuration that includes hard drive storage. At the same time, Gartner Dataquest's storage research Cluster forecasts total hard drive spending. Were we simply to aggregate estimated total spending on hard drives with estimated total spending on PCs, we would double-count end-user spending on both products because of our forecasting conventions. Therefore, we have adjusted forecast spending for hard drives to include only that which end users spend independent of PC purchases — for example, units sold in aftermarkets for the purposes of upgrades, home-built systems, and/or replacements and repairs. In a similar vein, we have adjusted the interrelated forecasts of other products and services for their inherent overlap before aggregating them.

Third, there is the matter of uniform geographic coverage. Although virtually all individual Gartner Dataquest research Clusters forecast the worldwide market for their product or service, the geographic detail offered in individual forecasts varies considerably according to the needs of the various market segments. Some programs provide extensive country-level detail, while others simply provide gross regional detail. A central purpose of this publication is to provide an actionable IT and telecom spending forecast for a standardized set of regions. The regional segmentation used in this forecast is discussed above. Of course, this forecast uses the desired regional-level detail available for individual forecasts where possible. Where this desired detail does not exist, it has been estimated from the appropriate worldwide or gross regional total. Once again, the specifics behind this vary depending on the forecast in question and the regional detail sought. In general, desired regional splits have been modeled by applying analogous splits for related products.

Fourth and finally, there is the matter of global consistency. Every forecast for a given IT or telecom product or service must necessarily assume certain constants. As noted, Gartner Dataquest forecasts generally take the prevailing macroeconomic environment as a given. Also, many individual product or service forecasts take the forecasts of related products and services as a given. This is as it should be for individual forecasts.

The problem is that when related individual product or service forecasts are combined, there exists the danger that the resulting aggregated forecast will have failed to consider important interactions among its constituents. Given the complex interrelations among the various categories of IT and telecom, an aggregated spending forecast for all of IT and telecom runs the risk of overlooking the important effects that some of its constituent categories may be exerting on other categories. Gartner Dataquest's forecasting methodology for individual products and services mandates that forecasters consider the potential feedback effects emanating from and operating on their forecasts. Moreover, most Gartner Dataquest forecasts for related products are explicitly and carefully coordinated to ensure their consistency. Thus, we feel the more specific issue of global consistency related to aggregated forecasts of related IT and telecom products/services is being addressed.

We have subjected the forecast presented here to an exhaustive review for accuracy and consistency. The forecast has also been cross-checked against a variety of sociopolitical and economic variables and has been compared with other available forecasts of IT and telecom market growth.

Global Macroeconomic Outlook

Gartner Dataquest gives due consideration to the impact of world economic conditions on all its forecasts. Gartner Dataquest does not forecast the global economy, but instead relies on economic forecasts from DRI-WEFA, its preferred third-party source for macroeconomic information. The following summarizes the latest global macroeconomic outlook from DRI-WEFA and provides references to other Gartner Dataquest research regarding the current state of the global economy.

DRI-WEFA Forecast Summary

DRI-WEFA has lowered its outlook for the global economy yet again in response to the dramatic economic slowdown in the United States. It has reduced its 2001 forecasts for the world's regional economies across the board, sharply lowering expectations for global GDP growth this year. DRI-WEFA now expects global GDP to grow 2.6 percent in 2001. This is 0.4 percent less than its previous forecast for this year and a full 1.6 percent less than the 4.2 percent growth global GDP experienced in 2000. DRI-WEFA has also lowered many of its forecasts for 2002, dimming expectations for next year as well. DRI-WEFA now expects global GDP to grow 3.3 percent next year. Although something of an improvement over 2001, this is 0.2 percentage point lower than DRI-WEFA's previous forecast.

All this assumes that the United States successfully avoids a recession. DRI-WEFA has grown decidedly more pessimistic about this since its previous forecast. DRI-WEFA looks for the U.S. GDP to grow just 1.8 percent this year and 2.6 percent next year. However, DRI-WEFA reckons there is a 45 percent chance the United States will experience a recession in the months ahead that could push U.S. GDP growth to as low as 0.9 percent in 2001 and 0.3 percent in 2002. If the United States were to experience a slowdown of this magnitude, global growth could drop to 2.4 percent this year and 2.5 percent next year.

For the most part, DRI-WEFA has left its longer-term outlook for the global economy unchanged. Overall, DRI-WEFA still expects global GDP growth to average just less than 3.5 percent between 2002 and 2005. Recent forecasts from the International Monetary Fund (IMF) and Organization for Economic Cooperation and Development (OECD) mirror DRI-WEFA's downbeat assessment of the global economy's near-term prospects. Both the IMF and OECD anticipate a sharp slowdown in global GDP growth this year, which, in turn, is expected to sharply curtail global trade growth. The projected deceleration in global trade is especially worrisome, because it raises the possibility that the ongoing slowdown will continue to spread and perpetuate itself well into the future.

Table 1-1 reports DRI-WEFA's latest GDP growth forecasts.

For additional detail, read the Gartner Dataquest Perspective, "Economic Outlook, 2Q01: Through the Glass Darkly" (HARD-WW-DP-0040).

Note: All reported GDP growth rates are "real" dollar-based rates that assume constant 1990 prices and exchange rates (that is, the figures have been adjusted to eliminate the effects of inflation and exchange rate movements). All rates have been calculated from the most recently available quarterly world forecast of DRI-WEFA as contained in "Q2 2001 World Economic Outlook Forecast Data," released 23 April 2001, and may not be reproduced without permission.

Table 1-1
Historical and Forecast Real GDP Growth, 2000-2005 (Percent)

	2000	2001	2002	2003	2004	2005
Worldwide	4.2	2.6	3.3	3.5	3.5	3.4
Americas	4.8	2.1	3.0	3.5	3.3	3.0
United States	5.0	1.8	2.9	3.5	3.2	2.8
Canada	4.7	2.5	2.8	3.0	2.9	2.9
Mexico	6.9	3.8	4.9	5.1	5.4	5.6
Brazil	4.2	4.0	4.2	4.1	4.0	4.1
Argentina	-0.5	0.0	2.1	3.1	3.4	3.4
Other Latin America	3.4	3.7	4.1	4.5	4.8	5.0
Europe, Middle East and Africa	3.7	2.8	3.0	3.0	2.9	2.9
Germany	3.0	2.4	2.8	2.7	2.5	2.4
France	3.2	2.7	2.7	2.5	2.5	2.5
Italy	2.9	2.5	2.4	2.4	2.3	2.2
United Kingdom	3.0	2.4	2.7	2.7	2.5	2.5
Other Western Europe (Except Turkey)	3.9	3.0	2.9	2.8	2.8	2.7
Central and Eastern Europe	6.1	4.2	4.1	4.6	5.1	5.3
Middle East and Africa	5.0	3.2	4.1	4.3	4.5	4.4
Japan and Asia/Pacific	4.2	3.1	4.0	4.1	4.4	4.8
Japan	1.7	1.1	1.9	1.9	2.5	3.1
China	8.0	7.5	7.7	7.6	7.6	7.6
Hong Kong	10.5	3.3	4.3	4.5	4.7	4.9
Singapore	9.8	4.9	7.6	7.9	7.4	7.4
South Korea	8.8	4.9	7.7	7.6	7.4	6.8
Taiwan	5.7	4.0	5.4	5.8	6.0	6.8
Other Asia/Pacific	5.1	4.0	4.7	4.8	4.8	4.9

Source: DRI-WEFA

Forecast Discussion

By our reckoning, total end-user spending on IT and telecom will approach US\$2.75 trillion in 2001. By way of comparison, this figure is roughly 8.7 percent of forecast global GDP for the year. The figure marks 12.3 percent growth over 2000. The heavy hand of the current global economic slowdown is strongly evident in many of our forecasts. This is especially so for the United States and Japan, where overall IT and telecom spending growth is expected to fall into single digits for the year. Of the major categories of spending, computing hardware and peripherals appears likely to be the most impacted by this year's weak economic climate. Not surprisingly, the ongoing global economic slowdown has created considerable uncertainty for both the consumers and producers of IT and telecom products and services. This uncertainty casts a dark shadow over our forecasts and imposes significant downside risk on them for this year. Fortunately, the outlook beyond this year looks relatively bright. Overall spending growth is expected to recover next year and remain reasonably strong through the end of the forecast period in 2005. Indeed, Gartner Dataquest now expects total end-user IT and telecom spending to top US\$4.3 trillion in 2005, nearly 10 percent of currently forecast global GDP for the year. Spending is projected to average 11.9 percent annual growth from 2002 through 2005. The following sections discuss the outlook for the major categories of IT spending in further detail. They also provide suggestions for further reading.

Computing Hardware and Peripherals

Gartner Dataquest now expects global end-user spending on IT computing hardware and related peripherals to grow just 1.3 percent in 2001. This is sharply lower than the pace of spending during 2000, an estimated 7.5 percent, and largely reflects a dramatic forecast decline in spending on PCs, especially in the United States. In turn, this anticipated decline in PC spending reflects sagging PC demand on account of the current economic slowdown as well as marked declines in PC prices provoked by intensified vendor competition. Longer term, the outlook for spending on IT computing hardware is somewhat brighter but still relatively subdued compared with other IT spending. Overall, Gartner Dataquest now expects spending on IT computing hardware to average 6.6 percent growth annually from 2002 through 2005. This compares with anticipated average annual growth of 11.9 percent for overall IT spending during the same period. Going forward, IT hardware spending will increasingly be driven by spending on storage subsystems, most notably fabric-attached RAID systems, as opposed to computing platforms.

Regionally, the economic uncertainty surrounding the current global economic slowdown is expected to slow end-user spending on IT computing hardware and peripherals throughout much of the world this year. Indeed, the United States is forecast to experience an especially sharp deceleration in hardware spending on account of its weak economy. All told, U.S. spending on computing hardware and peripherals is now expected to contract 4.5 percent in 2001, compared with 5.8 percent growth in the previous year. As indicated above, this deceleration reflects a dramatic anticipated decline in PC spending. Even so, lackluster growth in spending on other hardware and peripherals looks likely, given the troubled state of the U.S. economy.

Elsewhere, markedly slower growth in hardware spending is also expected in Japan and Asia/Pacific thanks to poorer economic conditions as well as depreciated currencies. In Japan, growth is forecast to decelerate from 14.2 percent in 2000 to just 2.4 percent in 2001. In Asia/Pacific, growth is projected to decline from 21.6 percent in 2000 to 10.1 percent this year. Both Canada and Latin America appear likely to suffer less-pronounced, but still notable, declines for similar reasons. Only Western Europe appears poised to enjoy accelerated 2001 hardware spending, with growth rising from 0.2 percent last year to 5.8 percent this year. However, this pickup is clearly at risk from negative economic developments and would no doubt be undermined by a further deterioration in Western Europe's already shaken economy.

Longer-term, anticipated improvements in the global economic outlook for 2002 and beyond should reinvigorate hardware spending worldwide beginning next year. In particular, spending growth in the United States is expected to recover strongly in 2002 and remain reasonably healthy through the end of the forecast period. Overall, U.S. spending on computing hardware and peripherals is forecast to average 5.3 percent annual growth from 2002 through 2005. Canada and Japan are also expected to enjoy strong acceleration in spending growth beginning in 2002. In both cases, spending is projected to average 6.5 percent annual growth from 2002 through 2005. Latin America, Asia/Pacific, and Western Europe will each enjoy modest spending acceleration next year. Despite modest gains, the increased growth in Latin America and Asia/Pacific will enable these regions to keep the pace of their spending growth well above the global average. In Latin America, spending growth is forecast to average 12.3 percent annual growth from 2002 through 2005. The comparable figure for Asia/Pacific is 8.4 percent. For its part, Western Europe is expected to average 6.2 percent annual growth from 2002 through 2005.

The one constant across all regions will be a shift in the dynamic of hardware spending growth away from computing platforms toward storage subsystems. As explained above, Gartner Dataquest segments IT hardware spending into four broad categories: client computing, enterprise computing, storage subsystems and document management. Consisting largely of spending on PCs, client computing expenditure has and will continue to dominate IT hardware spending for the foreseeable future. However, with the onset of PC saturation in advanced markets such as the United States and the continuing, relentless fall in PC prices, growth in spending on client computing is expected to wane going forward. The effects of this on overall computing platform expenditure will be somewhat offset by continued strong and steady growth in spending on enterprise computing platforms. However, spending on servers and server appliances will remain simply too small, relative to spending on PCs, to reverse what appears to be an inevitable deceleration in computing platform expenditure. Gartner Dataquest now expects spending on computing platforms to contract 1.1 percent in 2001 as both client and enterprise platforms absorb the impact of the current global economic slowdown. Spending growth is forecast to average 5.4 percent annually from 2002 through 2005.

In contrast, expenditure on storage subsystems is expected to accelerate in the coming years. Recall that Gartner Dataquest defines storage subsystems as independently purchased storage products. In addition to spares and replacements for such client storage products as hard disk drives, this includes networked storage hardware such as RAID systems, as well as storage management software purchased separately from computing hardware.

Thanks to the continuing Internet explosion and information revolution, spending on network-related storage products is expected to enjoy exceptional growth over the coming years. Indeed, fabric-attached RAID systems will enjoy phenomenal growth. This, in turn, is forecast to propel growth in spending on storage subsystems that will consistently run in double digits throughout the forecast period. Despite the ongoing global economic slowdown, Gartner Dataquest expects expenditure on storage subsystems to grow 13 percent this year. Growth is then forecast to average 15.6 percent annually from 2002 through 2005. When compared with the trend in computing platform expenditure, it is easy to see why spending on storage subsystems will increasingly drive hardware spending growth.

Needless to say, this is only a thumbnail sketch of the many currents and trends influencing global spending on computing hardware and peripherals. Gartner Dataquest analysts have been kept especially busy of late researching IT hardware markets. The rapidly changing global economic outlook, combined with the growing implications of PC saturation and innovative developments in storage, have all served to make IT hardware market especially dynamic these days. To learn more about the details of the currents and trends highlighted here, readers are encouraged to explore the publications of Gartner Dataquest's hardware research Clusters (see the Markets: Hardware and Systems Focus Area on gartner.com). Perhaps the best place to start for the latest perspective on hardware markets would be the June research spotlight, "Computing Platforms 2001 Scenarios — 2Q1 Update: From Breeze to Gale in Six Short Months" (HARD-WW-DP-0051) (see "Dotting the Connects: Hardware Platform Directions" in the Markets: Hardware and Systems Focus Area on gartner.com).

Software

Software is the engine of innovation for the IT industry — each new generation of software clambering over the last to deliver advances in ease of purchase, adaptation, deployment, use, integrity and popularity. Suppliers are not only impacted by sharp changes in spending habits and customers' business objectives, but they are also continually challenged by the arrival of new technologies, by new, merged or refreshed competitors, by new business models and value propositions and by innovative go-to-market platform and solution strategies.

Our forecasts of spending on new software product licenses anticipate limited impact from economic slowdown in the short term. Growth rates in 2001 are predicted to range from below 5 percent for PCs, collaborative and engineering application software to more than 20 percent for application integration middleware and key e-commerce software, rising to well over 40 percent for CRM and supply chain management (SCM) applications. The integration of disparate applications will be one of the most important IT challenges over the next five years, driving the market to triple-spending on integration software. This market is a key component enabling e-business, CRM and SCM initiatives to deliver results. Wireless applications and embedded software for client appliances are highly active niche markets with potential for significant growth. Other infrastructure sectors were already impacted by a downturn in 2000 and are not expected to return to business-as-usual growth until the end of 2002.

With business attention still firmly focused on the potential of direct, bottom-line impact from both front-office CRM and supply chain efficiencies, back-office applications such as HR, financials and ERP are facing an identity crisis. To better compete, control expenses and increase profits, enterprises are redesigning their back-office processes and searching for solutions that allow outward-facing abilities. Growth here at 12 percent in 2001 will be relatively sedate compared with, say, 1998 in the run-up to Y2K. The PC applications market will mirror much of the hesitation in PC hardware spending, bringing overall forecasts for software products in 2001 below 12 percent.

The longer-term outlook for the software industry remains mixed. New Web-based technologies are creating potentially different ways of solving business problems and attracting vendors to try new ways of doing business. As vendors refocus on how to thrive (rather than just survive), we are predicting a rebound in growth to 15 percent in 2003, with a potential hesitant return to 14 percent by 2005 as competitive pressures increase again. The balance between infrastructure software and applications software is changing at a slightly slower rate than it did in the 1990s. Infrastructure software helps get the best return from technology investments. Applications software helps get the best return from business process and practice improvements. But the two areas are tied closely to each other's fortunes, as in the example of e-business applications needing to be integrated into existing internal back-office systems as well as across enterprises along the supply chain. Similarly, customer or product databases in CRM are dependent on underlying database and systems management infrastructures. These in turn are linked to server, network and storage systems' demand-and-supply dynamics.

Software penetration around the regions varies widely as prices and volumes reflect the relative maturity of enterprise, small and midsize business (SMB) and consumer software demand around the world. Central and Eastern Europe is expected to continue to invest in infrastructure much faster than applications, while in Asia/Pacific, applications software leads to growth — headed by Australia. Europe's spending on software is expected to grow at an above-average rate, with half the top 20 applications software vendors headquartered there. In the United States, competition will remain fierce, and spending will grow more slowly than average. Vendors will need to look outside the United States for new growth opportunities. Especially critical to the achievement of these spending predictions will be the focus that vendors can bring to delivering results to their customer's bottom line (profitability). There is a danger that the market leaders are devoting too much attention to having a bigger and better portfolio than their nearest competitors. Focus on customer needs and financial justification will be keys to which vendors remain on the top in the longer term.

The data shown in the software tables exclude spending on software maintenance, support and custom-developed software — this is all included in the IT services sector. Here we show end-user spending only on newly purchased packaged software products. Detailed definitions and sector reports are available.

Services

The IT services marketplace is one of the broadest, most complex and fastest-growing segments of the IT industry. IT services refers to the application of business and technical expertise to enable organizations in the creation, management, optimization, or access to information and business processes. The worldwide IT services marketplace grew to US\$666 billion in 2000, a growth of just under 10 percent over 1999, as the Y2K, e-commerce, currency exchange rate fluctuations and dot-com disruptions affected the market. This healthy growth was in part due to continued shortages in IT staff, a large backlog of contracts, continued e-business demand and the growth of outsourcing. In 2001, the market is still expected to underperform in terms of revenue growth, but should manage to achieve a compound annual growth rate (CAGR) of 15.6 percent from 2000 through 2005 with increasing annual growth rates after 2001.

In the short term, the most troubling region is North America, with a continuing economic disruption. While we assume that the economy will begin to rebound in the second half of 2001, we must be concerned that a weakened U.S. economy will affect other regions; if disruption continues, the health of the IT services markets in these regions will be affected. Europe had the lowest growth in 2000, due to swings in currency exchange rates. The region saw a healthy market growth rate in terms of local currencies translated into just 4 percent in terms of U.S. dollars as a result of currency depreciation. The Japanese services market continued to experience a steady growth rate in the low double-digits, as the market increasingly accepted the value of IT services. The IT services market in Latin America should continue to see increasing growth rates through 2003 as the region digests significant privatization in the economy and an increasing role of IT in society. It should record a CAGR of 22 percent during the forecast period. Asia/Pacific is expected to be the fastest-growing region for IT services over the next five years. The rebounding of the region, its increased adoption of outsourcing, new communications infrastructure and acceptance of e-commerce should combine to bring yearly growth rates approaching 30 percent by the end of the forecast period.

In this document, Gartner Dataquest segments the services market into two elements: product support and professional services. Following the buildup of the IT infrastructure for Y2K remediation, the growing importance of IT and its mission-critical role, and now the aging of the installed base as spending on hardware slows, the product support market will see a short-term increase in growth rates. Starting in 2000, product support spending should increase by more than 9 percent, with approximately 11 percent growth anticipated in 2001 and 2002. Other reasons for this growth include the rapid deployment of networking equipment as the Internet has grown over the past several years and the rebounding software market. From 2003 onward, this market should return to lower growth rates, as the rapid growth in the installed base of IT products comes to an end. For the forecast period, product support should enjoy a 9.3 percent CAGR.

Professional services have been the most affected by the disruptions discussed above. In 2000, growth dropped to less than 11 percent, the lowest in more than five years. The drop is mainly attributable to a withering of the sales pipeline for major projects following the Y2K lockdowns in the last part of 1999 and the disruptions caused by the explosion of e-commerce and e-business.

Growth is expected to improve only slightly in 2001, to just over 13 percent. Some positive signs have been seen in the results of several key vendors in the first quarter of 2001, but the improvement in growth depends on a rebounding of confidence in the economy that should take place in the second half of the year as the economy improves.

The major factors keeping the professional services market from suffering a greater downturn are the shortage of trained staff and the growth of outsourcing, which is dependent on multiyear contracts. From 2002 onward, growth will return to rates in excess of 15 percent, resulting in a CAGR of 17 percent. This growth should take place as companies move into the next wave of e-business. There will be a strong demand for application integration, a new generation of wireless computing and communication technologies, and a continued demand for solutions that optimize the employment of technology in organizations. Finally, Gartner Dataquest expects that the growth of business process outsourcing and the use of technologies to expand business opportunities for organizations will have a positive effect on services growth.

The preceding discussion of IT services is only a general overview of this topic. Several documents are available for a more in-depth discussion of the IT services market. To understand more about what the IT services market represents, please review our "2001 IT Services Market Definitions Guide" (ITSV-WW-GU-0001), which contains detailed descriptions of each subsegment and our segmentation strategy. For a brief review of our latest forecast, please see our Alert on the topic, "IT Services Market Forecast, 1999-2005 (April 2001)" (ITSV-WW-DA-0015), or for a more detailed review of the forecast please refer to the accompanying Focus Report, "IT Services Market Forecast, 1999-2005," (ITES-WW-FR-0105). To understand how our services forecasts are developed, please see the methodology section of "2000 Forecasting the Worldwide IT Service Industry" (SVST-WW-MS-0003). For a review of the major trends in this market, please refer to "IT Services Megaforces in the Millennium: A Case for Reinvention" (ITSV-WW-DP-0062). To understand how the economic disruption may affect services spending, see our February spotlight "Survivor! Macroeconomic Forces Impact on IT Services" (COM-13-0974). Finally, as a general starting point into our coverage of the IT services marketplace, please go to our Markets: IT Services Focus Area on www.gartner.com.

Telecommunications

Telecommunications equipment and services combined to form a US\$1.3 trillion market in 2000, more than half of all IT and telecom spending. Year-over-year telecom spending growth for 2001 will remain healthy at 15.7 percent, but this represents an overall slowdown in the expansion of the market. Consolidation and economic forces are taking hold here, as in the other sectors. Evidence is accumulating that growth in all three of the world's largest economic areas (the United States, Europe and Japan) is slowing sharply. The stock market downturn in the United States, political wrangling and its economic costs within the European Union, and continued economic and political tumult in Southeast Asia are major contributors to a picture sharply changed from less than a year ago. In North America, vanished enthusiasm for Internet companies, ISPs and data local exchange carriers (DLECs) has led to an avalanche of restructuring announcements and bankruptcies. The most advanced nations of the European Union continue to wrestle with the implementation of loop-unbundling regulations and other delays that have been costly, or even fatal, to the cash-poor entrants. A lack of desired investment by foreign carriers in Asia/Pacific has led some of the leading providers within the region to begin sniping at each other's markets. Telecom equipment manufacturers, responding as much to the anticipation of slowed demand as to present drops in orders, have laid off thousands and are selling "non-core" assets.

Yet economic weakness traditionally has had less of an impact on the telecom and telecom-related market segments than on other parts of the economy. While economic indicators have slowed and turned negative in certain sectors, telecom service spending continued to grow at a robust rate during 2000. In 2001 and 2002, growth will be less robust than over the past few years — some slowing in both consumer and business market demand was already evident in early 2001. Continued strong growth in services will not necessarily translate into equally robust year-over-year equipment sales, because carriers will be more intent on efficiency and optimizing their return on investment. In fact, optimization and combination of networks — for example in the upcoming third-generation wireless infrastructure sector — will likely contribute to consolidation among vendors, as the largest players have the inside track to win a shrinking number of available contracts. In the latter half of the forecast period, however, investment and growth will begin to rebound.

But even in the driest of times, telecom remains a catalyst for the economy as a whole, and it will continue to serve as a vital alternative to more expensive travel and additional hiring. As non-telecom businesses tighten their belts and "stick to their knitting," the scope for the provision of managed telecom services will grow. Some regions, especially Latin America, may even find that this downturn actually accelerates investment within the region, as prospects surge ahead of those in the more-developed markets.

Carrier equipment defines the infrastructure deployed by public fixed and mobile carriers, including central office switches, optical transmission equipment, public access equipment, mobile cell sites and switching centers, as well as WAN equipment. The sector represents more than 58 percent of all telecom equipment spending, and that proportion will increase over the forecast period (to 66.5 percent, two-thirds of all telecom equipment spending).

Premise-based equipment comprises telecom hardware sold to the corporate sector to support internal and external telecommunications needs. This includes premises switching systems, call centers, interactive voice recognition equipment, and LAN hubs, switches, routers and network interface cards (NICs). Always a more moderate growth element, this sector will show signs of the economic downturn over the forecast period, with spending posting a CAGR of 6.1 percent through 2005. What's more, year-over-year market growth will steadily slow over successive years, reaching 5.1 percent between 2004 and 2005.

Remote access equipment defines those forms of telecom equipment sold through either carrier or premise-based channels, including analog and digital modems, remote access concentrators and remote access servers. With spending forecast to experience a 1.7 percent CAGR through 2005, this sector is essentially stymied in the forecast period, primarily as a result of regulatory haggles that will delay full rollout in the most developed regions.

Mobile handsets, as a stand-alone category, will average worldwide market growth of 9.1 percent annually through 2005. This reflects a combination of high demand in regions where wireless is just coming into play (and where it can be used to leapfrog wireline for first-line connectivity) through the early rollout of third-generation wireless networks and handsets in the most mature telecom regions.

Telecom services garnered more than two-thirds of telecom expenditure this year and will hold that proportion through the forecast period by registering a 10.6 percent CAGR through 2005. Fixed voice is still in the driver's seat, but its proportion will erode dramatically in the next three years as data services begin to pick up steam. Mobile services will also benefit from the dual-edged drive of essential connectivity in developing regions and the high-powered challenge of delivering advanced, high-bandwidth service in the areas where penetration is already high. All of these categories include charges paid by end users for calling and usage fees as well as connection or subscription charges.

For greater detail on Gartner Dataquest's coverage of telecom services and equipment markets, consult the upcoming Market Trends report, "Telecommunications Fixed Public Services Market Worldwide Overview 1999-2005," as well as "Worldwide Telecommunications Equipment Overview 1999-2004." Readers are also encouraged to visit the Markets: Telecom Focus Area on gartner.com.

Project Analysts: George Shiffler, Roger Fulton, Michael Palma, Wm. L. Hahn and numerous Gartner Dataquest analysts

Chapter 2

Forecast Tables

Tables 2-1 through 2-21 present Gartner Dataquest's forecast for worldwide IT and telecom spending.

Table 2-1
Worldwide: End-User Spending on IT and Telecom by Technology Segment (Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5
Software	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8
Services	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6
Telecom	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7
All IT	2,114,678	2,443,846	2,745,637	3,088,328	3,441,902	3,842,499	4,308,914	12.0

Source: Gartner Dataquest (July 2001)

Table 2-2
Worldwide: End-User Spending on IT and Telecom by Region (Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States	781,861	913,447	1,003,032	1,129,039	1,259,825	1,400,668	1,563,164	11.3
Canada	55,160	63,083	69,946	78,527	87,916	98,588	111,049	12.0
Latin America	134,812	165,421	196,181	229,069	262,284	301,240	340,960	15.6
Western Europe	571,636	626,287	702,800	769,737	840,557	921,032	1,011,331	10.1
Central and Eastern Europe	49,001	57,603	65,828	73,286	82,932	93,753	106,037	13.0
Japan	231,393	266,806	289,450	311,841	332,367	353,310	378,843	7.3
Asia/Pacific	219,311	271,798	329,296	393,122	456,196	532,518	623,646	18.1
Rest of World	71,503	79,400	89,104	103,707	119,825	141,389	173,885	17.0
Worldwide	2,114,678	2,443,846	2,745,637	3,088,328	3,441,902	3,842,499	4,308,914	12.0

Source: Gartner Dataquest (July 2001)

Table 2-3
Worldwide: End-User Spending on IT and Telecom by Technology Segment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
United States	144,645	153,099	146,146	156,250	158,983	167,091	179,595	3.2
Canada	10,203	10,923	11,044	12,032	12,666	13,243	14,184	5.4
Latin America	12,199	15,915	17,658	19,798	22,190	24,786	28,038	12.0
Western Europe	97,840	97,991	103,671	109,294	116,203	123,430	131,903	6.1
Central and Eastern Europe	8,466	9,689	10,195	11,286	12,560	13,734	15,100	9.3
Japan	44,580	50,895	52,139	56,005	59,460	62,714	67,046	5.7
Asia/Pacific	36,193	43,994	48,424	53,563	58,195	62,060	66,858	8.7
Rest of World	12,052	11,311	9,675	10,292	11,049	11,942	13,154	3.1
Worldwide	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5
Software								
United States	30,442	35,716	39,044	44,034	50,149	56,701	63,588	12.2
Canada	2,330	2,632	2,847	3,206	3,633	4,142	4,671	12.2
Latin America	1,020	1,183	1,552	1,882	2,339	2,768	3,097	21.2
Western Europe	20,445	23,178	26,403	30,153	34,753	40,376	46,592	15.0
Central and Eastern Europe	1,752	2,057	2,366	2,916	3,458	4,186	4,920	19.1
Japan	6,504	7,353	8,088	9,005	10,296	11,643	13,215	12.4
Asia/Pacific	3,884	4,881	5,855	6,922	8,090	9,416	10,925	17.5
Rest of World	2,351	2,620	2,809	3,251	3,707	4,229	4,897	13.3
Worldwide	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8
Services								
United States	291,832	322,909	363,394	419,998	489,710	569,158	662,852	15.5
Canada	19,255	22,122	25,842	30,233	35,470	41,727	49,248	17.4
Latin America	19,250	22,739	27,365	33,358	40,958	49,764	61,159	21.9
Western Europe	166,407	172,756	187,888	212,843	243,984	281,049	326,043	13.5
Central and Eastern Europe	4,844	6,236	6,819	7,478	8,156	8,894	9,729	9.3
Japan	65,919	71,826	80,054	89,423	99,652	111,251	124,107	11.6
Asia/Pacific	30,904	37,725	47,046	58,974	75,454	96,924	124,837	27.0
Rest of World	8,570	9,558	10,395	11,649	13,099	14,740	16,659	11.8
Worldwide	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6
Telecom								
United States	314,942	401,723	454,449	508,757	560,983	607,719	657,129	10.3
Canada	23,371	27,406	30,213	33,057	36,148	39,476	42,946	9.4
Latin America	102,343	125,584	149,607	174,030	196,797	223,922	248,666	14.6
Western Europe	286,944	332,363	384,838	417,447	445,618	476,177	506,794	8.8
Central and Eastern Europe	33,939	39,621	46,447	51,605	58,758	66,940	76,288	14.0
Japan	114,389	136,732	149,169	157,408	162,959	167,702	174,475	5.0
Asia/Pacific	148,330	185,198	227,972	273,664	314,457	364,119	421,026	17.9
Rest of World	48,529	55,911	66,225	78,515	91,970	110,478	139,175	20.0
Worldwide	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7

Table 2-3 (Continued)
Worldwide: End-User Spending on IT and Telecom by Technology Segment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
All IT								
United States	781,861	913,447	1,003,032	1,129,039	1,259,825	1,400,668	1,563,164	11.3
Canada	55,160	63,083	69,946	78,527	87,916	98,588	111,049	12.0
Latin America	134,812	165,421	196,181	229,069	262,284	301,240	340,960	15.6
Western Europe	571,636	626,287	702,800	769,737	840,557	921,032	1,011,331	10.1
Central and Eastern Europe	49,001	57,603	65,828	73,286	82,932	93,753	106,037	13.0
Japan	231,393	266,806	289,450	311,841	332,367	353,310	378,843	7.3
Asia/Pacific	219,311	271,798	329,296	393,122	456,196	532,518	623,646	18.1
Rest of World	71,503	79,400	89,104	103,707	119,825	141,389	173,885	17.0
Worldwide	2,114,678	2,443,846	2,745,637	3,088,328	3,441,902	3,842,499	4,308,914	12.0

Source: Gartner Dataquest (July 2001)

Table 2-4
Worldwide: End-User Spending on IT and Telecom by Region and Technology Segment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States								
Hardware	144,645	153,099	146,146	156,250	158,983	167,091	179,595	3.2
Software	30,442	35,716	39,044	44,034	50,149	56,701	63,588	12.2
Services	291,832	322,909	363,394	419,998	489,710	569,158	662,852	15.5
Telecom	314,942	401,723	454,449	508,757	560,983	607,719	657,129	10.3
All IT	781,861	913,447	1,003,032	1,129,039	1,259,825	1,400,668	1,563,164	11.3
Canada								
Hardware	10,203	10,923	11,044	12,032	12,666	13,243	14,184	5.4
Software	2,330	2,632	2,847	3,206	3,633	4,142	4,671	12.2
Services	19,255	22,122	25,842	30,233	35,470	41,727	49,248	17.4
Telecom	23,371	27,406	30,213	33,057	36,148	39,476	42,946	9.4
All IT	55,160	63,083	69,946	78,527	87,916	98,588	111,049	12.0
Latin America								
Hardware	12,199	15,915	17,658	19,798	22,190	24,786	28,038	12.0
Software	1,020	1,183	1,552	1,882	2,339	2,768	3,097	21.2
Services	19,250	22,739	27,365	33,358	40,958	49,764	61,159	21.9
Telecom	102,343	125,584	149,607	174,030	196,797	223,922	248,666	14.6
All IT	134,812	165,421	196,181	229,069	262,284	301,240	340,960	15.6
Western Europe								
Hardware	97,840	97,991	103,671	109,294	116,203	123,430	131,903	6.1
Software	20,445	23,178	26,403	30,153	34,753	40,376	46,592	15.0
Services	166,407	172,756	187,888	212,843	243,984	281,049	326,043	13.5
Telecom	286,944	332,363	384,838	417,447	445,618	476,177	506,794	8.8
All IT	571,636	626,287	702,800	769,737	840,557	921,032	1,011,331	10.1
Central and Eastern Europe								
Hardware	8,466	9,689	10,195	11,286	12,560	13,734	15,100	9.3
Software	1,752	2,057	2,366	2,916	3,458	4,186	4,920	19.1
Services	4,844	6,236	6,819	7,478	8,156	8,894	9,729	9.3
Telecom	33,939	39,621	46,447	51,605	58,758	66,940	76,288	14.0
All IT	49,001	57,603	65,828	73,286	82,932	93,753	106,037	13.0
Japan								
Hardware	44,580	50,895	52,139	56,005	59,460	62,714	67,046	5.7
Software	6,504	7,353	8,088	9,005	10,296	11,643	13,215	12.4
Services	65,919	71,826	80,054	89,423	99,652	111,251	124,107	11.6
Telecom	114,389	136,732	149,169	157,408	162,959	167,702	174,475	5.0
All IT	231,393	266,806	289,450	311,841	332,367	353,310	378,843	7.3
Asia/Pacific								
Hardware	36,193	43,994	48,424	53,563	58,195	62,060	66,858	8.7
Software	3,884	4,881	5,855	6,922	8,090	9,416	10,925	17.5
Services	30,904	37,725	47,046	58,974	75,454	96,924	124,837	27.0
Telecom	148,330	185,198	227,972	273,664	314,457	364,119	421,026	17.9
All IT	219,311	271,798	329,296	393,122	456,196	532,518	623,646	18.1

Table 2-4 (Continued)
Worldwide: End-User Spending on IT and Telecom by Region and Technology Segment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Rest of World								
Hardware	12,052	11,311	9,675	10,292	11,049	11,942	13,154	3.1
Software	2,351	2,620	2,809	3,251	3,707	4,229	4,897	13.3
Services	8,570	9,558	10,395	11,649	13,099	14,740	16,659	11.8
Telecom	48,529	55,911	66,225	78,515	91,970	110,478	139,175	20.0
All IT	71,503	79,400	89,104	103,707	119,825	141,389	173,885	17.0
Worldwide								
Hardware	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5
Software	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8
Services	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6
Telecom	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7
All IT	2,114,678	2,443,846	2,745,637	3,088,328	3,441,902	3,842,499	4,308,914	12.0

Source: Gartner Dataquest (July 2001)

Table 2-5
Worldwide: End-User Spending on IT and Telecom by Technology Segment and Subsegment (Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	184,655	202,249	196,897	214,778	221,542	230,563	240,338	3.5
Personal Computers	173,776	192,819	188,134	206,340	213,156	222,185	231,962	3.8
Workstations	10,879	9,429	8,763	8,438	8,387	8,378	8,376	-2.3
Enterprise Computing	49,502	52,961	55,472	58,642	61,812	65,872	71,035	6.0
Servers	49,320	52,531	54,679	57,330	59,773	62,863	66,075	4.7
Server Appliances	182	430	793	1,312	2,040	3,008	4,960	63.1
Storage Subsystems	57,339	63,054	71,239	78,750	91,526	106,668	127,017	15.0
Direct-Attached RAID Storage	13,250	13,231	12,903	12,231	11,394	10,163	8,795	-7.8
Fabric-Attached RAID Storage	2,448	6,149	11,620	17,719	26,495	39,413	55,973	55.5
Storage Management Software	5,596	7,189	9,091	11,577	14,660	18,339	22,902	26.1
Other Storage Subsystems	36,045	36,485	37,625	37,224	38,978	38,753	39,347	1.5
Document Management	74,681	75,553	75,344	76,350	76,425	75,896	77,488	0.5
Copiers	46,270	48,322	48,205	49,057	49,374	49,388	50,646	0.9
Printers	28,412	27,231	27,138	27,293	27,051	26,508	26,842	-0.3
All Hardware	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5
Software								
Infrastructure Software	40,122	46,208	51,385	58,037	66,501	76,651	88,147	13.8
Applications Development and Middleware	10,118	12,756	14,383	16,056	18,309	21,090	24,290	13.7
Information Management	15,020	16,779	18,224	20,057	22,388	25,294	28,566	11.2
System and Network Management	14,984	16,673	18,778	21,924	25,804	30,267	35,291	16.2
Applications Software	28,607	33,412	37,578	43,331	49,924	56,809	63,756	13.8
Front Office/CRM	2,257	4,277	6,090	8,542	11,387	14,375	17,284	32.2
Back Office/ERP and Supply Chain	8,436	9,834	11,014	12,416	14,169	15,842	17,377	12.1
Collaborative and Personal Engineering	9,237	10,606	11,097	12,075	12,891	13,581	14,201	6.0
Engineering	8,678	8,696	9,376	10,298	11,476	13,011	14,894	11.4
All Software	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8
Services								
Product Support	147,092	157,280	172,074	190,275	211,541	229,995	245,591	9.3
Hardware Maintenance and Support	102,040	105,377	111,498	119,297	128,450	133,792	136,527	5.3
Software Maintenance and Support	45,053	51,903	60,576	70,978	83,091	96,203	109,064	16.0
Professional Services	459,890	508,590	576,727	673,681	794,941	943,512	1,129,043	17.3
Consulting	40,750	45,037	50,798	59,018	69,454	82,149	97,708	16.8
Development and Integration	155,558	169,355	189,861	221,460	260,122	307,753	368,884	16.8
Education and Training	18,990	20,815	23,234	26,541	30,534	35,395	41,264	14.7
Business Process Management	132,817	148,202	170,167	199,897	238,454	286,152	345,496	18.4
Management Services	84,515	95,254	109,336	128,662	152,216	180,414	214,937	17.7
Transactions Processing	27,260	29,926	33,332	38,104	44,161	51,649	60,754	15.2
All Services	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6

Table 2-5 (Continued)
Worldwide: End-User Spending on IT and Telecom by Technology Segment and Subsegment (Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Telecom								
Telecom Equipment	319,413	409,281	500,323	568,908	622,864	694,416	784,344	13.9
Carrier Equipment	173,318	226,351	294,813	350,293	396,015	455,031	521,808	18.2
Premise-Based Equipment	58,919	63,715	68,142	72,469	77,113	81,685	85,852	6.1
Remote Access Equipment	11,496	17,039	19,172	19,381	18,931	18,608	18,548	1.7
Mobile Handsets	75,680	102,176	118,195	126,765	130,805	139,092	158,138	9.1
Telecom Services	753,375	895,258	1,008,598	1,125,575	1,244,826	1,362,116	1,482,155	10.6
Fixed Voice Services	445,939	471,290	487,100	507,361	537,546	573,109	614,842	5.5
Fixed Data Services	89,877	134,745	169,403	206,449	245,301	284,808	314,772	18.5
Mobile Services	217,559	289,222	352,095	411,764	461,979	504,199	552,540	13.8
All Telecom	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7
All IT	2,114,678	2,443,846	2,745,637	3,088,328	3,441,902	3,842,499	4,308,914	12.0

Source: Gartner Dataquest (July 2001)

Table 2-6
Worldwide: End-User Spending on Hardware by Subsegment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Client Computing								
United States	74,997	79,656	69,195	74,348	70,683	70,837	71,410	-2.2
Canada	6,004	6,297	5,963	6,587	6,780	6,963	7,282	3.0
Latin America	6,096	8,482	9,267	10,665	12,289	14,131	16,236	13.9
Western Europe	44,384	46,031	50,250	53,591	56,409	58,571	59,905	5.4
Central and Eastern Europe	4,523	5,532	5,842	6,651	7,612	8,547	9,612	11.7
Japan	22,230	26,095	25,855	28,411	30,126	31,277	33,093	4.9
Asia/Pacific	18,580	23,044	25,146	28,592	31,137	33,074	34,788	8.6
Rest of World	7,842	7,113	5,380	5,934	6,505	7,162	8,012	2.4
Worldwide	184,655	202,249	196,897	214,778	221,542	230,563	240,338	3.5
Enterprise Computing								
United States	18,656	20,855	21,755	22,949	24,138	25,985	28,225	6.2
Canada	1,001	1,091	1,184	1,281	1,361	1,458	1,595	7.9
Latin America	339	419	470	503	520	546	619	8.2
Western Europe	17,460	17,137	17,432	18,444	19,533	20,696	22,210	5.3
Central and Eastern Europe	428	447	458	499	539	592	653	7.9
Japan	7,241	8,408	8,978	9,372	9,651	10,089	10,614	4.8
Asia/Pacific	3,730	3,999	4,557	4,907	5,342	5,722	6,253	9.4
Rest of World	646	605	638	687	729	785	866	7.4
Worldwide	49,502	52,961	55,472	58,642	61,812	65,872	71,035	6.0
Storage Subsystems								
United States	25,293	27,967	31,341	34,989	40,920	48,118	57,869	15.7
Canada	1,530	1,685	1,904	2,137	2,477	2,836	3,319	14.5
Latin America	1,415	1,727	2,001	2,174	2,442	2,731	3,139	12.7
Western Europe	15,524	16,428	18,550	20,362	23,755	28,053	33,862	15.6
Central and Eastern Europe	1,087	1,129	1,180	1,245	1,408	1,549	1,725	8.8
Japan	6,114	6,862	7,902	8,747	10,108	11,605	13,365	14.3
Asia/Pacific	4,724	5,660	6,640	7,296	8,415	9,549	11,202	14.6
Rest of World	1,654	1,597	1,721	1,801	2,002	2,228	2,536	9.7
Worldwide	57,339	63,054	71,239	78,750	91,526	106,668	127,017	15.0
Document Management								
United States	25,701	24,621	23,855	23,965	23,241	22,151	22,092	-2.1
Canada	1,669	1,851	1,993	2,027	2,048	1,986	1,988	1.4
Latin America	4,348	5,287	5,921	6,456	6,940	7,379	8,043	8.8
Western Europe	20,472	18,395	17,439	16,898	16,506	16,110	15,926	-2.8
Central and Eastern Europe	2,428	2,582	2,715	2,892	3,001	3,046	3,111	3.8
Japan	8,995	9,529	9,404	9,475	9,575	9,742	9,974	0.9
Asia/Pacific	9,159	11,292	12,081	12,768	13,301	13,715	14,615	5.3
Rest of World	1,910	1,996	1,937	1,871	1,812	1,767	1,740	-2.7
Worldwide	74,681	75,553	75,344	76,350	76,425	75,896	77,488	0.5

Table 2-6 (Continued)
Worldwide: End-User Spending on Hardware by Subsegment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
All Hardware								
United States	144,645	153,099	146,146	156,250	158,983	167,091	179,595	3.2
Canada	10,203	10,923	11,044	12,032	12,666	13,243	14,184	5.4
Latin America	12,199	15,915	17,658	19,798	22,190	24,786	28,038	12.0
Western Europe	97,840	97,991	103,671	109,294	116,203	123,430	131,903	6.1
Central and Eastern Europe	8,466	9,689	10,195	11,286	12,560	13,734	15,100	9.3
Japan	44,580	50,895	52,139	56,005	59,460	62,714	67,046	5.7
Asia/Pacific	36,193	43,994	48,424	53,563	58,195	62,060	66,858	8.7
Rest of World	12,052	11,311	9,675	10,292	11,049	11,942	13,154	3.1
Worldwide	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5

Source: Gartner Dataquest (July 2001)

Table 2-7
Worldwide: End-User Spending on Hardware by Region and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States								
Client Computing	74,997	79,656	69,195	74,348	70,683	70,837	71,410	-2.2
Enterprise Computing	18,656	20,855	21,755	22,949	24,138	25,985	28,225	6.2
Storage Subsystems	25,293	27,967	31,341	34,989	40,920	48,118	57,869	15.7
Document Management	25,701	24,621	23,855	23,965	23,241	22,151	22,092	-2.1
All Hardware	144,645	153,099	146,146	156,250	158,983	167,091	179,595	3.2
Canada								
Client Computing	6,004	6,297	5,963	6,587	6,780	6,963	7,282	3.0
Enterprise Computing	1,001	1,091	1,184	1,281	1,361	1,458	1,595	7.9
Storage Subsystems	1,530	1,685	1,904	2,137	2,477	2,836	3,319	14.5
Document Management	1,669	1,851	1,993	2,027	2,048	1,986	1,988	1.4
All Hardware	10,203	10,923	11,044	12,032	12,666	13,243	14,184	5.4
Latin America								
Client Computing	6,096	8,482	9,267	10,665	12,289	14,131	16,236	13.9
Enterprise Computing	339	419	470	503	520	546	619	8.2
Storage Subsystems	1,415	1,727	2,001	2,174	2,442	2,731	3,139	12.7
Document Management	4,348	5,287	5,921	6,456	6,940	7,379	8,043	8.8
All Hardware	12,199	15,915	17,658	19,798	22,190	24,786	28,038	12.0
Western Europe								
Client Computing	44,384	46,031	50,250	53,591	56,409	58,571	59,905	5.4
Enterprise Computing	17,460	17,137	17,432	18,444	19,533	20,696	22,210	5.3
Storage Subsystems	15,524	16,428	18,550	20,362	23,755	28,053	33,862	15.6
Document Management	20,472	18,395	17,439	16,898	16,506	16,110	15,926	-2.8
All Hardware	97,840	97,991	103,671	109,294	116,203	123,430	131,903	6.1
Central and Eastern Europe								
Client Computing	4,523	5,532	5,842	6,651	7,612	8,547	9,612	11.7
Enterprise Computing	428	447	458	499	539	592	653	7.9
Storage Subsystems	1,087	1,129	1,180	1,245	1,408	1,549	1,725	8.8
Document Management	2,428	2,582	2,715	2,892	3,001	3,046	3,111	3.8
All Hardware	8,466	9,689	10,195	11,286	12,560	13,734	15,100	9.3
Japan								
Client Computing	22,230	26,095	25,855	28,411	30,126	31,277	33,093	4.9
Enterprise Computing	7,241	8,408	8,978	9,372	9,651	10,089	10,614	4.8
Storage Subsystems	6,114	6,862	7,902	8,747	10,108	11,605	13,365	14.3
Document Management	8,995	9,529	9,404	9,475	9,575	9,742	9,974	0.9
All Hardware	44,580	50,895	52,139	56,005	59,460	62,714	67,046	5.7
Asia/Pacific								
Client Computing	18,580	23,044	25,146	28,592	31,137	33,074	34,788	8.6
Enterprise Computing	3,730	3,999	4,557	4,907	5,342	5,722	6,253	9.4
Storage Subsystems	4,724	5,660	6,640	7,296	8,415	9,549	11,202	14.6
Document Management	9,159	11,292	12,081	12,768	13,301	13,715	14,615	5.3
All Hardware	36,193	43,994	48,424	53,563	58,195	62,060	66,858	8.7

Table 2-7 (Continued)
Worldwide: End-User Spending on Hardware by Region and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Rest of World								
Client Computing	7,842	7,113	5,380	5,934	6,505	7,162	8,012	2.4
Enterprise Computing	646	605	638	687	729	785	866	7.4
Storage Subsystems	1,654	1,597	1,721	1,801	2,002	2,228	2,536	9.7
Document Management	1,910	1,996	1,937	1,871	1,812	1,767	1,740	-2.7
All Hardware	12,052	11,311	9,675	10,292	11,049	11,942	13,154	3.1
Worldwide								
Client Computing	184,655	202,249	196,897	214,778	221,542	230,563	240,338	3.5
Enterprise Computing	49,502	52,961	55,472	58,642	61,812	65,872	71,035	6.0
Storage Subsystems	57,339	63,054	71,239	78,750	91,526	106,668	127,017	15.0
Document Management	74,681	75,553	75,344	76,350	76,425	75,896	77,488	0.5
All Hardware	366,178	393,817	398,952	428,521	451,305	479,000	515,877	5.5

Source: Gartner Dataquest (July 2001)

Table 2-8
Worldwide: End-User Spending on Software by Subsegment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Infrastructure Software								
United States	18,740	20,969	22,665	25,193	28,565	32,429	37,107	12.1
Canada	877	1,003	1,090	1,234	1,405	1,607	1,833	12.8
Latin America	425	475	579	641	795	928	1,051	17.2
Western Europe	11,676	13,489	15,398	17,519	20,215	23,819	27,767	15.5
Central and Eastern Europe	1,305	1,568	1,822	2,298	2,755	3,391	4,022	20.7
Japan	3,087	3,880	4,364	4,796	5,522	6,212	7,015	12.6
Asia/Pacific	2,574	3,219	3,722	4,354	5,006	5,737	6,473	15.0
Rest of World	1,437	1,606	1,746	2,003	2,239	2,528	2,879	12.4
Worldwide	40,122	46,208	51,385	58,037	66,501	76,651	88,147	13.8
Applications Software								
United States	11,702	14,748	16,379	18,841	21,584	24,272	26,481	12.4
Canada	1,453	1,629	1,758	1,972	2,228	2,536	2,838	11.7
Latin America	595	708	973	1,241	1,544	1,839	2,045	23.6
Western Europe	8,770	9,689	11,005	12,634	14,538	16,557	18,824	14.2
Central and Eastern Europe	447	489	544	619	703	795	898	12.9
Japan	3,417	3,473	3,724	4,209	4,774	5,432	6,200	12.3
Asia/Pacific	1,310	1,662	2,133	2,568	3,084	3,679	4,452	21.8
Rest of World	914	1,015	1,063	1,248	1,468	1,701	2,018	14.7
Worldwide	28,607	33,412	37,578	43,331	49,924	56,809	63,756	13.8
All Software								
United States	30,442	35,716	39,044	44,034	50,149	56,701	63,588	12.2
Canada	2,330	2,632	2,847	3,206	3,633	4,142	4,671	12.2
Latin America	1,020	1,183	1,552	1,882	2,339	2,768	3,097	21.2
Western Europe	20,445	23,178	26,403	30,153	34,753	40,376	46,592	15.0
Central and Eastern Europe	1,752	2,057	2,366	2,916	3,458	4,186	4,920	19.1
Japan	6,504	7,353	8,088	9,005	10,296	11,643	13,215	12.4
Asia/Pacific	3,884	4,881	5,855	6,922	8,090	9,416	10,925	17.5
Rest of World	2,351	2,620	2,809	3,251	3,707	4,229	4,897	13.3
Worldwide	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8

Source: Gartner Dataquest (July 2001)

Table 2-9
Worldwide: End-User Spending on Software by Region and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States								
Infrastructure Software	18,740	20,969	22,665	25,193	28,565	32,429	37,107	12.1
Applications Software	11,702	14,748	16,379	18,841	21,584	24,272	26,481	12.4
All Software	30,442	35,716	39,044	44,034	50,149	56,701	63,588	12.2
Canada								
Infrastructure Software	877	1,003	1,090	1,234	1,405	1,607	1,833	12.8
Applications Software	1,453	1,629	1,758	1,972	2,228	2,536	2,838	11.7
All Software	2,330	2,632	2,847	3,206	3,633	4,142	4,671	12.2
Latin America								
Infrastructure Software	425	475	579	641	795	928	1,051	17.2
Applications Software	595	708	973	1,241	1,544	1,839	2,045	23.6
All Software	1,020	1,183	1,552	1,882	2,339	2,768	3,097	21.2
Western Europe								
Infrastructure Software	11,676	13,489	15,398	17,519	20,215	23,819	27,767	15.5
Applications Software	8,770	9,689	11,005	12,634	14,538	16,557	18,824	14.2
All Software	20,445	23,178	26,403	30,153	34,753	40,376	46,592	15.0
Central and Eastern Europe								
Infrastructure Software	1,305	1,568	1,822	2,298	2,755	3,391	4,022	20.7
Applications Software	447	489	544	619	703	795	898	12.9
All Software	1,752	2,057	2,366	2,916	3,458	4,186	4,920	19.1
Japan								
Infrastructure Software	3,087	3,880	4,364	4,796	5,522	6,212	7,015	12.6
Applications Software	3,417	3,473	3,724	4,209	4,774	5,432	6,200	12.3
All Software	6,504	7,353	8,088	9,005	10,296	11,643	13,215	12.4
Asia/Pacific								
Infrastructure Software	2,574	3,219	3,722	4,354	5,006	5,737	6,473	15.0
Applications Software	1,310	1,662	2,133	2,568	3,084	3,679	4,452	21.8
All Software	3,884	4,881	5,855	6,922	8,090	9,416	10,925	17.5
Rest of World								
Infrastructure Software	1,437	1,606	1,746	2,003	2,239	2,528	2,879	12.4
Applications Software	914	1,015	1,063	1,248	1,468	1,701	2,018	14.7
All Software	2,351	2,620	2,809	3,251	3,707	4,229	4,897	13.3
Worldwide								
Infrastructure Software	40,122	46,208	51,385	58,037	66,501	76,651	88,147	13.8
Applications Software	28,607	33,412	37,578	43,331	49,924	56,809	63,756	13.8
All Software	68,730	79,620	88,963	101,368	116,425	133,460	151,903	13.8

Source: Gartner Dataquest (July 2001)

Table 2-10
Worldwide: End-User Spending on Services by Subsegment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Product Support								
United States	76,236	83,521	93,028	104,747	118,497	130,616	140,930	11.0
Canada	5,333	5,872	6,742	7,697	8,759	9,549	10,459	12.2
Latin America	6,472	6,983	7,749	8,636	9,556	9,942	10,531	8.6
Western Europe	29,605	28,880	29,963	32,146	34,649	37,359	40,656	7.1
Central and Eastern Europe	2,052	2,484	2,581	2,698	2,829	2,973	3,133	4.8
Japan	17,117	17,851	18,778	19,826	20,969	22,244	23,345	5.5
Asia/Pacific	7,005	8,184	9,652	10,710	12,199	12,931	11,819	7.6
Rest of World	3,273	3,506	3,582	3,816	4,083	4,381	4,718	6.1
Worldwide	147,092	157,280	172,074	190,275	211,541	229,995	245,591	9.3
Professional Services								
United States	215,595	239,388	270,366	315,251	371,213	438,541	521,922	16.9
Canada	13,922	16,250	19,100	22,536	26,711	32,178	38,789	19.0
Latin America	12,778	15,756	19,615	24,723	31,402	39,822	50,629	26.3
Western Europe	136,802	143,876	157,925	180,697	209,334	243,690	285,387	14.7
Central and Eastern Europe	2,793	3,752	4,238	4,780	5,327	5,921	6,596	11.9
Japan	48,803	53,974	61,277	69,598	78,683	89,007	100,762	13.3
Asia/Pacific	23,900	29,541	37,393	48,264	63,255	83,993	113,018	30.8
Rest of World	5,298	6,052	6,813	7,833	9,016	10,359	11,940	14.6
Worldwide	459,890	508,590	576,727	673,681	794,941	943,512	1,129,043	17.3
All Services								
United States	291,832	322,909	363,394	419,998	489,710	569,158	662,852	15.5
Canada	19,255	22,122	25,842	30,233	35,470	41,727	49,248	17.4
Latin America	19,250	22,739	27,365	33,358	40,958	49,764	61,159	21.9
Western Europe	166,407	172,756	187,888	212,843	243,984	281,049	326,043	13.5
Central and Eastern Europe	4,844	6,236	6,819	7,478	8,156	8,894	9,729	9.3
Japan	65,919	71,826	80,054	89,423	99,652	111,251	124,107	11.6
Asia/Pacific	30,904	37,725	47,046	58,974	75,454	96,924	124,837	27.0
Rest of World	8,570	9,558	10,395	11,649	13,099	14,740	16,659	11.8
Worldwide	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6

Source: Gartner Dataquest (July 2001)

Table 2-11
Worldwide: End-User Spending on Services by Region and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States								
Product Support	76,236	83,521	93,028	104,747	118,497	130,616	140,930	11.0
Professional Services	215,595	239,388	270,366	315,251	371,213	438,541	521,922	16.9
All Services	291,832	322,909	363,394	419,998	489,710	569,158	662,852	15.5
Canada								
Product Support	5,333	5,872	6,742	7,697	8,759	9,549	10,459	12.2
Professional Services	13,922	16,250	19,100	22,536	26,711	32,178	38,789	19.0
All Services	19,255	22,122	25,842	30,233	35,470	41,727	49,248	17.4
Latin America								
Product Support	6,472	6,983	7,749	8,636	9,556	9,942	10,531	8.6
Professional Services	12,778	15,756	19,615	24,723	31,402	39,822	50,629	26.3
All Services	19,250	22,739	27,365	33,358	40,958	49,764	61,159	21.9
Western Europe								
Product Support	29,605	28,880	29,963	32,146	34,649	37,359	40,656	7.1
Professional Services	136,802	143,876	157,925	180,697	209,334	243,690	285,387	14.7
All Services	166,407	172,756	187,888	212,843	243,984	281,049	326,043	13.5
Central and Eastern Europe								
Product Support	2,052	2,484	2,581	2,698	2,829	2,973	3,133	4.8
Professional Services	2,793	3,752	4,238	4,780	5,327	5,921	6,596	11.9
All Services	4,844	6,236	6,819	7,478	8,156	8,894	9,729	9.3
Japan								
Product Support	17,117	17,851	18,778	19,826	20,969	22,244	23,345	5.5
Professional Services	48,803	53,974	61,277	69,598	78,683	89,007	100,762	13.3
All Services	65,919	71,826	80,054	89,423	99,652	111,251	124,107	11.6
Asia/Pacific								
Product Support	7,005	8,184	9,652	10,710	12,199	12,931	11,819	7.6
Professional Services	23,900	29,541	37,393	48,264	63,255	83,993	113,018	30.8
All Services	30,904	37,725	47,046	58,974	75,454	96,924	124,837	27.0
Rest of World								
Product Support	3,273	3,506	3,582	3,816	4,083	4,381	4,718	6.1
Professional Services	5,298	6,052	6,813	7,833	9,016	10,359	11,940	14.6
All Services	8,570	9,558	10,395	11,649	13,099	14,740	16,659	11.8
Worldwide								
Product Support	147,092	157,280	172,074	190,275	211,541	229,995	245,591	9.3
Professional Services	459,890	508,590	576,727	673,681	794,941	943,512	1,129,043	17.3
All Services	606,982	665,870	748,802	863,956	1,006,482	1,173,507	1,374,634	15.6

Source: Gartner Dataquest (July 2001)

Table 2-12
Worldwide: End-User Spending on Telecom by Subsegment and Region
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Telecom Equipment								
United States	101,851	118,525	138,167	155,138	167,488	178,893	197,170	10.7
Canada	8,372	10,830	11,475	11,651	11,944	12,608	13,626	4.7
Latin America	23,844	29,481	35,671	42,404	46,696	53,327	61,393	15.8
Western Europe	81,430	113,229	137,924	144,893	149,615	158,802	169,022	8.3
Central and Eastern Europe	16,325	20,863	25,834	28,381	33,089	37,927	43,677	15.9
Japan	21,293	28,010	30,418	31,868	33,391	35,427	39,807	7.3
Asia/Pacific	50,630	69,218	96,612	125,470	146,481	175,035	206,564	24.4
Rest of World	15,669	19,125	24,222	29,102	34,160	42,397	53,084	22.7
Worldwide	319,413	409,281	500,323	568,908	622,864	694,416	784,344	13.9
Telecom Services								
United States	213,091	283,198	316,282	353,619	393,494	428,826	459,959	10.2
Canada	14,999	16,577	18,738	21,406	24,204	26,868	29,320	12.1
Latin America	78,500	96,103	113,936	131,626	150,101	170,595	187,273	14.3
Western Europe	205,514	219,133	246,915	272,554	296,003	317,375	337,772	9.0
Central and Eastern Europe	17,615	18,758	20,613	23,224	25,668	29,012	32,611	11.7
Japan	93,096	108,723	118,751	125,539	129,568	132,275	134,667	4.4
Asia/Pacific	97,700	115,980	131,360	148,194	167,977	189,084	214,462	13.1
Rest of World	32,861	36,785	42,003	49,413	57,810	68,081	86,091	18.5
Worldwide	753,375	895,258	1,008,598	1,125,575	1,244,826	1,362,116	1,482,155	10.6
All Telecom								
United States	314,942	401,723	454,449	508,757	560,983	607,719	657,129	10.3
Canada	23,371	27,406	30,213	33,057	36,148	39,476	42,946	9.4
Latin America	102,343	125,584	149,607	174,030	196,797	223,922	248,666	14.6
Western Europe	286,944	332,363	384,838	417,447	445,618	476,177	506,794	8.8
Central and Eastern Europe	33,939	39,621	46,447	51,605	58,758	66,940	76,288	14.0
Japan	114,389	136,732	149,169	157,408	162,959	167,702	174,475	5.0
Asia/Pacific	148,330	185,198	227,972	273,664	314,457	364,119	421,026	17.9
Rest of World	48,529	55,911	66,225	78,515	91,970	110,478	139,175	20.0
Worldwide	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7

Source: Gartner Dataquest (July 2001)

Table 2-13
Worldwide: End-User Spending on Telecom by Region and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
United States								
Telecom Equipment	101,851	118,525	138,167	155,138	167,488	178,893	197,170	10.7
Telecom Services	213,091	283,198	316,282	353,619	393,494	428,826	459,959	10.2
All Telecom	314,942	401,723	454,449	508,757	560,983	607,719	657,129	10.3
Canada								
Telecom Equipment	8,372	10,830	11,475	11,651	11,944	12,608	13,626	4.7
Telecom Services	14,999	16,577	18,738	21,406	24,204	26,868	29,320	12.1
All Telecom	23,371	27,406	30,213	33,057	36,148	39,476	42,946	9.4
Latin America								
Telecom Equipment	23,844	29,481	35,671	42,404	46,696	53,327	61,393	15.8
Telecom Services	78,500	96,103	113,936	131,626	150,101	170,595	187,273	14.3
All Telecom	102,343	125,584	149,607	174,030	196,797	223,922	248,666	14.6
Western Europe								
Telecom Equipment	81,430	113,229	137,924	144,893	149,615	158,802	169,022	8.3
Telecom Services	205,514	219,133	246,915	272,554	296,003	317,375	337,772	9.0
All Telecom	286,944	332,363	384,838	417,447	445,618	476,177	506,794	8.8
Central and Eastern Europe								
Telecom Equipment	16,325	20,863	25,834	28,381	33,089	37,927	43,677	15.9
Telecom Services	17,615	18,758	20,613	23,224	25,668	29,012	32,611	11.7
All Telecom	33,939	39,621	46,447	51,605	58,758	66,940	76,288	14.0
Japan								
Telecom Equipment	21,293	28,010	30,418	31,868	33,391	35,427	39,807	7.3
Telecom Services	93,096	108,723	118,751	125,539	129,568	132,275	134,667	4.4
All Telecom	114,389	136,732	149,169	157,408	162,959	167,702	174,475	5.0
Asia/Pacific								
Telecom Equipment	50,630	69,218	96,612	125,470	146,481	175,035	206,564	24.4
Telecom Services	97,700	115,980	131,360	148,194	167,977	189,084	214,462	13.1
All Telecom	148,330	185,198	227,972	273,664	314,457	364,119	421,026	17.9
Rest of World								
Telecom Equipment	15,669	19,125	24,222	29,102	34,160	42,397	53,084	22.7
Telecom Services	32,861	36,785	42,003	49,413	57,810	68,081	86,091	18.5
All Telecom	48,529	55,911	66,225	78,515	91,970	110,478	139,175	20.0
Worldwide								
Telecom Equipment	319,413	409,281	500,323	568,908	622,864	694,416	784,344	13.9
Telecom Services	753,375	895,258	1,008,598	1,125,575	1,244,826	1,362,116	1,482,155	10.6
All Telecom	1,072,788	1,304,539	1,508,921	1,694,483	1,867,690	2,056,532	2,266,499	11.7

Source: Gartner Dataquest (July 2001)

Table 2-14
United States: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	74,997	79,656	69,195	74,348	70,683	70,837	71,410	-2.2
Enterprise Computing	18,656	20,855	21,755	22,949	24,138	25,985	28,225	6.2
Storage Subsystems	25,293	27,967	31,341	34,989	40,920	48,118	57,869	15.7
Document Management	25,701	24,621	23,855	23,965	23,241	22,151	22,092	-2.1
All Hardware	144,645	153,099	146,146	156,250	158,983	167,091	179,595	3.2
Software								
Infrastructure Software	18,740	20,969	22,665	25,193	28,565	32,429	37,107	12.1
Applications Software	11,702	14,748	16,379	18,841	21,584	24,272	26,481	12.4
All Software	30,442	35,716	39,044	44,034	50,149	56,701	63,588	12.2
Services								
Product Support	76,236	83,521	93,028	104,747	118,497	130,616	140,930	11.0
Professional Services	215,595	239,388	270,366	315,251	371,213	438,541	521,922	16.9
All Services	291,832	322,909	363,394	419,998	489,710	569,158	662,852	15.5
Telecom								
Telecom Equipment	101,851	118,525	138,167	155,138	167,488	178,893	197,170	10.7
Telecom Services	213,091	283,198	316,282	353,619	393,494	428,826	459,959	10.2
All Telecom	314,942	401,723	454,449	508,757	560,983	607,719	657,129	10.3
All IT	781,861	913,447	1,003,032	1,129,039	1,259,825	1,400,668	1,563,164	11.3

Source: Gartner Dataquest (July 2001)

Table 2-15
Canada: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	6,004	6,297	5,963	6,587	6,780	6,963	7,282	3.0
Enterprise Computing	1,001	1,091	1,184	1,281	1,361	1,458	1,595	7.9
Storage Subsystems	1,530	1,685	1,904	2,137	2,477	2,836	3,319	14.5
Document Management	1,669	1,851	1,993	2,027	2,048	1,986	1,988	1.4
All Hardware	10,203	10,923	11,044	12,032	12,666	13,243	14,184	5.4
Software								
Infrastructure Software	877	1,003	1,090	1,234	1,405	1,607	1,833	12.8
Applications Software	1,453	1,629	1,758	1,972	2,228	2,536	2,838	11.7
All Software	2,330	2,632	2,847	3,206	3,633	4,142	4,671	12.2
Services								
Product Support	5,333	5,872	6,742	7,697	8,759	9,549	10,459	12.2
Professional Services	13,922	16,250	19,100	22,536	26,711	32,178	38,789	19.0
All Services	19,255	22,122	25,842	30,233	35,470	41,727	49,248	17.4
Telecom								
Telecom Equipment	8,372	10,830	11,475	11,651	11,944	12,608	13,626	4.7
Telecom Services	14,999	16,577	18,738	21,406	24,204	26,868	29,320	12.1
All Telecom	23,371	27,406	30,213	33,057	36,148	39,476	42,946	9.4
All IT	55,160	63,083	69,946	78,527	87,916	98,588	111,049	12.0

Source: Gartner Dataquest (July 2001)

Table 2-16
Latin America: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	6,096	8,482	9,267	10,665	12,289	14,131	16,236	13.9
Enterprise Computing	339	419	470	503	520	546	619	8.2
Storage Subsystems	1,415	1,727	2,001	2,174	2,442	2,731	3,139	12.7
Document Management	4,348	5,287	5,921	6,456	6,940	7,379	8,043	8.8
All Hardware	12,199	15,915	17,658	19,798	22,190	24,786	28,038	12.0
Software								
Infrastructure Software	425	475	579	641	795	928	1,051	17.2
Applications Software	595	708	973	1,241	1,544	1,839	2,045	23.6
All Software	1,020	1,183	1,552	1,882	2,339	2,768	3,097	21.2
Services								
Product Support	6,472	6,983	7,749	8,636	9,556	9,942	10,531	8.6
Professional Services	12,778	15,756	19,615	24,723	31,402	39,822	50,629	26.3
All Services	19,250	22,739	27,365	33,358	40,958	49,764	61,159	21.9
Telecom								
Telecom Equipment	23,844	29,481	35,671	42,404	46,696	53,327	61,393	15.8
Telecom Services	78,500	96,103	113,936	131,626	150,101	170,595	187,273	14.3
All Telecom	102,343	125,584	149,607	174,030	196,797	223,922	248,666	14.6
All IT	134,812	165,421	196,181	229,069	262,284	301,240	340,960	15.6

Source: Gartner Dataquest (July 2001)

Table 2-17
Western Europe: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	44,384	46,031	50,250	53,591	56,409	58,571	59,905	5.4
Enterprise Computing	17,460	17,137	17,432	18,444	19,533	20,696	22,210	5.3
Storage Subsystems	15,524	16,428	18,550	20,362	23,755	28,053	33,862	15.6
Document Management	20,472	18,395	17,439	16,898	16,506	16,110	15,926	-2.8
All Hardware	97,840	97,991	103,671	109,294	116,203	123,430	131,903	6.1
Software								
Infrastructure Software	11,676	13,489	15,398	17,519	20,215	23,819	27,767	15.5
Applications Software	8,770	9,689	11,005	12,634	14,538	16,557	18,824	14.2
All Software	20,445	23,178	26,403	30,153	34,753	40,376	46,592	15.0
Services								
Product Support	29,605	28,880	29,963	32,146	34,649	37,359	40,656	7.1
Professional Services	136,802	143,876	157,925	180,697	209,334	243,690	285,387	14.7
All Services	166,407	172,756	187,888	212,843	243,984	281,049	326,043	13.5
Telecom								
Telecom Equipment	81,430	113,229	137,924	144,893	149,615	158,802	169,022	8.3
Telecom Services	205,514	219,133	246,915	272,554	296,003	317,375	337,772	9.0
All Telecom	286,944	332,363	384,838	417,447	445,618	476,177	506,794	8.8
All IT	571,636	626,287	702,800	769,737	840,557	921,032	1,011,331	10.1

Source: Gartner Dataquest (July 2001)

Table 2-18
Central and Eastern Europe: End-User Spending on IT by Technology Segment and Subsegment (Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	4,523	5,532	5,842	6,651	7,612	8,547	9,612	11.7
Enterprise Computing	428	447	458	499	539	592	653	7.9
Storage Subsystems	1,087	1,129	1,180	1,245	1,408	1,549	1,725	8.8
Document Management	2,428	2,582	2,715	2,892	3,001	3,046	3,111	3.8
All Hardware	8,466	9,689	10,195	11,286	12,560	13,734	15,100	9.3
Software								
Infrastructure Software	1,305	1,568	1,822	2,298	2,755	3,391	4,022	20.7
Applications Software	447	489	544	619	703	795	898	12.9
All Software	1,752	2,057	2,366	2,916	3,458	4,186	4,920	19.1
Services								
Product Support	2,052	2,484	2,581	2,698	2,829	2,973	3,133	4.8
Professional Services	2,793	3,752	4,238	4,780	5,327	5,921	6,596	11.9
All Services	4,844	6,236	6,819	7,478	8,156	8,894	9,729	9.3
Telecom								
Telecom Equipment	16,325	20,863	25,834	28,381	33,089	37,927	43,677	15.9
Telecom Services	17,615	18,758	20,613	23,224	25,668	29,012	32,611	11.7
All Telecom	33,939	39,621	46,447	51,605	58,758	66,940	76,288	14.0
All IT	49,001	57,603	65,828	73,286	82,932	93,753	106,037	13.0

Source: Gartner Dataquest (July 2001)

Table 2-19
Japan: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	22,230	26,095	25,855	28,411	30,126	31,277	33,093	4.9
Enterprise Computing	7,241	8,408	8,978	9,372	9,651	10,089	10,614	4.8
Storage Subsystems	6,114	6,862	7,902	8,747	10,108	11,605	13,365	14.3
Document Management	8,995	9,529	9,404	9,475	9,575	9,742	9,974	0.9
All Hardware	44,580	50,895	52,139	56,005	59,460	62,714	67,046	5.7
Software								
Infrastructure Software	3,087	3,880	4,364	4,796	5,522	6,212	7,015	12.6
Applications Software	3,417	3,473	3,724	4,209	4,774	5,432	6,200	12.3
All Software	6,504	7,353	8,088	9,005	10,296	11,643	13,215	12.4
Services								
Product Support	17,117	17,851	18,778	19,826	20,969	22,244	23,345	5.5
Professional Services	48,803	53,974	61,277	69,598	78,683	89,007	100,762	13.3
All Services	65,919	71,826	80,054	89,423	99,652	111,251	124,107	11.6
Telecom								
Telecom Equipment	21,293	28,010	30,418	31,868	33,391	35,427	39,807	7.3
Telecom Services	93,096	108,723	118,751	125,539	129,568	132,275	134,667	4.4
All Telecom	114,389	136,732	149,169	157,408	162,959	167,702	174,475	5.0
All IT	231,393	266,806	289,450	311,841	332,367	353,310	378,843	7.3

Source: Gartner Dataquest (July 2001)

Table 2-20
Asia/Pacific: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	18,580	23,044	25,146	28,592	31,137	33,074	34,788	8.6
Enterprise Computing	3,730	3,999	4,557	4,907	5,342	5,722	6,253	9.4
Storage Subsystems	4,724	5,660	6,640	7,296	8,415	9,549	11,202	14.6
Document Management	9,159	11,292	12,081	12,768	13,301	13,715	14,615	5.3
All Hardware	36,193	43,994	48,424	53,563	58,195	62,060	66,858	8.7
Software								
Infrastructure Software	2,574	3,219	3,722	4,354	5,006	5,737	6,473	15.0
Applications Software	1,310	1,662	2,133	2,568	3,084	3,679	4,452	21.8
All Software	3,884	4,881	5,855	6,922	8,090	9,416	10,925	17.5
Services								
Product Support	7,005	8,184	9,652	10,710	12,199	12,931	11,819	7.6
Professional Services	23,900	29,541	37,393	48,264	63,255	83,993	113,018	30.8
All Services	30,904	37,725	47,046	58,974	75,454	96,924	124,837	27.0
Telecom								
Telecom Equipment	50,630	69,218	96,612	125,470	146,481	175,035	206,564	24.4
Telecom Services	97,700	115,980	131,360	148,194	167,977	189,084	214,462	13.1
All Telecom	148,330	185,198	227,972	273,664	314,457	364,119	421,026	17.9
All IT	219,311	271,798	329,296	393,122	456,196	532,518	623,646	18.1

Source: Gartner Dataquest (July 2001)

Table 2-21
Rest of World: End-User Spending on IT by Technology Segment and Subsegment
(Millions of U.S. Dollars)

	1999	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Hardware								
Client Computing	7,842	7,113	5,380	5,934	6,505	7,162	8,012	2.4
Enterprise Computing	646	605	638	687	729	785	866	7.4
Storage Subsystems	1,654	1,597	1,721	1,801	2,002	2,228	2,536	9.7
Document Management	1,910	1,996	1,937	1,871	1,812	1,767	1,740	-2.7
All Hardware	12,052	11,311	9,675	10,292	11,049	11,942	13,154	3.1
Software								
Infrastructure Software	1,437	1,606	1,746	2,003	2,239	2,528	2,879	12.4
Applications Software	914	1,015	1,063	1,248	1,468	1,701	2,018	14.7
All Software	2,351	2,620	2,809	3,251	3,707	4,229	4,897	13.3
Services								
Product Support	3,273	3,506	3,582	3,816	4,083	4,381	4,718	6.1
Professional Services	5,298	6,052	6,813	7,833	9,016	10,359	11,940	14.6
All Services	8,570	9,558	10,395	11,649	13,099	14,740	16,659	11.8
Telecom								
Telecom Equipment	15,669	19,125	24,222	29,102	34,160	42,397	53,084	22.7
Telecom Services	32,861	36,785	42,003	49,413	57,810	68,081	86,091	18.5
All Telecom	48,529	55,911	66,225	78,515	91,970	110,478	139,175	20.0
All IT	71,503	79,400	89,104	103,707	119,825	141,389	173,885	17.0

Source: Gartner Dataquest (July 2001)

