

Communications Industry Outlook: 2001 IT Spending and 2002 IT Initiatives

Market Trends

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Chapter 1

Executive Summary

The communications industry experienced tremendous infrastructure build-out in 1999 and 2000. CSPs spent extensively to upgrade their legacy systems — Web-enabling their solutions — and sought improvements to their BSSs and OSSs to become competitive and expand their service portfolios.

The spending frenzy came to a halt with the slowing economy, and 2001 became a period of reflection. Economic pressures caused some to postpone IT budgets and delay projects. Some companies reduced capital expenditure, and all focused on operational efficiencies.

To discern actual from anecdotal, Gartner Dataquest presents findings of end-user surveys on budgetary projections and IT spending intentions. These end-user data are coupled with vendor references and information from those that target the communications vertical market.

In 2002, CSPs' outlays for IT will include spending on operational efficiencies through revenue assurance strategies, business analytics and opportunities with digital content.

Objectives of Study

The primary objectives of the study include the following:

- To provide an overview of supply-and-demand trends related to IT products, services and solutions for the communications industry
- To identify key IT buying behavior, preferences and investment plans to assist IT vendors in better targeting opportunities in the communications vertical market
- To assess the communications go-to-market strategies, solution and service line capabilities and competitive positioning of key vendors that target communications enterprises
- To profile selected IT vendors that offer products, services and solutions to the communications industry, including an overview of reference client accounts
- To recommend steps and actions for IT vendors that are offering or are thinking about offering IT products, services and solutions to the communications vertical market

Key Findings

The communications industry experienced much turmoil in 2001. CLECs and ISPs were filing for bankruptcy, layoffs occurred and reductions in capital expenditure were announced. IT budgets and spending behaviors have been analyzed, and top IT solutions for the coming year have been addressed. The following are the key findings:

- CSPs seek to streamline operations by integrating disparate business processes.
- CSPs are concerned with revenue assurance and revenue leakage.
- Outsourcing demand will increase as CSPs seek to reduce capital budgets.

- The competitive landscape has been altered with the disappearance of CLECs.
- A Republican FCC will be lax on antitrust measures (an example is the approved AOL Time Warner merger).
- The Sept. 11 attacks increased demand for videoconferencing.

End-User IT Budgets and Initiatives

The following are key trends in end-user IT budgets and initiatives:

- The shift of IT spending from capital to operating budgets
- The top IT management goal for 2002 is to merge disparate systems and increase customer focus.
- CSPs will continue to spend on IT initiatives that would extend their business and increase productivity even during a recession.
- Network management is the top priority for OSS budgets; customer care and assistance is the top budget priority in BSSs.
- Professional services spending continues to occupy the largest percentage of external services spending.
- Windows 2000 and security were the most likely technological investments.
- European CSPs ranked end-user satisfaction as the most important criterion for IT spending.
- The U.S. economic slowdown has spread to Europe, and many European CSPs are also concerned with discretionary spending.

Vendor Initiatives

The following are key trends in vendor initiatives:

- Targeting the existing client base to increase revenue
- Adapting strategies and solutions to changing market needs
- Service line emphasis on systems integration and outsourcing
- Focusing strategies on media, content and electronic distribution channels

Communications IT Spending: Market Size

Table 1-1 shows total spending for IT in the communications vertical market in seven global regions.

Comparison Across Vertical Markets

Gartner Dataquest's Global Industries Group projects that total worldwide IT spending in 2002 will reach \$1.7 trillion (see Figure 1-1). Total IT spending includes hardware, software, external services, internal services and network equipment spending. Gartner Dataquest forecasts that financial services, manufacturing and government will continue to be the three largest global vertical market opportunities.

As a result of the global economic slowdown and the Sept. 11 attacks, many organizations have delayed or canceled IT projects in an effort to control cost and balance investment with revenue projections. However, not all organizations are delaying IT investments. Nor are all types of organizations responding to Sept. 11 in the same way.

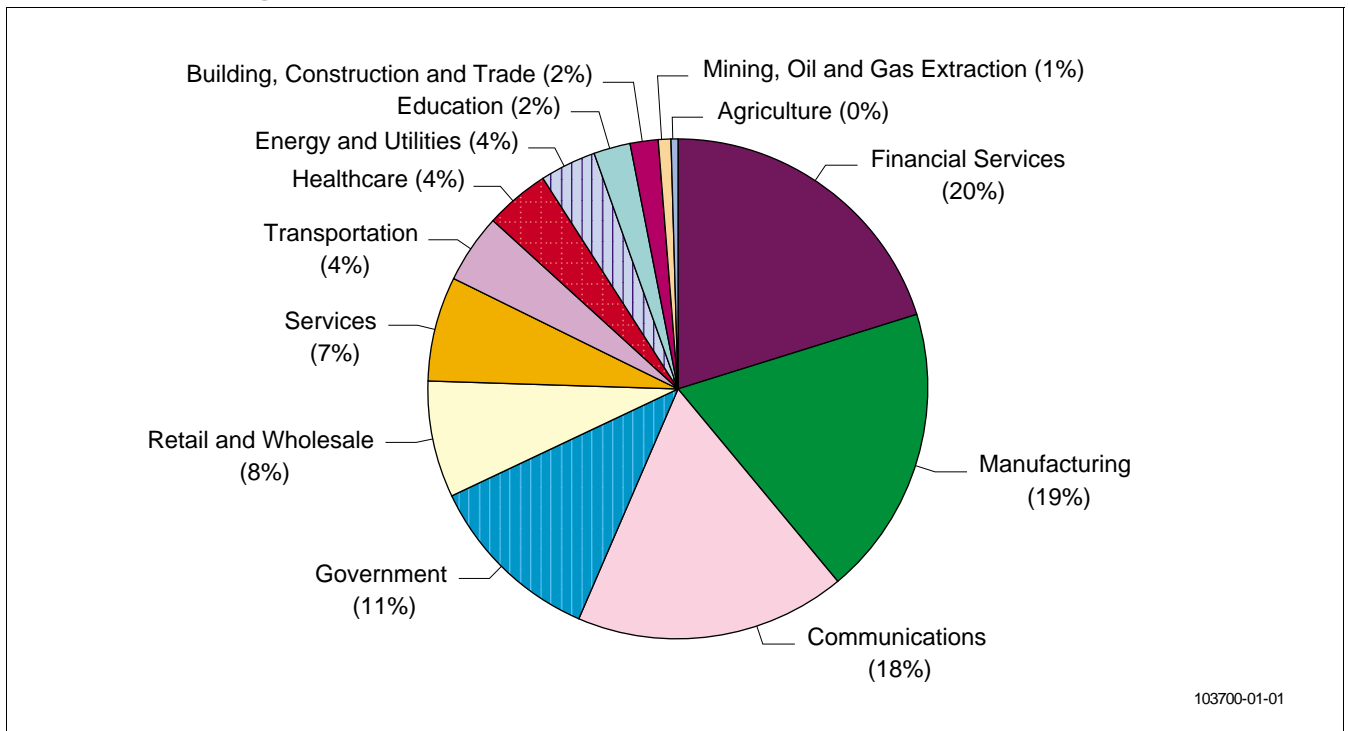
Indeed, research conducted by Gartner Dataquest has always affirmed that IT spending and the IT solutions investment vary by vertical market. The political and economic climate of this year has not changed this reality. The following sections highlight some of the key differences across vertical markets.

Table 1-1
Total IT Spending, Communications Vertical Market (Millions of Dollars)

	Sum of 2000	Sum of 2001	Sum of 2002	Sum of 2003	Sum of 2004	Sum of 2005	CAGR (%) 2000-2005
North America	88,095	99,496	106,351	112,619	119,480	130,676	8.2
Latin America	15,865	16,635	18,518	18,663	21,118	24,738	9.3
Asia/Pacific	35,154	43,158	48,227	53,795	59,416	65,137	13.1
Japan	33,163	35,090	36,514	37,591	39,004	41,298	4.5
Western Europe	79,427	75,135	80,904	85,747	91,880	100,513	4.8
Middle East and Africa	7,705	7,167	7,984	8,614	9,241	10,144	5.7
Central and Eastern Europe	4,967	4,836	5,443	5,896	6,379	7,031	7.2

Source: Gartner Dataquest (June 2002)

Figure 1-1
Total IT Spending Worldwide, 2002



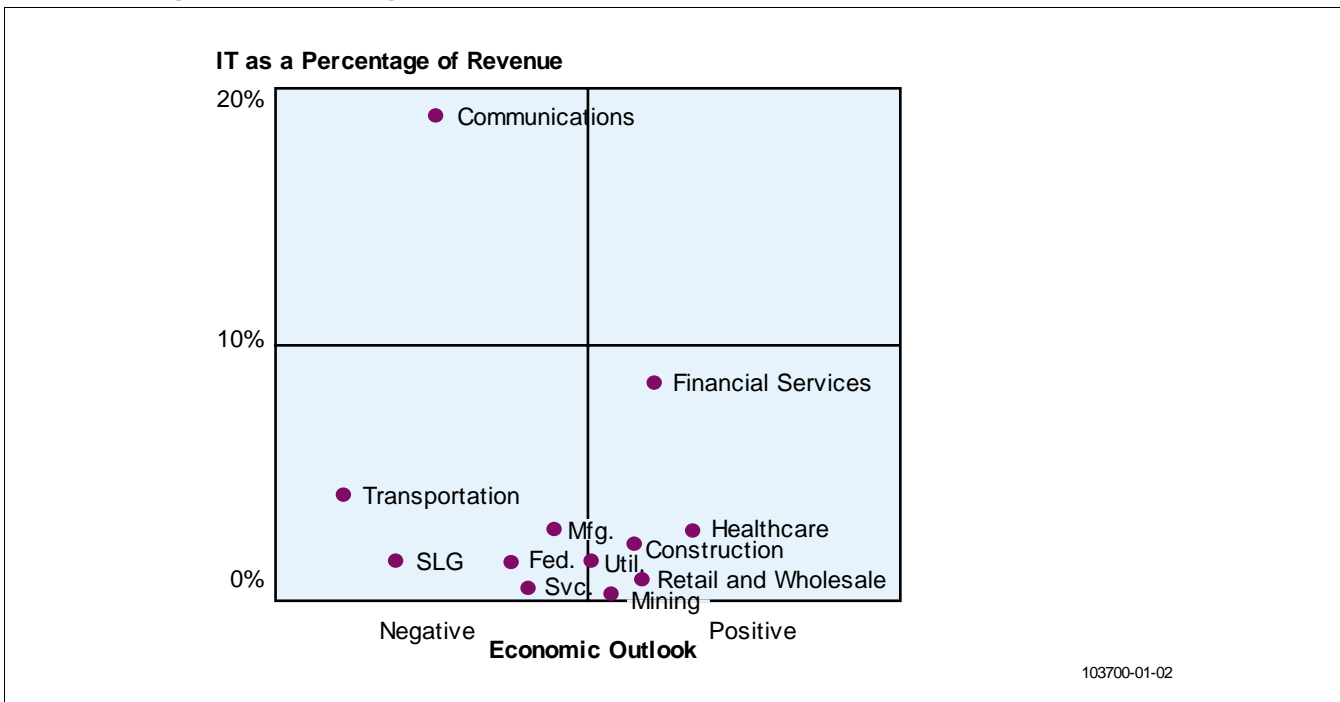
Source: Gartner Dataquest (June 2002)

IT Spending as a Percentage of Revenue

Spending as a percentage of revenue is a key measure that varies across industries. Figure 1-2 compares this metric by vertical market against its outlook for 2002. In this figure, economic outlook is the expected overall health and growth prospects of the industry, not the growth of IT spending by that industry.

As the graph suggests, communications companies outspend other vertical markets as a percentage of their revenue. But a large percentage of this spending is allocated for networking equipment that is unique to the communications industry, such as central office equipment, access systems and optical transmission.

Figure 1-2
IT Spending as a Percentage of Revenue vs. Economic Outlook in 2002



Note: Fed. = Federal government, Mfg. = Manufacturing, Svc. = Services, and Util. = Utilities
Source: Gartner Dataquest (June 2002)

U.S. Market Size and Growth Rate Across Vertical Markets

The U.S. IT services market has not been immune to the pressures of the slowing economy. Many of the major services companies have experienced lower revenue and slower sales cycles as the year has progressed. Though the revenue pressures have been significant on services vendors, they have fared far better than the large hardware, networking and enterprise software vendors. But again, the opportunity for services vendors will differ by vertical market. Table 1-2 compares the U.S. external services opportunity by industry. The following are assumptions upon which this forecast is based:

- The national government vertical market has the highest forecast growth in external services at 15.5 percent CAGR, and spending is expected to reach \$23 billion by 2005, closely followed by state and local government, growing at 14.2 percent CAGR, to reach \$25 billion in 2005. The outlook for increased federal spending is based on reaction to the Sept. 11 terrorist attacks and the need for greater security in many aspects of government operations and public life. Additionally, IT spending increases are driven by the implementation of Web-enabled B2E solutions such as government-to-citizen projects and military personnel obtaining college degrees via the Internet. This is an unusual development in U.S. vertical markets. Most prior forecasts depicted government sectors trailing commercial growth.
- The recession felt in the manufacturing industry led to a mere 1.3 percent growth in 2001. Manufacturing spending is forecast to be \$96 billion by 2005, based on a healthier 8.8 percent CAGR. Manufacturers have reduced spending for IT upgrades and implementation of new initiatives such as collaborative commerce, although this is expected to pick up in 2003.
- The financial services industry also experienced slow growth in 2001, with many services pure plays failing and IT projects being placed on hold because of the economic slowdown. Modest growth is forecast for 2002, with a concentration on security, infrastructure and e-business optimization. Demand for business process solutions will boost spending at a 9.5 percent CAGR to reach \$94 billion by 2005. The insurance industry is seeking technological improvements to automate paper-based and labor-intensive processes.
- Product support services in hardware and software have stabilized growth in communications even given the CLEC bankruptcies in 2001. Media and communications is forecast to grow to \$23 billion by 2005 at 7.7 percent CAGR. Improvements to network security services as well as consulting services for mobile data will aid the demand for services. Digital content management services will spur demand in the media-broadcasting sector.
- The transportation industry now sees a shift to security-oriented applications and consulting services given Sept. 11 events and is forecast to grow at a 10.2 percent CAGR from a base of \$12.6 billion in 2000. Last year, check-in kiosks and wireless network implementation in the airports were the impetus for growth in consulting and development and integration services. In addition, transponders and logistics applications for trucks, trains and intermodal containers have spurred demand.
- The energy and utilities vertical market is forecast to grow by 10.3 percent CAGR to \$15 billion by 2005, as a result of advancements in power-generating technology and demand for remote and customer access technologies and services that are increasingly critical to productivity and efficiency. When the 1992 Energy Policy opened the wholesale market, enabling buyers and sellers to access the national transmission system, full retail competition gained in intensity. Risk management services and improvements to online trading software have pushed demand. The recent failure of Enron as an energy-trading firm is not expected to significantly dampen growth.

- Healthcare is forecast to grow from \$11.6 billion in 2000 to \$21.6 billion in 2005 at a 13.2 percent CAGR. Clinical systems implementation and e-health connectivity solutions increase the IT infrastructure spending. HIPAA will place greater pressure on the management of administrative tasks, and as the trend toward national health chains continues, greater payer-market consolidation will occur. Patient rights legislation will place renewed focus on customer care in the payer segment and on quality of care in the provider segment.
- Retail and wholesale IT spending in 2000 was \$14 billion and achieved a 10 percent growth in 2000. Consolidation of earlier e-business and e-commerce initiatives took place. Slow growth is projected for 2002, as the slowing economy is having a chilling effect on consumer spending. New projects need to demonstrate an obtainable ROI in quick turnaround. Adoption of transformational technologies is projected to be several years away.
- External services spending in education is forecast to grow from \$4 billion in 2000 to \$8 billion in 2005 with a 13.1 percent CAGR. Probable constraints or reductions in education budgets dampen the outlook for 2002. However, IT is still seen as a major priority for education in many states. Web-enabled student care, network support services for portals and e-learning, as well as consulting services and implementation for enhancing security, are areas of growth for the full forecast period.
- The external services forecast for the services industry is projected to reach \$22 billion by 2005 with a 10.7 percent CAGR. This diverse set of industry segments includes hospitality, which saw serious spending constraints in 2001. This situation will continue during 2002, and then begin to improve in 2003. The sector also includes all the IT services discussed in this document and forecast by Gartner Dataquest; this expenditure will continue to give a strong boost to overall sector growth rates.
- The housing market has remained strong despite the economic downturn. Construction bidding and project management software solutions as well as e-market services for materials supply chains have fueled services opportunities. Building, construction and trade is forecast to reach \$14 billion by 2005 with a 11.2 percent five-year growth rate.
- The vertical market composed of mining and oil and gas extraction is in a favorable investment climate, allowing continued IT spending to capitalize on technology solutions for 3-D seismology (advances in production, finding and lifting technologies), satellite positioning, and new processing algorithms to enable more rapid processing and success of exploration and development. Mining and oil and gas extraction is forecast to grow at an 11.4 percent CAGR to \$5 billion by 2005.
- The IT role in agriculture is to drive productivity gains where the workforce has been dropping. Larger farms have consolidated, resulting in more complex operations and combined buying resources. New technologies and services in biology require more sophisticated operations to understand weather and soil technologies that boost productivity. Supply chain, logistics and GIS mapping demands bring increasing use of external services. Agriculture spending shows a 12 percent five-year growth rate and is forecast to reach \$3 billion by 2005.

Table 1-2
U.S. External Services Vertical Forecast, 2000-2005 (Millions of Dollars)

Vertical Market	2000	2001	2002	2003	2004	2005	CAGR (%) 2000-2005
Manufacturing	62,971	63,716	71,036	79,690	87,944	96,127	8.8
Financial Services	59,908	60,678	63,254	71,351	81,975	94,404	9.5
Communications	15,850	16,519	17,391	19,340	21,201	22,947	7.7
Retail and Wholesale	14,371	15,828	16,182	17,963	20,576	23,337	10.2
Services	13,304	14,103	15,523	17,487	19,700	22,071	10.7
State and Local Government	12,802	14,372	16,278	18,945	21,846	24,824	14.2
Transportation	12,658	13,289	14,357	16,172	18,219	20,595	10.2
Healthcare	11,640	12,943	14,763	17,223	19,631	21,635	13.2
National Government	11,313	13,170	15,190	17,601	20,389	23,272	15.5
Energy and Utilities	9,398	10,250	11,283	12,594	13,932	15,331	10.3
Building, Construction and Trade	8,230	8,642	9,601	10,913	12,405	14,023	11.2
Education	4,437	4,893	5,551	6,383	7,301	8,217	13.1
Mining and Oil and Gas Extraction	3,108	3,422	3,819	4,302	4,803	5,333	11.4
Agriculture	1,798	1,930	2,139	2,459	2,831	3,173	12.0

Source: Gartner Dataquest (June 2002)

Hot Solution Areas by Vertical Market

Decision makers in each industry have remarkably different business goals and IT investment plans, which are a function of the economic outlook for the industry. But economic outlook is not the only variable driving IT strategy development. Many other industry-specific concerns drive market demand.

The solutions in greatest demand in each vertical market vary, depending on numerous factors, including:

- The business processes considered strategic or offering competitive advantage
- Most pressing business process inefficiencies
- Opportunities to re-engineer or revamp business processes to provide new revenue or cost control opportunities
- Shared business processes with constituents, customers, partners, suppliers or other external entity

Table 1-3 highlights the top solutions in specific vertical markets.

**Table 1-3
Hot Solutions and Services by Vertical Market**

Vertical Market	Solutions and Services
Manufacturing	SCM CRM IT outsourcing
Financial Services	E-business infrastructure Wealth management Business process outsourcing
Communications	Provisioning Fraud management Outsourcing
Retail and Wholesale	SCM CRM
Services	Mobile IT solutions and packaged solutions in low-tech environments
State and Local Government	E-government Homeland security HIPAA compliance
Transportation	SCM CRM Biometrics
Healthcare	HIPAA assessment and remediation, providers clinical systems strategy and payer e-health and claims management
National Government	Homeland security Biometrics Outsourcing
Energy and Utilities	Infrastructure (SCM, e-procurement, CRM and billing), risk management and trading systems, mobile wireless solutions, security (physical and cyber), document management solutions and workforce management
Building, Construction and Trade	E-marketplaces Bidding and project management Online materials export
Mining and Oil and Gas Extraction	Security, MRO procurement, enterprise asset management, database design and mapping, advanced communications (satellite and wireless services) and remote sensing (imaging)

Source: Gartner Dataquest (June 2002)

Gartner Dataquest Recommendations

In this cash-constrained industry, Gartner Dataquest recommends the following:

- **Strategy**
 - Identify solutions that will curb costs and increase revenue for CSPs. Cable service providers seek revenue-generating models such as interactive TV and cable telephony.
 - Track ILECs seeking Section 271 approval and position solutions to address their issues.
 - Conduct a benchmark analysis with existing clients and seek ways to improve their current BSS and OSS infrastructure.
 - Focus on solutions to improve CSPs' core competencies and position non-core for outsourced solutions.
 - Effectively target CSPs with cash flow and emerging markets of new media companies.
- **Operations**
 - Evaluate pricing models and incentives that are financially viable to your business.
 - Identify next-generation requirements. Set aside budget for R&D of future product improvements while keeping abreast of industry pain points.
 - CSPs not only are trying to grapple with current sales and marketing challenges but also are looking to systems that can support future sales and marketing strategies. Provide solutions that can address future strategies.
- **Marketing**
 - Global CSPs have aligned by business units and not necessarily by region. Professional services firms are advised to address subsegmented industry issues first and regional issues second.
 - Aggregate reference accounts and expand opportunities in other regions.
 - CSPs not only are trying to grapple with the current sales and marketing efforts but are also looking to systems that can support its future sales and marketing strategies. Provide solutions that can address future strategies.
- **Partnering**
 - Carefully seek alliances that can truly expand your business into virgin terrain and can enhance your product positioning.
 - Evaluate financial viability of a channel partnering strategy.
 - Explore synergistic alliances with content, media and nontraditional hardware vendors such as set-top box manufacturers.
- **Packaging**
 - Ensure the ability of stand-alone product delivery.
 - Package systems integration and projects in a phased approach.
 - Package solution offerings specifically tailored to subsegments within the industry.

Chapter 2

Introduction

This chapter introduces key solutions and market segmentations of the communications industry as defined by Gartner Dataquest. It discusses the methodology utilized to conduct this study and provides an overview of the organization of this report, along with a guide to related research on the communications industry.

Definitions

Definition of solutions and segments within the communications industry vary. The following sections present Gartner Dataquest's definitions.

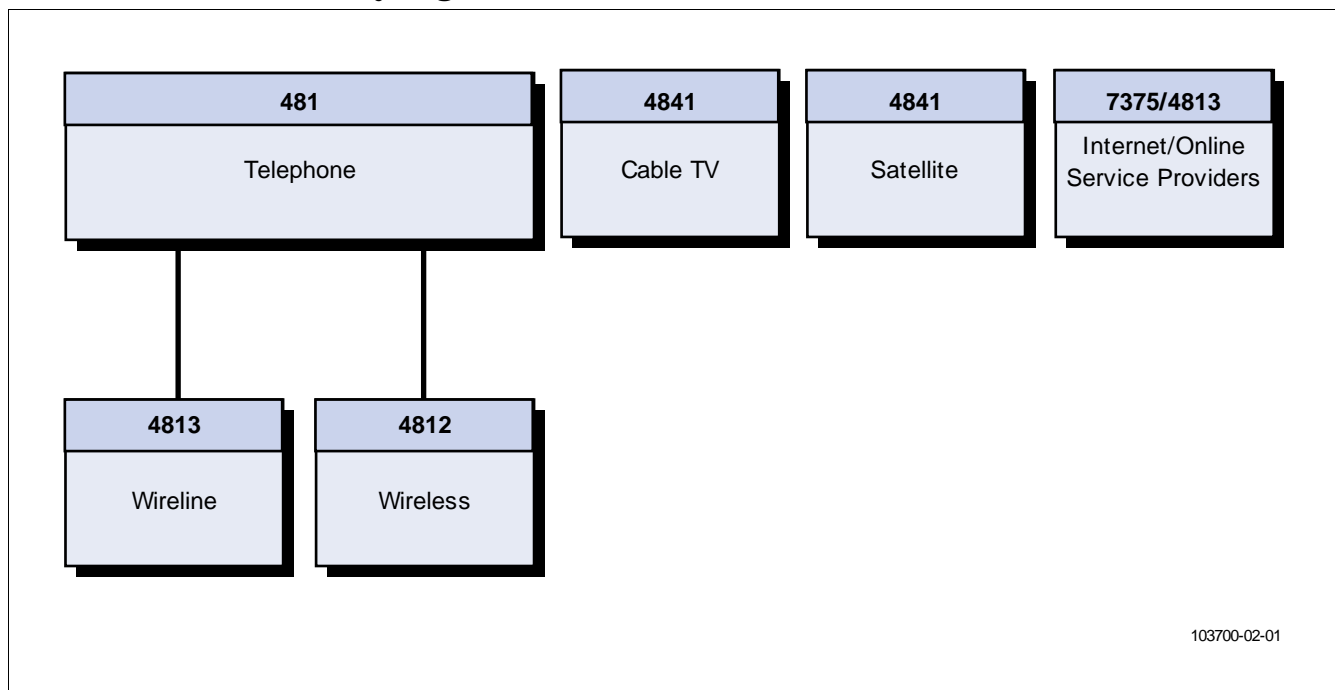
Market Segmentation

CSPs are continually expanding their portfolios of services. Consequently, the lines of traditional businesses in the identified wireline, wireless, cable, satellite and ISP/OSP market segmentation are becoming increasingly difficult to discern. Gartner Dataquest delineates the market segments by the SIC code as outlined in Figure 2-1.

Solutions

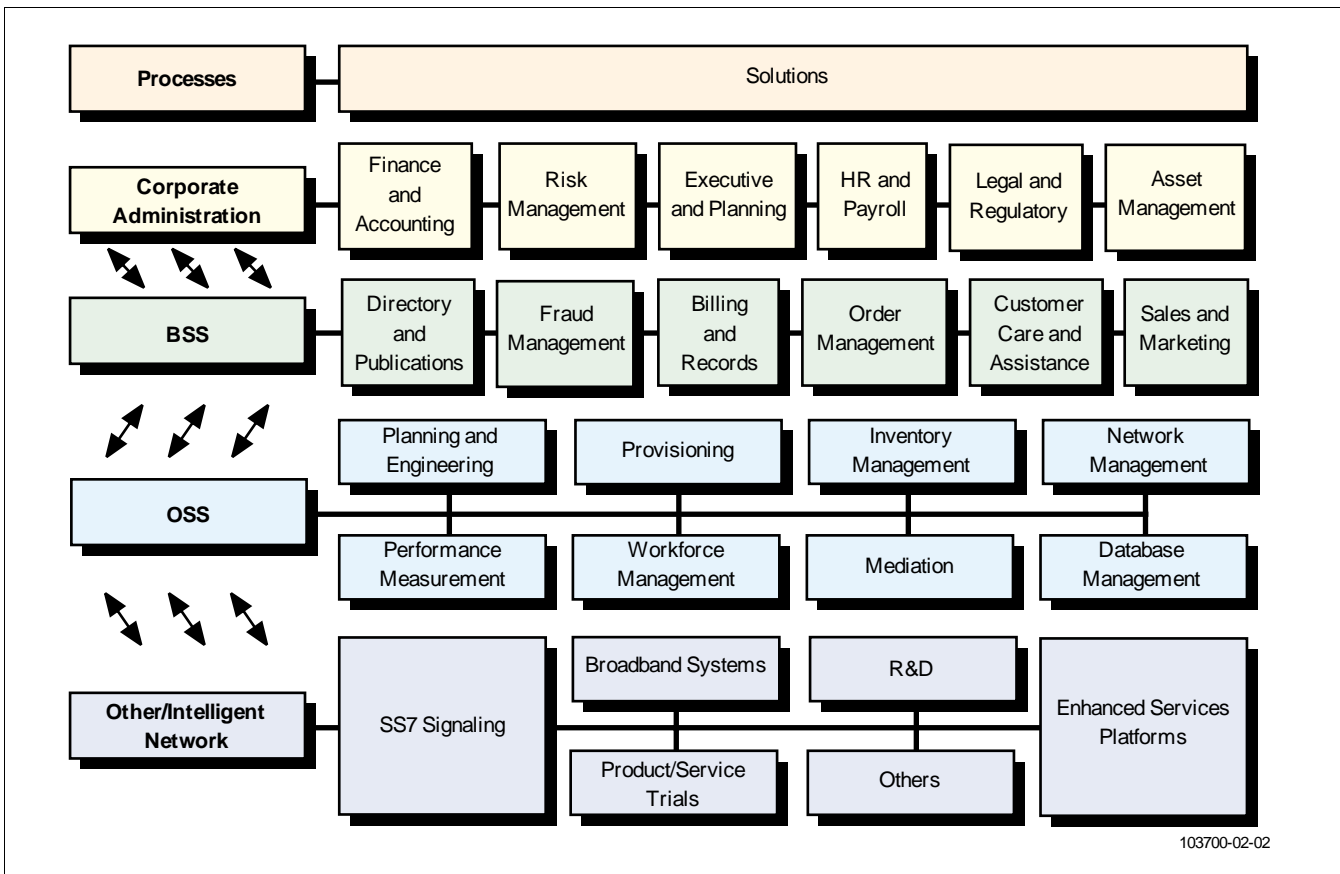
Integration of front-end processes and back-end systems makes it difficult to distinguish the business processes and solutions for the communications industry. Billing, order management and provisioning are examples of processes that underlie both BSSs and OSSs. Figure 2-2 outlines the solutions as defined in the respective business processes.

Figure 2-1
Communications Industry Segmentation



Source: Gartner Dataquest (June 2002)

Figure 2-2
Communications Solutions Map



Source: Gartner Dataquest (June 2002)

Methodology

Gartner Dataquest obtained data for this report from several primary and secondary sources. Primary sources include interviews with selected vendors and data from Gartner Dataquest's series of end-user primary research surveys conducted during the year with key IT decision makers in the communications industry. Survey questions probed the following topics:

- IT users' wants and needs
- Major business challenges
- Relationships between business and IT strategy
- IT investment plans and budgets
- Buying intentions and usage of products, services and solutions

Organization of the Report

This report consists of the following chapters:

- Chapter 1: Executive Summary — An executive summary of the report, including study objectives, key findings and recommendations for IT vendors
- Chapter 2: Introduction — Covers definitions, market segmentations, methodology, the organization of the report and information on related research on the communications industry

- **Chapter 3: An Overview of the Communications Vertical Market** — Provides an overview of key trends that are impacting the market's receptivity to IT products, services and solutions
- **Chapter 4: Demand-Side Analysis: An Overview of End-User IT Initiatives in the Communications Vertical Market** — Presents an analysis of end-user primary research in the communications industry
- **Chapter 5: Supply-Side Analysis: An Overview of Vendor Initiatives in the Communications Vertical Market** — Assesses the go-to-market strategies, vendor positioning, vendor revenue and capabilities of vendors that target the communications vertical market
- **Chapter 6: Vendor Profiles** — Provides an overview of vendor services and solution offerings, strategies and marquee clients of selected IT vendors

Related Research

Related research on the communications industry can be found in the following Gartner Dataquest publications:

- **Focus Reports prepared by the Global Industries Cluster:** "Assessing E-Market Opportunities in Vertical Markets: Success, Disillusionment and Future Outlook," ITGI-WW-FR-0105; and "CRM Solutions Outlook: A Look Across Vertical Markets," ITGI-WW-FR-0102
- **Perspectives:** "Mobile Operator's Business Paradigm: Opportunities for Vendors," ITSV-WW-DP-0095; "Vendors Tackle 3G Billing," ITSV-WW-DP-0133; "Electronic Bill Presentment and Payment in Communications," ITSV-WW-DP-0037; and "Communications E-Marketplace: Bandwidth Exchanges," ITSV-WW-DP-0104

Chapter 3

An Overview of the Communications Vertical Market

The communications industry did not go unscathed from the economic calamities and dot-com implosion. ISPs soon realized the inadequacy of business models offering free Internet service and quickly changed their models to address surcharges or fell into bankruptcy. Another business model of "build now and customers will come" came under close scrutiny by venture capitalists sore from the bitter dot-com experience. The patience and vision for network build-out and fiber to the home quickly turned to demands for profitability and quick returns on their investment. Venture capitalists pulled funding from emerging carriers and ethereal business models. ILECs also made it extremely difficult for CLECs to conduct business in the area, and soon many CLECs filed for Chapter 11 bankruptcy.

Pressures from the economic slowdown caused CSPs to postpone IT spending and delay projects. Some reduced capital expenses and budgetary spending. Demands for phased approaches to projects became the norm. The lavish infrastructure spending of 1999 and 2000 subsided, and carriers focused on operational efficiency within their existing infrastructure.

CSPs in 2002 will continue to spend on operational efficiencies through revenue assurance strategies, business analytics and opportunities with digital content. Companies with positive cash flow such as the rural ILECs are ramping up services and bundling services to become more competitive.

Major Developments in the Communications Industry

The communications industry with its rapid and disruptive changes, segmented and specialized market, customer-driven and competitive service-rich environment can be seen as both a threat and an opportunity for CSPs. The industry has reshaped its business to address these challenges by offering new services, bundling services, providing end-to-end service and spawning new service providers such as the next-generation network provider, managed service provider and videoconferencing service provider.

Industry Restructuring

Traditional providers of telecommunications services are becoming blurred as RBOCs enter the long-distance markets and as ILECs and cable service providers seek to bundle service for Internet connectivity, local and long-distance services. ILECs such as Alltel, Citizens Communications and CenturyTel bundle services of local and long-distance to their customers. AT&T Broadband as well as Cox Communications offer cable telephony services.

CSPs are seeking ways to reduce debt by spinning off the more lucrative business units and divesting noncore assets. This is not only the case for U.S. service providers but for overseas players as well. AT&T split off its wireless unit, as did Telefonica. Vodafone sold its holdings of France Telecom, and AT&T sold its investment in Japan Telecom.

Telecommunications Services

Long-distance voice prices have plummeted. The once-dominant voice market now provides only thin margins as the impact of technological advances such as VoIP, Web messaging and e-mail have sheared revenue. Worldcom, AT&T and Sprint all show declines in voice revenue. With the commoditization of voice transport and services, CSPs are enticed to move faster toward packet networks and offering data services.

With competition from CLECs subsiding, many ILECs have increased monthly charges for services such as DSL to increase profit margins. In some areas, DSL service charges have risen from \$39.95 per month to \$49.95 per month.

International markets, data services, IP VPN services and wireless services continue to be the profitable markets. IT spending will continue to grow and expand these profitable businesses.

FCC Regulations

The communications industry is strictly regulated by the FCC at the U.S. national level and the public utility commissions at the state level. These government bodies establish and oversee the regulation of telecommunications services, tariffs, policies, spectrum licenses, mergers and acquisitions, and even revenue plans such as the price cap implemented in 1991 to stipulate the access revenue of local companies to long-distance companies. The Department of Justice also became involved in antitrust violations. It is believed that with the Republican administration, antitrust enforcement will become less stringent.

Section 271

Congress passed the Telecommunications Act in 1996 to open the market and promote competition. Under Section 271 of the act, each RBOC is required to adequately open the market to its competition before it is permitted to offer long-distance services. The FCC evaluates an RBOC's compliance and approves or denies its application to sell long-distance services. Verizon, the first RBOC to gain permission, began offering long-distance services in January 2000 in New York, and SBC Communications followed in Texas six months later. Table 3-1 illustrates the status of RBOC filing for long-distance services.

Table 3-1
RBOC Section 271 Application Status for Long-Distance Service (as of December 2001)

State	Applicant Company	Status	Date Filed	Date Resolved
New Jersey	Verizon	Pending	20-Dec-01	Due by 20-Mar-02
Rhode Island	Verizon	Pending	26-No-01	Due by 24-Feb-02
Georgia/Louisiana	BellSouth	Withdrawn	2-Oct-01	20-Dec-01
Arkansas/Missouri	SBC	Approved	20-Aug-01	16-No-01
Pennsylvania	Verizon	Approved	21-Jun-01	19-Sep-01
Connecticut	Verizon	Approved	23-Apr-01	20-Jul-01
Missouri	SBC	Withdrawn	4-Apr-01	7-Jun-01
Massachusetts	Verizon	Approved	16-Jan-01	16-Apr-01
Kansas/Oklahoma	SBC	Approved	26-Oct-00	22-Jan-01
Massachusetts	Verizon	Withdrawn	22-Sep-11	18-Dec-00
Texas	SBC	Approved	5-Apr-00	30-Jun-00
Texas	SBC	Withdrawn	10-Jan-00	5-Apr-00
New York	Verizon	Approved	29-Sep-99	22-Dec-99
Louisiana	BellSouth	Denied	9-Jul-98	13-Oct-98
Louisiana	BellSouth	Denied	6-Nov-97	4-Feb-98
South Carolina	BellSouth	Denied	30-Sep-97	24-Dec-97
Michigan	Ameritech	Denied	21-May-97	19-Aug-97
Oklahoma	SBC	Denied	11-Apr-97	26-Jun-97
Michigan	Ameritech	Withdrawn	2-Jan-97	11-Feb-97

Source: Gartner Dataquest (June 2002)

Recently, BellSouth withdrew its application to provide long-distance in Georgia and Louisiana. The FCC commented on BellSouth's inadequacy in its OSS, data integrity and change management process for satisfactory compliance with the regulation.

As the RBOCs continue to expand coverage and apply to offer long-distance services in various states, the added pressures for them to meet the qualifications in a limited time compounds stronger demands to seek assistance and services from external service providers. The systems integrator firm Accenture assisted Verizon to quickly improve its BSS and OSS infrastructure to offer local and long-distance services in New York.

Reciprocal Compensation

Still pending before the FCC is the reduction or elimination of the reciprocal compensation ruling. This ruling stipulates a compensation of fees when a call is terminated on another carrier's line to allow fair service. In the case of Internet connectivity and ISP services, the Internet calls are placed one-way, and thus CLECs and ISPs reaped much revenue from RBOCs. Some RBOCs have negotiated with CLECs a price ceiling for extended service.

License Spectrum

The FCC oversees regulations regarding digital TV conversion for broadcasting stations and has allocated 48MHz of spectrum in the 698-to-746MHz band for new commercial services. This band is occupied by TV channels 52 through 29. The reclaimed spectrum is to allow service providers greater flexibility to provide new services. The evaluation of the proposed spectrum for third-generation capabilities has been delayed and is still under investigation.

Impact of Sept. 11

The attacks of Sept. 11 reinforced the importance of telecommunications services for consumers and businesses. Verizon was most impacted by the disaster with its damaged facility and hurried to splice damaged cables and reroute traffic. Capacity for wireline and wireless systems was overloaded during the first week after the tragic event. Demand for videoconferencing services and systems increased and advertising revenue for broadcast stations fell because of news coverage.

The FCC recently created a Homeland Security Policy Council to evaluate measures to protect the communications services, as well as to ensure rapid restoration and effective communications services to public officials.

Business Models and Competitive Trends

Expanding Global Footprint

CSPs have expanded their coverage globally to be less dependent on the economic conditions of one nation. Economies of scale have led to global expansion. Carriers are increasing their diversified investments and alliances in various countries. The Latin American market has seen much foreign investment by European, Asian and North American operators.

Increased Competition?

The competitive landscape within the communications industry has been quite altered. The once-competitive landscape immersed with ISPs and CLECs and other emerging carriers has gone under, and the remaining few providers are enjoying their sovereignty. ILECs offering DSL services with thin margins just to remain competitive have now increased their monthly rates.

New Entrants

The utility companies have been able to compete on equal footing with CSPs since they are able to build Fibre Channels with their established rights of way on the land. Several, such as Williams Communications, El Paso, and Dynegy, have entered to offer broadband services and some have failed, most notoriously Enron. In the area of owning the customer and billing to the customer, CSPs face competition from the financial services industry.

IT Initiatives and IT Spending: Drivers and Inhibitors

IT demand in the communications industry still continues in hardware, software, external services and network equipment. Given the complexities of the industry, rate of adoption, technological advances and deregulation, strides in IT spending and IT initiatives vary by industry subsegment and region. Figure 3-1 shows drivers for IT initiatives. Business initiatives such as revenue assurance, customer-centric models, empowering the end user and sustaining a competitive advantage have increased IT spending. Technologies such as location-based services, digitized TV signals, and infrastructure upgrades for GPRS and EDGE technologies are also drivers for IT spending.

IT spending drivers and inhibitors vary by industry subsegments. Figure 3-2 provides a highlight of key drivers and inhibitors for IT spending for wireline, wireless, satellite, cable and ISPs.

Figure 3-1
Drivers for IT Initiatives

Business Initiatives	IT Initiatives
<ul style="list-style-type: none"> ▲ Revenue assurance ▲ Expand footprint ▲ Enhanced services ▲ Customer-centric model ▲ Empowering the end user ▲ Increase revenue ▲ Sustain a competitive advantage 	<ul style="list-style-type: none"> ▲ Managed service offering ▲ Online channels ▲ Digital TV ▲ Integration of applications ▲ Location-based services ▲ Network infrastructure upgrade ▲ Extended infrastructure support

103700-03-01

Source: Gartner Dataquest (June 2002)

**Figure 3-2
Drivers and Inhibitors: IT Spending by Communications Industry Subsegment**

	Drivers	Inhibitors
Wireline	<ul style="list-style-type: none"> Delivery of new services Provide bundled end-to-end services Demand for operational efficiencies Integrate disparate systems Increase profitability through revenue-assurance strategies Industry restructuring Globalization 	<ul style="list-style-type: none"> Cash flow constraints Few competitors to demand IT solutions immediately Uncertain economy
Wireless	<ul style="list-style-type: none"> Location-based services Increase revenue through mobile commerce Rise of customer-centric business models Extending new sales channels Exploration of customer self-service Incurring debt from licenses spur demand for revenue-generating strategies 	<ul style="list-style-type: none"> Skepticism toward consumer adoption of wireless data services Consumer demand for privacy protection may inhibit targeted campaigns Financial sustainability after tremendous investments went into 3G licenses
Satellite	<ul style="list-style-type: none"> Digital content and streaming media Local-loop access to the home 	<ul style="list-style-type: none"> Competitive market (cable, DSL, and so on) Expensive equipment and installation costs
Cable	<ul style="list-style-type: none"> Transition from analog to digital broadcasting HDTV New revenue-generating business models to increase revenue, such as interactive TV and e-commerce Local-loop access to the home Ability to provide bundled services Technological advancements in digitized cable, bidirectional cabling systems and cable telephony Transition to customer-focused model 	<ul style="list-style-type: none"> Competitive market Uncertainty in customer demands for interactive TV High cost of HDTV Limited amount of content for distribution Financial constraints
ISP	<ul style="list-style-type: none"> VoIP Customer-focused business model Alliances, M&A activity Digital content and streaming media Cataloging methods for digital content 	<ul style="list-style-type: none"> Pending changes to FCC regulations regarding reciprocal compensation Unclear business direction Competition from CSPs offering bundled services

103700-03-02

Source: Gartner Dataquest (June 2002)

Wireline service providers seek to integrate their systems, bundling end-to-end services and streamlining operational efficiencies. These efforts are drivers for IT investment. Cash flow constraints limit the initial implementation of further IT investment. Wireless providers have a different outlook with the increasing popularity and adoption rate of wireless services. The advantage of offering new services and the potential of mobile commerce is still prompting further demands on IT, although skepticism exists about consumer adoption of wireless data services. Satellite service providers look to streaming media and the advantage of providing local-loop access to the home. Cable service providers, too, seek strategies to gain revenue from the last mile. Some envision the networked home with the main signal input from cable services. Cable service providers are investigating digital signal opportunities through interactive television, yet the high cost of HDTV, demands for e-commerce, and cable telephony complications have led to some setbacks. Cable service providers and ISPs are spending on IT initiatives for digital asset management, cataloging media content and digitizing content. ISPs are still seeking revenue-generating models through streaming media. The pending reciprocal compensation regulation in favor of the RBOCs will drastically affect the financial stability of ISPs.

Translation to IT Investments

Revenue Assurance

There is pressing concern to identify the areas of revenue leakage within the BSSs and the OSSs. Carriers have been fined for faulty provisioning systems; for example, SBC was assessed a \$94,000 fine. CSPs experience revenue leakage not only with provisioning systems but also with interconnection and billing systems, tariff and taxes, fraud, churn, and security loopholes. IT investments will continue in systems integration and solutions that can prevent revenue leakage and assure revenue-generating initiatives.

Billing as a Key Differentiator

A critical component for any CSP is its billing system. EBPP is one distinguishing method of billing to capture and retain Internet-connected customers. Empowering the end user by providing self-selecting modes of payment via the Web, receiving increased cash flow from a faster turnaround in bill collection and payment, reducing costs from paper and mailing, and reducing labor costs have prompted many CSPs to join the EBPP bandwagon. The implementation and integration task presents major complexities in back-end billing and time-to-market standards, and thus, many CSPs have turned to third-party solutions vendors such as CheckFree for their EBPP offering.

Mobile commerce and transaction-based billing methods offer opportunities to increase revenue for wireless operators, and CSPs continue to seek methods for recouping 3G license costs.

Churn Reduction Through Customer Care

In a recent FCC report dated December 2001, seven out of nine local phone companies averaged more than 100 complaints per million lines compared with three out of nine in 1997. SBC Communications, Verizon, BellSouth and Sprint had considerable increases in customer complaints over 2000, whereas Qwest reduced its complaints since 1999 by approximately 50 percent. However, Qwest remains the highest with over 400 complaints per million lines.

Customer satisfaction and the customer-focused business model are imperative to an operator's existence. Carriers experience churn ranging from 1.5 percent to 3 percent per month. Millions are spent on implementing CRM solutions to reduce churn, increase customer loyalty and sustain a competitive advantage. Call centers that were once considered cost centers became identified as profit centers. Call service representatives could utilize the interaction with the customer as an opportunity for cross-selling and up-selling more products and services to the customers.

In 2001, the emphasis shifted to ROI concerns and understanding the quantifiable metrics that outline the true returns from a CRM implementation. While understanding the true value of the customer and identifying metrics for calculating ROI will still be major drivers for IT spending, other CRM initiatives related to predictive consumer behaviors and location-based marketing will further spur demand.

Business Analytics

Capturing intelligent information about customer behaviors and purchasing patterns is a powerful method for effective target marketing. Wireless operators offering mobile commerce and cable service providers seeking revenue-generating strategies in e-commerce and interactive television will need these intelligent analytical tools as well as other CSPs. IT spending for intelligent data-mining capabilities and powerful analytical tools will continue in 2002.

Outsourcing

Reducing capital expenditure and streamlining operations will lead several CSPs to seek solutions in business process outsourcing and IT outsourcing strategies, especially in 2002. Wireless operators and cable service providers have led the tendency to outsource their billing and customer care through service bureaus such as Convergys, DST Innovis and CSG Systems as well as clearinghouses. CSPs will also concentrate efforts in 2002 on their core competencies and will outsource noncore assets. BellSouth recently extended its applications outsourcing contract with Accenture. Cable and Wireless signed an outsourcing contract with Accenture and e-peopleserve in the application management of accounts receivable and human resources.

Regional Highlights

Market direction and communications industry trends differ across regional markets. The following provides a highlight of regional trends and the translation to IT investments.

Canada

The Canadian operators seek to bundle services to provide customers an aggregated portal for all of their communications needs. Wireless and data services are in demand. CSPs also seek to improve operational efficiencies by integrating business processes. Telus Mobility last year spent a considerable amount to integrate its disparate billing and customer care systems.

Europe

The European market was deregulated in January 1998, requiring incumbent PTTs to open their markets. Incumbent PTTs are moving toward value-added businesses such as Web hosting, ISP services and network management services. The cable industry consolidated to maximize the cable infrastructure as companies seek to provide an alternative to local-loop access. Tremendous investment in 3G licenses took place last year. Mobile operators seek innovative billing models and targeted customer care solutions to generate revenue.

Latin America

Privatization and liberalization of telecommunications in many Central and South American countries have opened a more competitive market for local, long-distance, voice and data services. An influx of foreign investment and international alliances has occurred within the past year. Wireless has increased dramatically, as well as Internet services. CPP has become a viable and profitable business model. Wireline infrastructure is still growing. Demand for cable services is not widespread, and it still parallels consumers with higher incomes.

Asia/Pacific and Japan

According to the International Telecommunication Union, over 53 percent of the Asia/Pacific countries have privatized telecommunications services. Monopolies exist in several countries. China and India continue to make IT investment plans to upgrade their telecommunications infrastructure. Demand for Internet services increases. The 2008 Olympics is also a contributing factor for build-out and IT spending in China.

Commercial 3G service was first deployed in Japan. Investment in infrastructure for 2.5G and 3G, as well as 3G licenses, drives demand in IT spending. Emerging carriers are seeking OSS and BSS solutions. As in the European market, CSPs are seeking profitable and innovative mobile data service models.

Middle East and Africa

Some privatization of the telecommunications industry has occurred. Saudi Arabia is the largest market for products and services in the Middle East. Wireline and wireless communications is expanding. Demand for Internet access has spurred telecommunications infrastructure and services. Revenue for voice service still is higher than data. Competition from emerging carriers and foreign investment are increasing in these markets.

Chapter 4

Demand-Side Analysis: An Overview of End-User IT Initiatives in the Communications Vertical Market

The communications industry experienced tremendous infrastructure build-out in 1999 and 2000. Venture capitalists invested an estimated \$7.4 billion in 1999 and \$1.6 billion in 2000 in CLECs. Emerging carriers and ISPs went on a shopping spree. Speed to market led to preintegrated solution spending and off-the-shelf OSS and BSS solutions. Extensive IT budgets went to external service providers in consulting, design, development and systems integration. Fierce competition led to mounting pressures for increased spending on CRM solutions. Web-enabled business processes and e-commerce integration also contributed to the boom in IT spending.

The spending frenzy came to a halt with the slowing economy, and 2001 became a period of reflection. CSPs re-evaluated their spending on IT in past projects and large implementations. Concerns with profitability and ROI came to the forefront and IT spending turned inward toward operational efficiencies. To discern actual from anecdotal, Gartner Dataquest conducts end-user surveys of budget and decision-making authorities at CSPs to capture trends in IT spending intentions and investment priorities as well as budgetary practices.

Shift From Capital to Operating Expenditure

Gartner Dataquest conducts a yearly survey examining end-user base budgets and IT spending projections. Survey respondents in June 2001 indicated a minimal decrease in capital budgets: 3 percent from 2000 to 2001. Sixty-two percent of the end users identify themselves as mainstream adopters. Equal representations of 14 percent identify themselves as leading-edge and conservative adopters. Among these end users, capital expenditure only represents about a third of total IT budgets (see Figure 4-1).

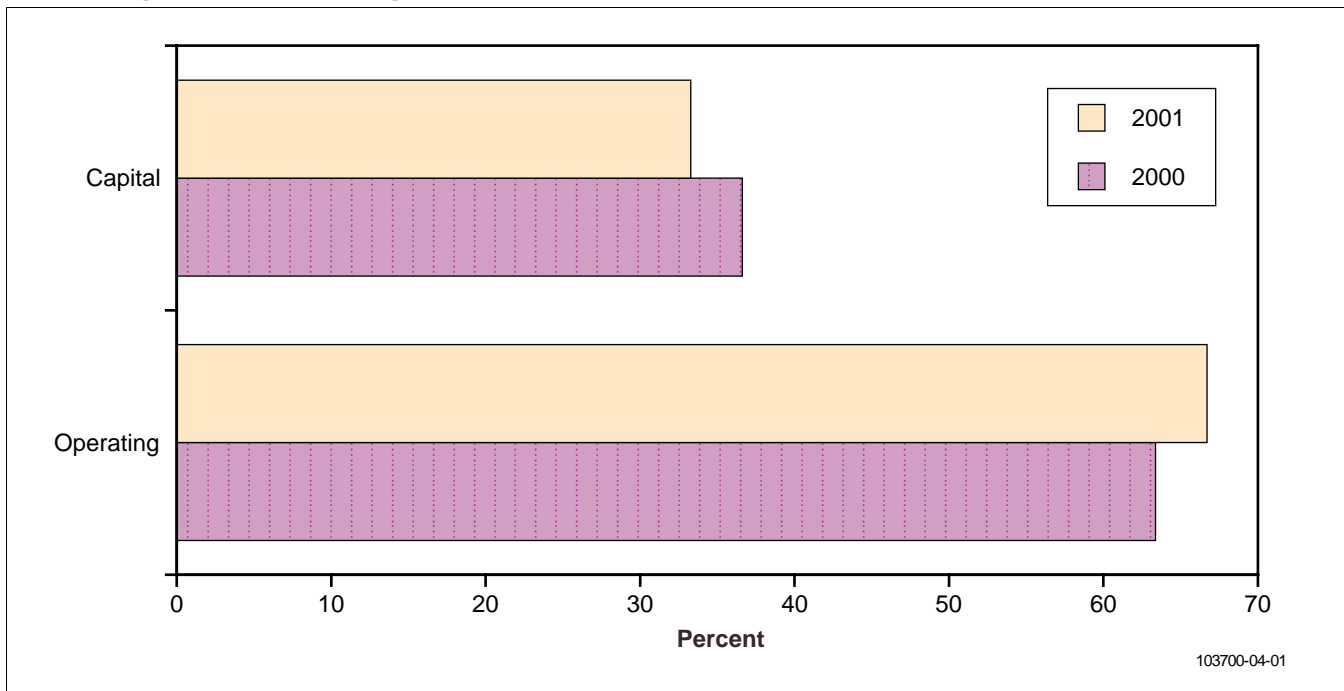
Gartner Dataquest also conducts a yearly base budget survey in Europe around the same period. Countries represented include France, Germany, Britain and the Benelux countries (Belgium, the Netherlands and Luxembourg). The European end-user survey indicates capital expenditure dropped by 1 percent from 2000 to 2001. On average, capital expenditure represents more than 40 percent of total IT budgets (see Figure 4-2). The European respondents vary considerably in capital and operating budgets, with a few indicating 10 percent budgets allocated entirely to capital spending.

2002 Projected Operating Budgets

With a slight shift from capital to operating budgets, Gartner Dataquest previewed the categories within the operational budgets to outline opportunities in IT. End users were asked to project the operating budgets through 2002 and to allocate the percentage of spending within the given categories. Figure 4-3 shows a comparison of the categories of spending between the U.S. and European end users. IT budget categories include hardware, software, external services, internal services and network equipment spending.

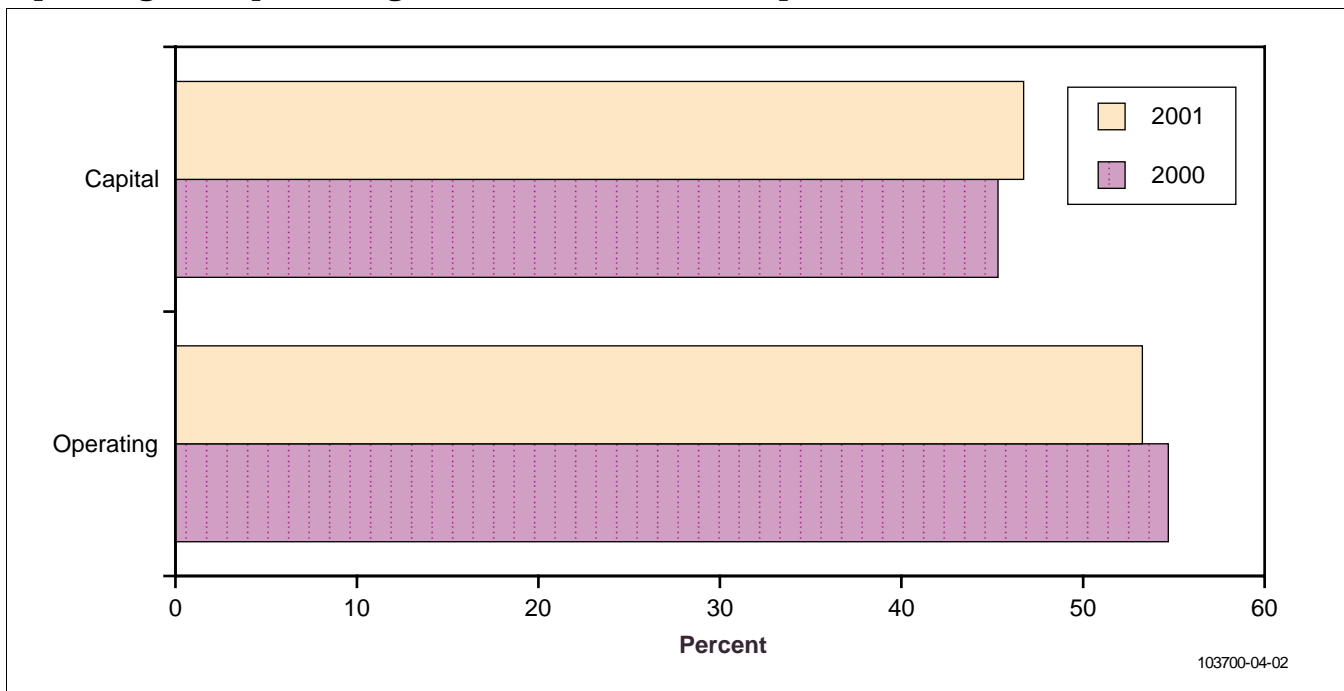
U.S. respondents indicate a slight decrease in their 2002 operating budgets for hardware, internal and other spending as compared with 2001. External service provider spending is projected to decrease by 3 percent. Software is projected to increase by 2 percent, as well as a 2 percent increase for telecom and network equipment spending. These figures reflect only the operating budget allocations and do not reflect total IT budgets.

Figure 4-1
Operating vs. Capital Budgets in 2000 and 2001 (United States)



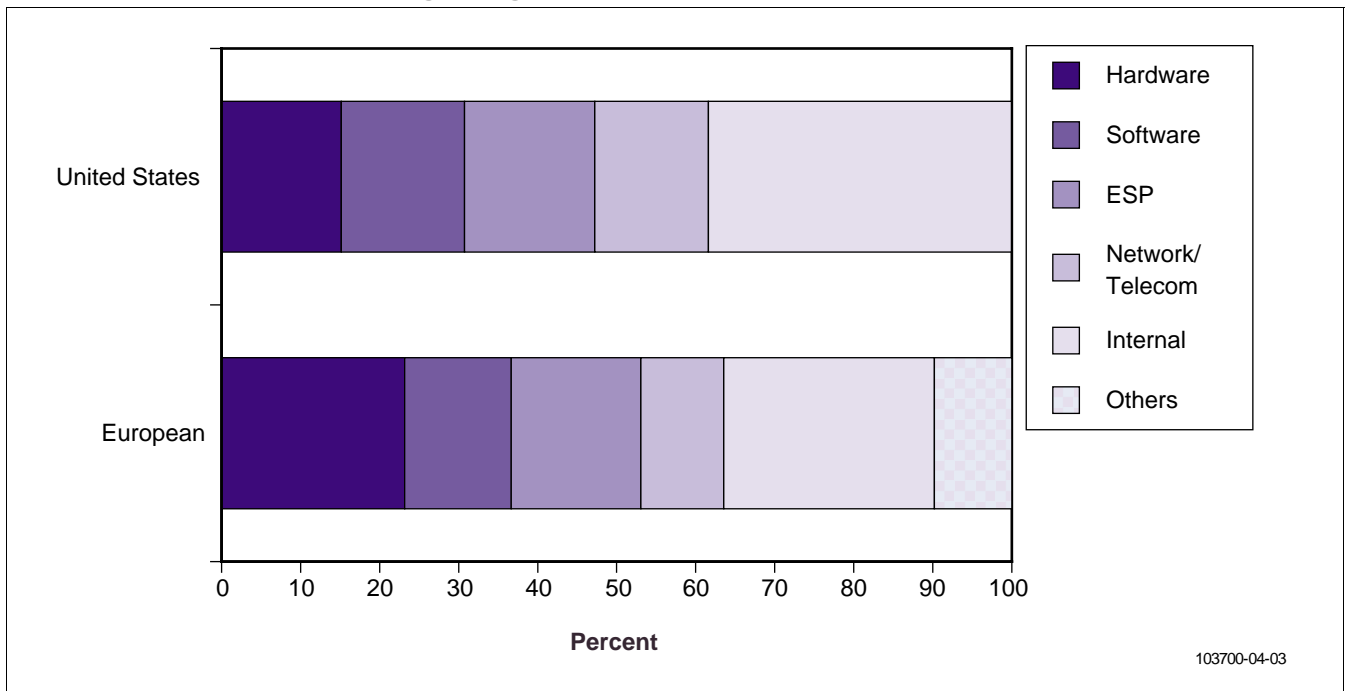
Note: Data are from the Gartner Dataquest 2001 U.S. Base Budget survey.
 Source: Gartner Dataquest (June 2002)

Figure 4-2
Operating vs. Capital Budgets in 2000 and 2001 (Europe)



Note: Data are from the Gartner Dataquest 2001 European Base Budget survey.
 Source: Gartner Dataquest (June 2002)

Figure 4-3
Allocation for 2002 Operating Budgets (U.S. and European Comparison)



Note: Data are from the Gartner Dataquest 2001 U.S. and European Base Budget surveys.
 Source: Gartner Dataquest (June 2002)

In comparison, the European respondents made similar projections toward a decrease in hardware and other spending. Respondents indicate a slight increase in spending for software, internal and external service providers spending over the previous year. Telecom and network equipment spending is projected for a minimal decrease in budgetary allocations.

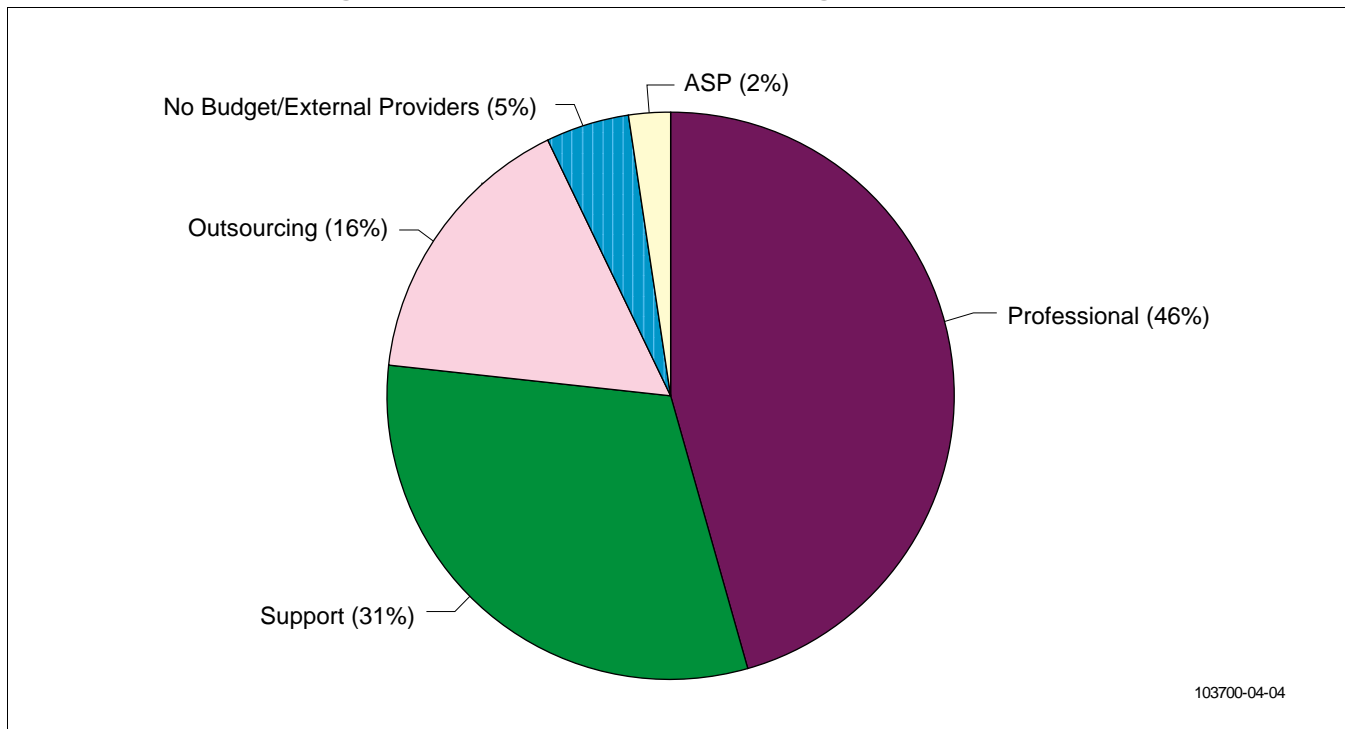
External Service Provider Spending

With the onset of the economic slowdown, IT spending for large systems integration projects became less frequent, and projects were conducted in a phased approach. In turning toward operational efficiencies, systems integrators were hired to fine-tune the front-end and back-end business processes. This trend will continue through 2002. IT spending for hardware and software support to the installed base will remain as an ongoing expense. IT spending for outsourcing will continue as many carriers seek to offload their capital budgets. Outsourcing their noncore businesses and assets allows carriers to focus on their core competencies.

U.S. survey respondents indicate that they allocate an estimated 46 percent to professional services such as IT consulting, system development and integration, and education and training (see Figure 4-4). CSPs spend 31 percent on support services such as hardware maintenance and support. Spending for outsourcing represents 16 percent of the budget, and 2 percent is allocated toward ASP solutions. Of the respondents, 5 percent indicate that they do not have a budget or do not utilize external service providers.

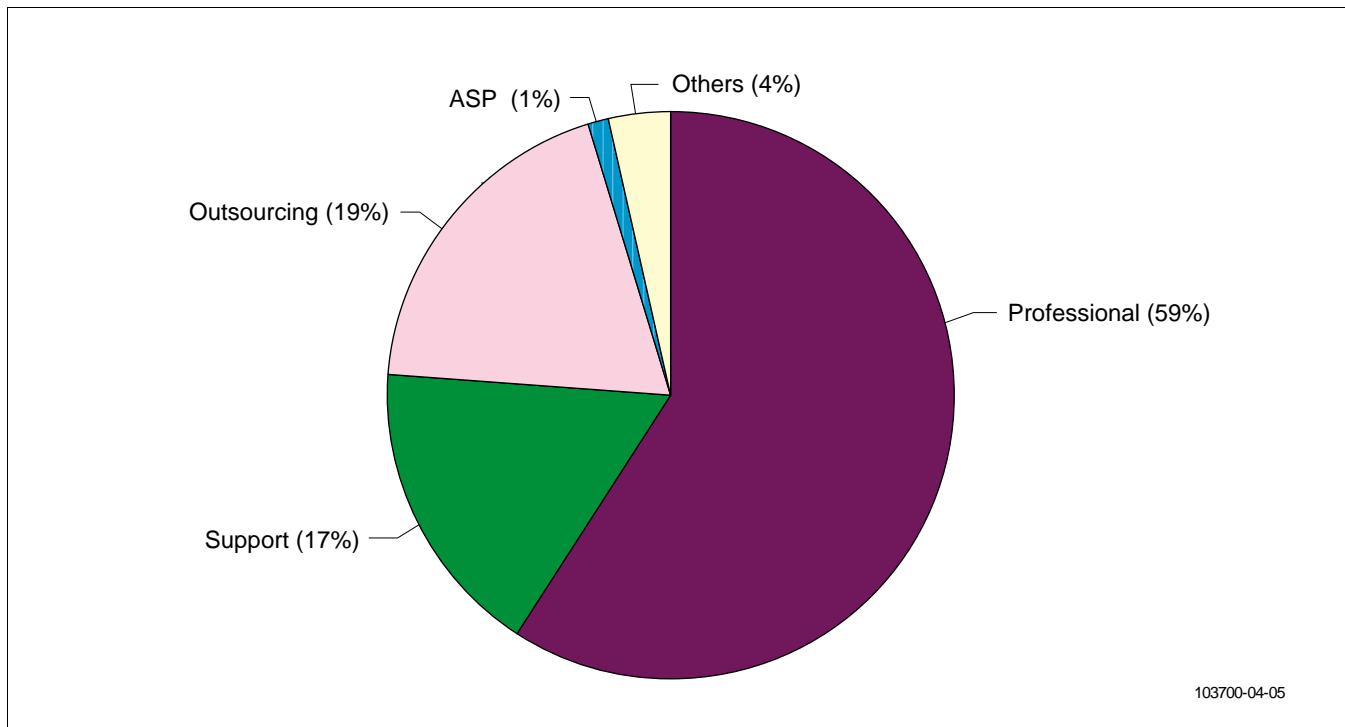
The European external service providers' budget allocation is quite different from that of the U.S. survey respondents. Budget allocated to professional services is 59 percent, whereas only 17 percent is allocated to hardware and software support (see Figure 4-5). The operating budget allocated to outsourcing represents a slightly higher percentage at 19 percent. ASP budget allocation is 1 percent, and other spending is 4 percent.

Figure 4-4
Allocation of Operating External Services Provider Budget (United States)



Note: Data are from the Gartner Dataquest 2001 U.S. Base Budget survey.
 Source: Gartner Dataquest (June 2002)

Figure 4-5
Allocation of Operating External Services Provider Budget (Europe)



Note: Data are from the Gartner Dataquest 2001 European Base Budget survey.
 Source: Gartner Dataquest (June 2002)

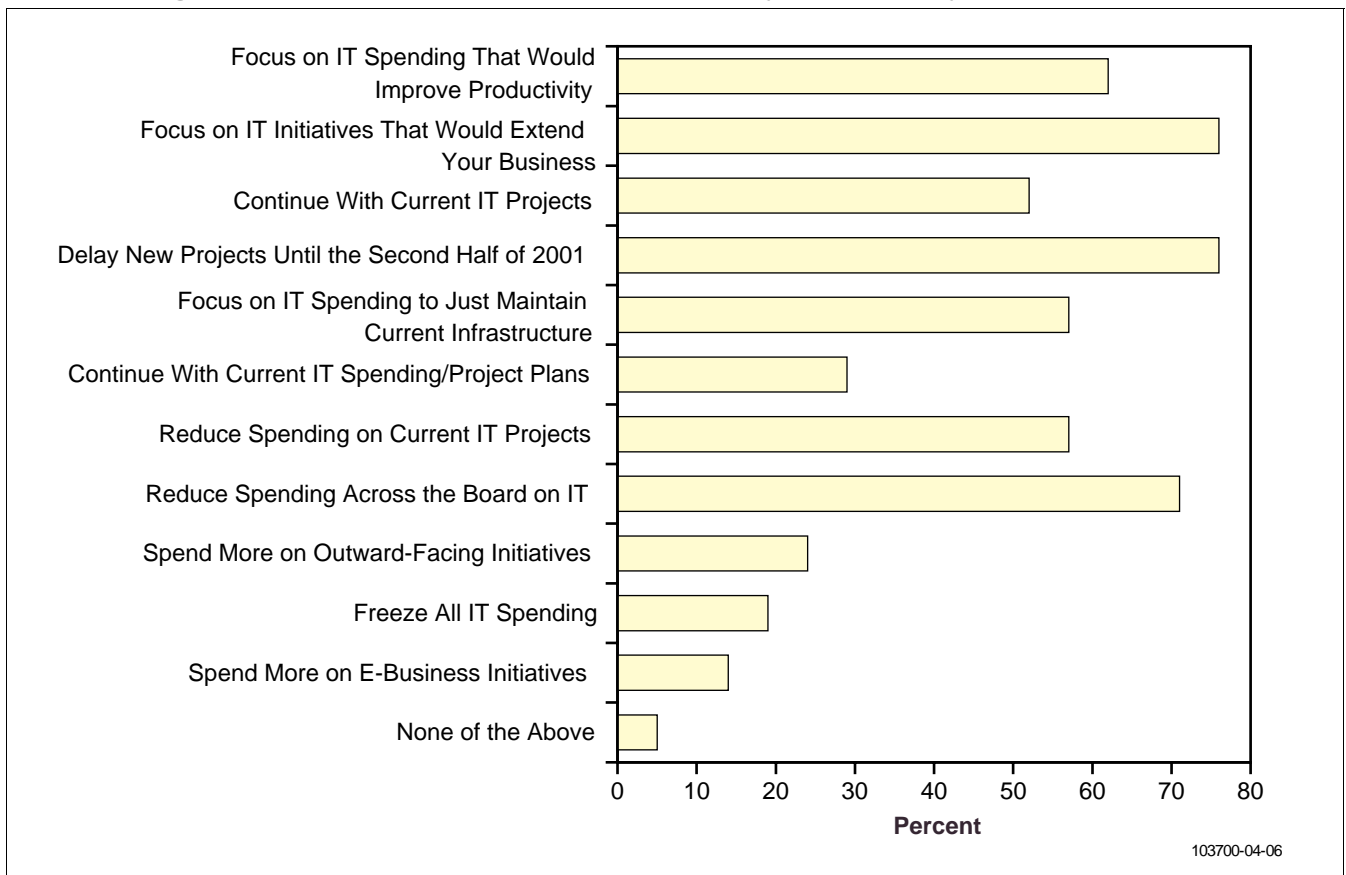
In the European countries, outsourcing has seen a gradual acceptance. Previously, outsourcing was not a culturally accepted notion, since it was understood that the expertise and functions of the PTTs should be performed in-house. With the spinoffs of the wireless units as well as other business units from the PTTs and with speed to market as a concern, many have turned to outsourced solutions. Cable and Wireless recently announced a contract with Accenture and e-peopleserve to outsource the management of its accounts receivable and human resources.

Economic Slowdown: Impact on Spending Intentions

Given the equivocal economic condition of the United States, Gartner Dataquest sought to understand buying behaviors and spending intentions given the worst scenario — a recession. Multiple answers were allowed. In the survey conducted in July 2001, 76 percent of the end users indicated they would continue spending on IT initiatives that would extend their business and thus increase revenue (see Figure 4-6). Sixty-two percent responded they would increase spending on measures to increase productivity. There is also an indication of practicality and a more conservative approach to IT spending. Seventy-six percent of the respondents noted they would delay projects until the latter half of the year. Seventy-one percent responded they would reduce spending across the board on IT, and 57 percent would reduce spending on current IT projects. Spending on e-business initiatives and outward-facing initiatives were lower priorities.

It is important to analyze the data in a given context, which in the United States is the pre-Sept. 11 condition. It is equally important to evaluate CSPs' behavior in the post-Sept. 11 period.

Figure 4-6
IT Spending Plans if Faced With Recession (U.S. July 2001 Survey)



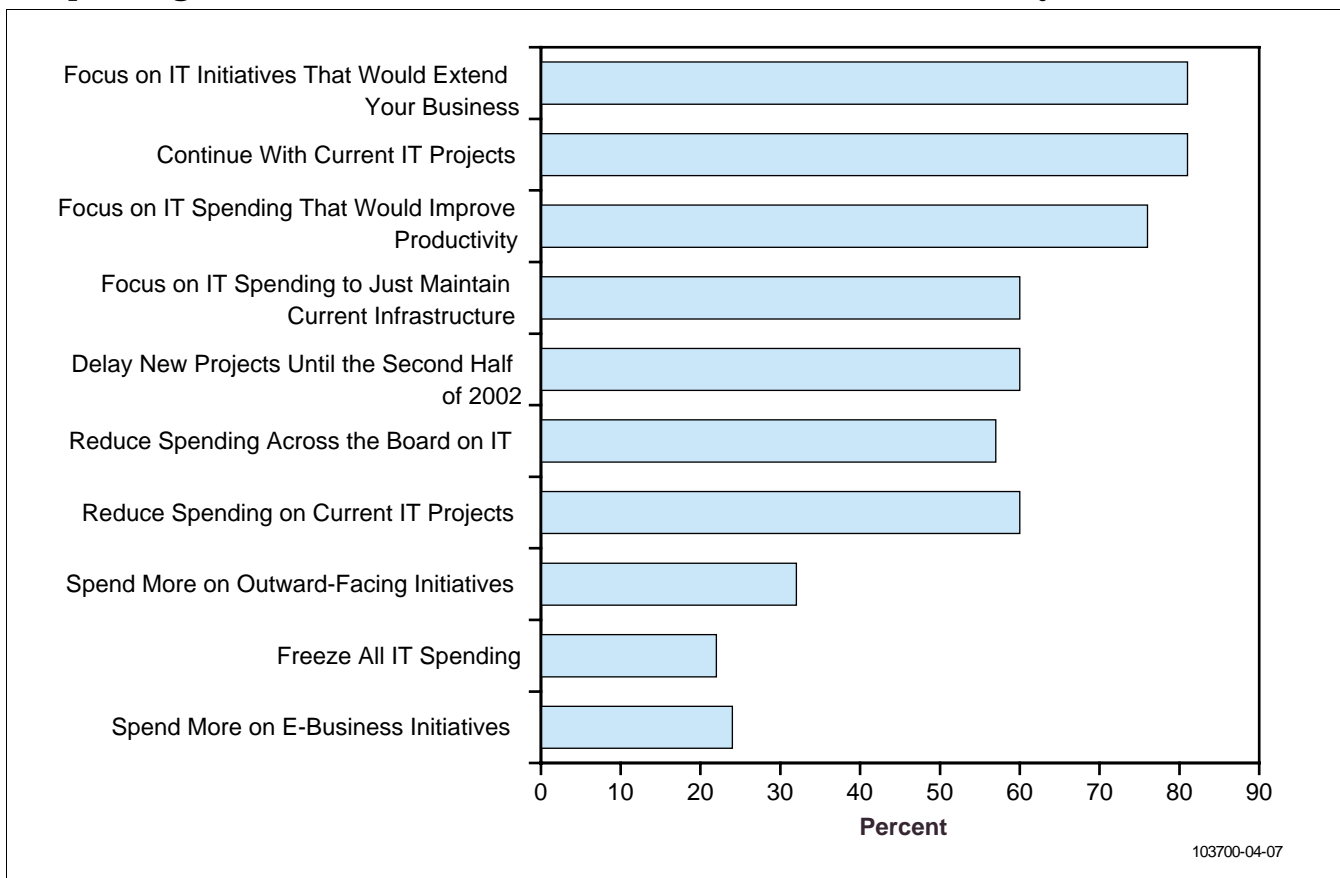
Note: Data are from the Gartner Dataquest 2001 U.S. Base Budget survey.
Source: Gartner Dataquest (June 2002)

Gartner Dataquest conducted a solutions survey of CSPs in December 2001. Respondents to the survey were CIOs and authorities responsible for the organizations' IT systems. Gartner Dataquest asked the same question on their spending plans given a recession. The respondents, although from a different pool of end users, responded similarly (see Figure 4-7). Respondents would focus on IT initiatives that would extend their business and continue with current IT projects (81 percent). Seventy-six percent of the respondents would focus on IT spending that would improve productivity. Sixty percent said they would just maintain their current infrastructure or delay projects until the latter half of 2002. Increasing spending on outward facing initiatives, e-business initiatives, and freezing all IT spending were lower considerations.

Investments in Technology

The survey respondents identified Windows 2000 as the most likely technology investment (see Figure 4-8). Firewall security, network security and other security measures were also priorities for investment. E-business, Internet infrastructure, e-commerce and application scalability, mobile and CRM were the next tier of likely technologies in which to invest. Linux, collaborative commerce and CRM solutions were lower priorities.

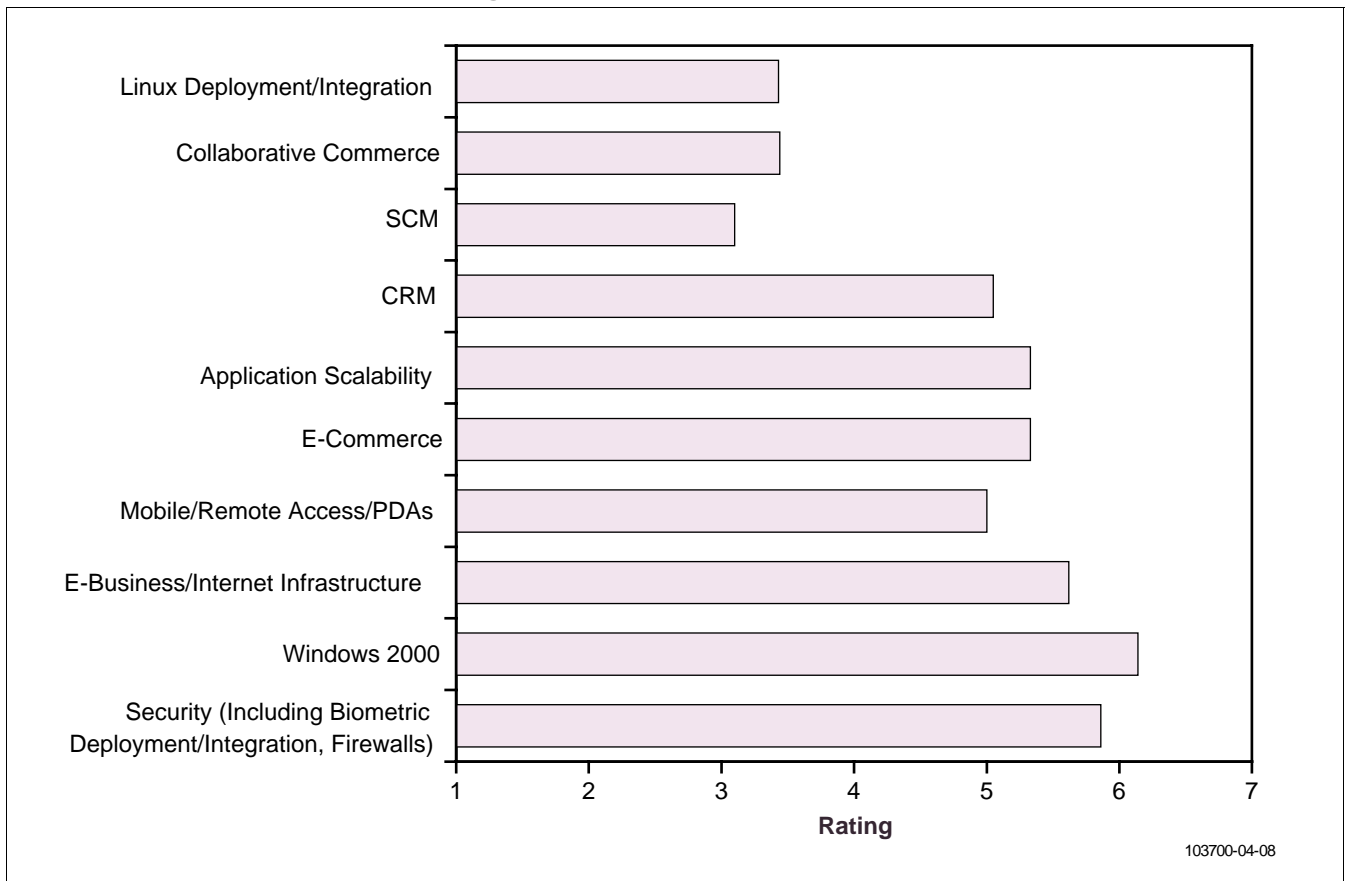
Figure 4-7
IT Spending Plans If Faced With Recession (U.S. December 2001 Survey)



Note: Data are from the Gartner Dataquest 2001 GI Solutions survey.

Source: Gartner Dataquest (June 2002)

Figure 4-8
Likelihood to Invest in Technologies



Note: On a scale of 1 to 7, 1 means "not at all likely," 4 means "somewhat likely" and 7 means "extremely likely".

Note: Data are from the Gartner Dataquest 2001 U.S. Base Budget survey.

Source: Gartner Dataquest (June 2002)

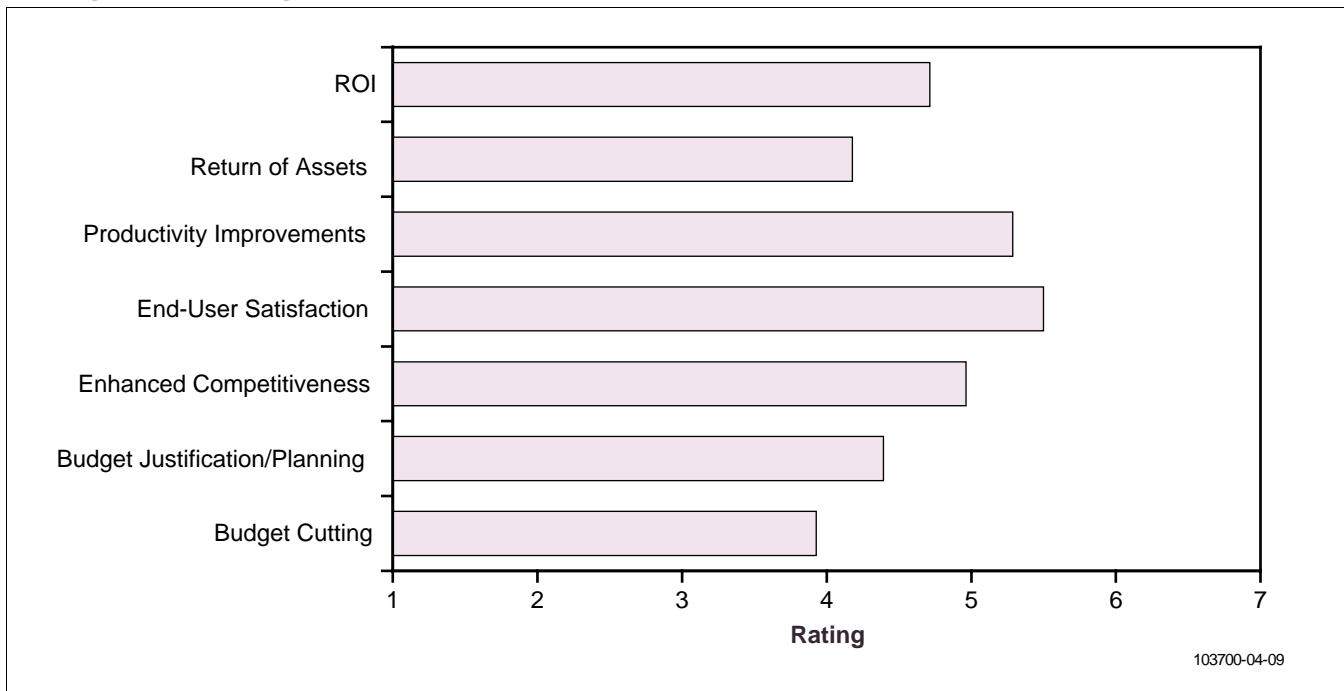
IT Spending Priorities in Europe

The impact of IT spending priorities during a recession is quite similar according to our European respondents. The majority of the respondents would continue with current IT spending projects and spend on IT that would improve productivity. Many respondents said that even during a recession, they would still focus on extending the business. Freezing all spending and e-business initiatives were lowest priorities.

European respondents were asked to rate their IT spending importance on a scale of 1 to 7, with 1 being not at all important and 7 being extremely important. End-user satisfaction and productivity improvements were considered quite important with enhanced competitiveness in third place (see Figure 4-9). ROI and budget justification are also important.

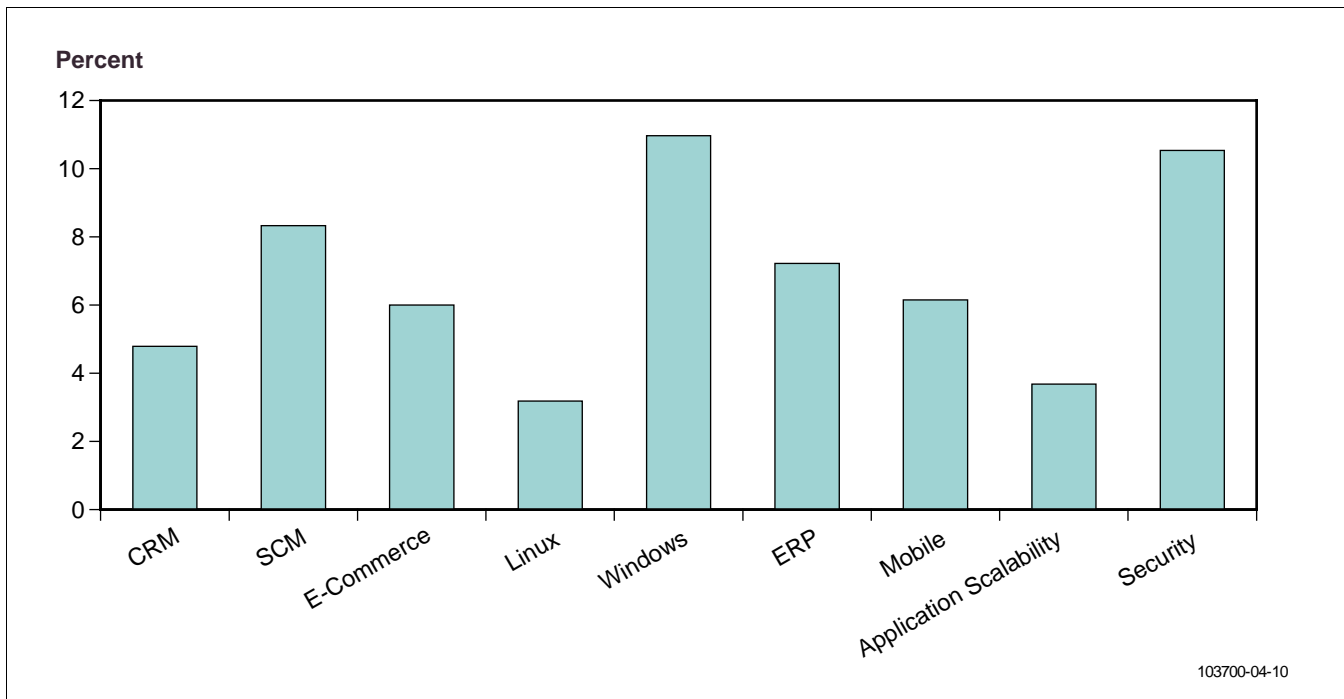
Technological investment initiatives in Europe ranked security as being the top priority, followed by application security, mobile, CRM and e-commerce. The second tiers of technology investment expressed by some of the respondents include Windows, Linux, ERP and SCM. A follow-up question targeted an estimated percentage of the budget to address these technological implementations, as shown in Figure 4-10. It is interesting to note that some of the top investment priorities do not necessarily command the highest percentage of the budget. For example, upgrading to Windows 2000 was in the second tier of application priorities, but it was placed highest in budget allocation followed by security. Application scalability, although a top priority, was allocated only a small portion of the budget.

Figure 4-9
Rating IT Spending Importance



Note: On a scale of 1 to 7, 1 means "not at all important" and 7 means "extremely important".
 Note: Data are from the Gartner Dataquest 2001 European Base Budget survey.
 Source: Gartner Dataquest (June 2002)

Figure 4-10
Percentage of the Budget Commanded by These Initiatives



Note: Data are from the Gartner Dataquest 2001 European Base Budget survey.
 Source: Gartner Dataquest (June 2002)

IT Solutions and Business Management Goals for 2002

CSPs will focus on revenue assurance strategies and streamlining internal operational efficiencies as well as delivering new services. Tier 1 telecom operators are known for having several hundred different BSSs within the organization. Some of these disparate systems are the result of M&A activity and some are related to outdated legacy systems. This year, emphasis will be placed on consolidating and integrating these disparate systems.

Business Management Initiatives

In December 2001, Gartner Dataquest conducted an end-user survey of 37 CSPs. They identified themselves as mainstream, conservative or leading-edge adopters of IT. Forty-nine percent considered themselves mainstream adopters or those that use IT to improve productivity, product quality and customer service, but generally do not use it to compete on price or innovation. Leading-edge IT adopters or those that compete at the cutting edge of innovation and use IT as a weapon with management commitment and funding represented 32 percent of the respondents. Conservative adopters represented 19 percent and identified themselves as those that compete on the thin edge of cost margin or economies of scale.

These respondents were asked about their business management goals for 2002 (see Figure 4-11). Eighty-one percent plan to consolidate and integrate the disparate systems. With competition offering bundled services, it is imperative not only to offer these services but also to have the infrastructure and systems that can support this service offering. Eighty-one percent of the respondents will increase their customer focus. Increasing customer focus denotes a broad array of applications and solutions of CRM such as targeted marketing campaigns, predictive customer behavior tactics and technology-enabled sales, as well as accommodating billing systems geared to the customer, and self-service provisioning. New service offering plans represent 70 percent of the respondent goals. CSPs will place greater emphasis on improving their legacy systems as compared with replacing their installed base.

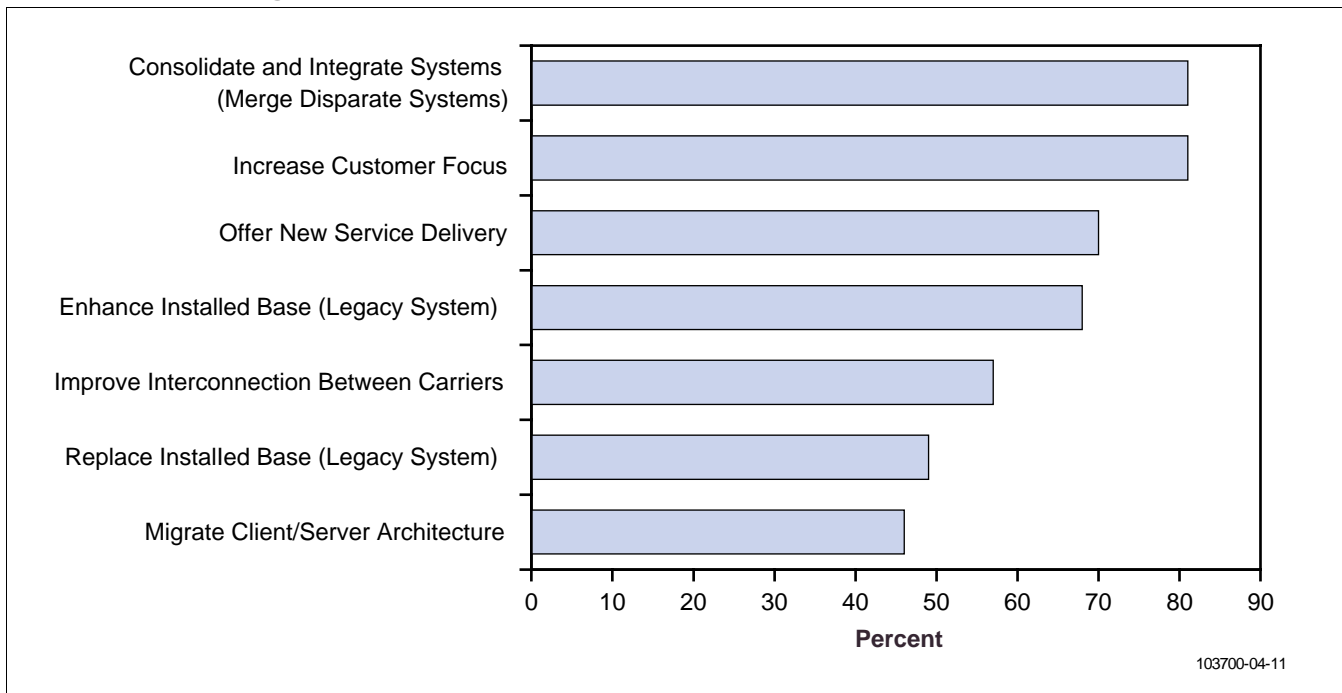
The business management goals outlined above correlate directly to the top-line IT initiatives of extending the business and improving productivity.

2002 Solution Priorities

The business processes for the communications industry can be divided into two main categories: OSSs and BSSs. OSSs are typically referred to as the network-facing or back-end systems and encompass business processes that address the network, such as network management, provisioning and mediation. BSSs are customer-facing and include billing and customer care.

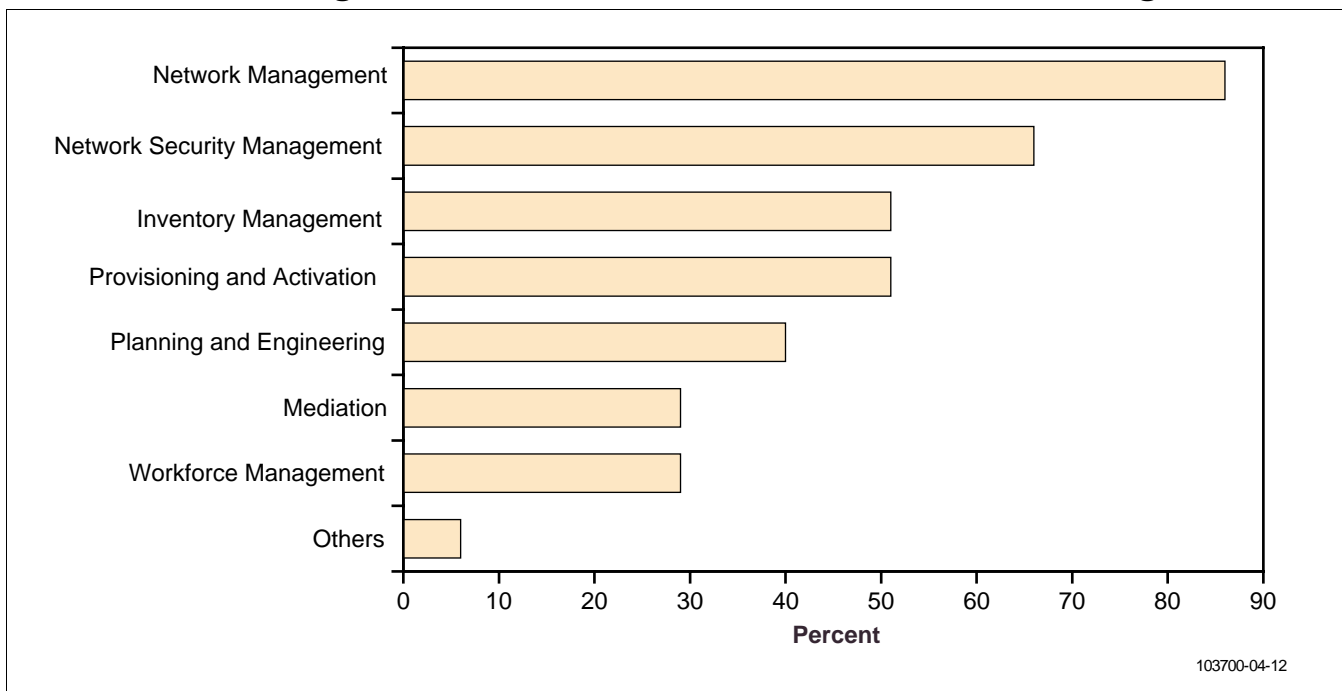
Respondents were asked to identify particular solutions within the business processes of OSSs and BSSs that would be included in the 2002 IT budget. Many respondents indicated that network management and network security management are top OSS solutions in their IT budgets (see Figure 4-12). More than half have IT budgets allocated to improvements to provisioning and inventory management. Forty percent of the respondents have budgets for planning and engineering, and 30 percent of the respondents will spend on mediation and workforce management.

Figure 4-11
IT Business Management Goals for the Next 12 Months



Note: Data are from the Gartner Dataquest 2001 GI Solutions survey.
 Source: Gartner Dataquest (June 2002)

Figure 4-12
Which of the Following OSS Solutions Will Be Allocated in Your 2002 IT Budget?

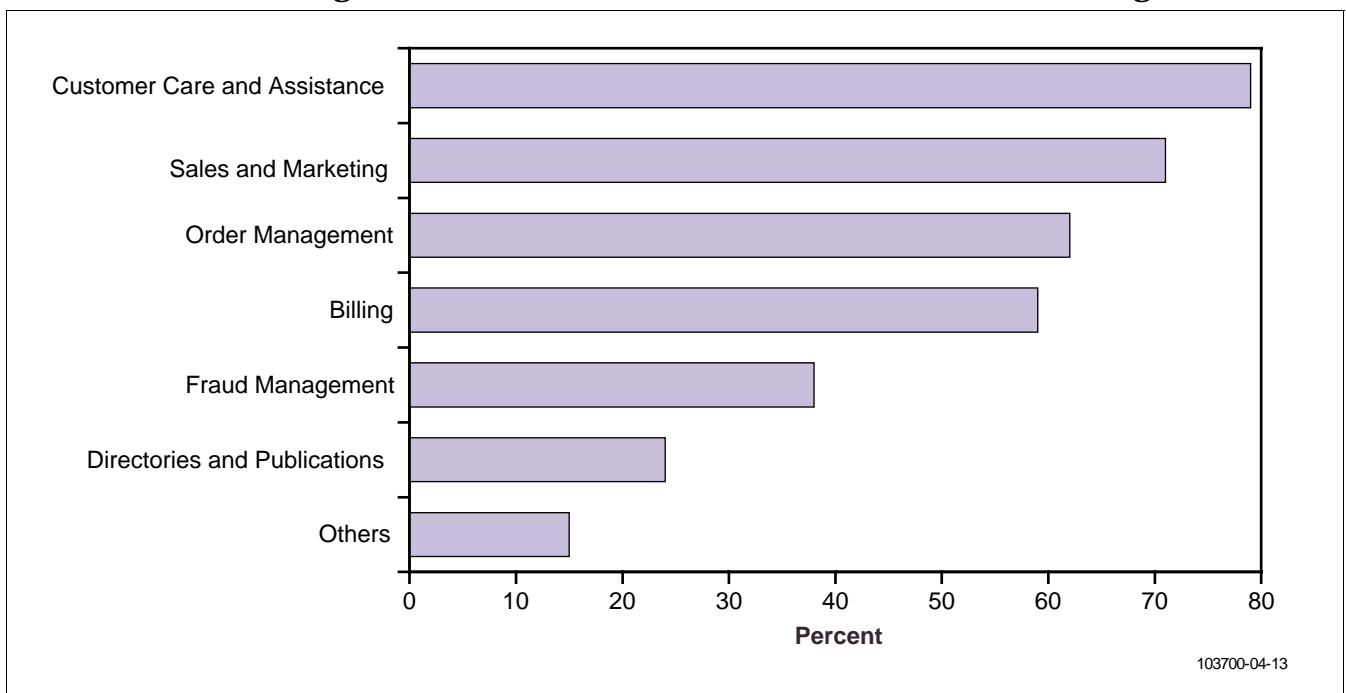


Note: Data are from the Gartner Dataquest 2001 GI Solutions survey.
 Source: Gartner Dataquest (June 2002)

In line with previously stated business management goals, customer care and assistance clearly lead the BSS IT budget allocation. Seventy-nine percent of the respondents have allocated IT spending for customer care compared with 59 percent for billing (see Figure 4-13). More than 70 percent of the respondents have allocated IT budget for sales and marketing, followed by order management solutions. Fraud management solutions are critical to prevent revenue leakage. Thirty-eight percent of the respondents have acknowledged budgetary allocations for this business process. Allocated IT budgets for directories and publications solutions represent a minimal 24 percent of the respondents.

It is imperative to deliver industry-specific solutions to address the business processes within the communications industry. Horizontal applications have limitations and soon become outdated in this fast-paced industry. CSPs not only are trying to grapple with the current sales and marketing efforts but are looking to systems that can support their future sales and marketing strategies.

Figure 4-13
Which of the Following BSS Solutions Will Be Allocated in Your 2002 IT Budget?



Note: Data are from the Gartner Dataquest 2001 GI Solutions survey.
Source: Gartner Dataquest (June 2002)

Chapter 5

Supply-Side Analysis: An Overview of Vendor Initiatives in the Communications Vertical Market

The communications industry in 2001 was a bitter landscape from the standpoint of most vendors. Telecom equipment manufacturers were unable to meet their quarterly targets and announced layoffs. Vendors doing business with CLECs saw their client base disappear, and some could not collect amounts due under their Chapter 11 protection. Profitability and quantifiable ROI eluded CSPs as the equivocal economy left many to delay spending in the second half of the year. Large implementation projects of billing, CRM, e-business and network upgrades became scarce. Typical engagements were broken into piecemeal projects. The drastic change in this once-affluent industry compelled vendors to adapt with competitive market offerings.

Key Trends in Go-to-Market Strategies

Vendors struggled to entice CSPs with scalable pricing models, discounting measures for late delivery and offering value-added services. Some innovative services include free data conversion of its billing system and free health checks of the network. Other vendors rebranded themselves to home in on their areas of specialty and abilities. Others sought partnerships and alliances to penetrate new market opportunities (see "BSS/OSS Vendors in the Slowing Economy: Crisis or Opportunity?" [ITSV-WW-DP-0034]).

Vendors look to the overseas markets to increase revenue and expand coverage. Mobile and wireless project contracts were more in abundance in the European and Asia/Pacific markets. Calling party features and wireless solutions emerged in Latin America, as well as data and Internet solutions for BSSs and OSSs. Vendors unfamiliar with foreign terrain have turned to vendors with extensive regional contacts and grass-roots expertise. The strategic move of Convergys to Geneva gave entry into the European market and solidified its wireless offering. Lightbridge merged with Corsair Communications in 2000 and gained a foothold in the Latin American markets.

IT services and solutions providers are targeting specific industry segments that are in a promising state of converging technologies and business expansion, such as wireless with mobile commerce and broadband with media, content and interactive commerce.

Large IT services and consulting firms are devoting efforts to their larger existing client base as ways to generate revenue and are adapting their portfolios to address these clients' needs.

Solution Areas in Communications

Key solution areas in the communications industry for 2001 were CRM and EBPP, as well as provisioning and mediation solutions in the latter part of the year. Much consulting and development effort has focused on mobile commerce and the areas of predictive CRM and IP billing. Developments in transaction-based billing and settlement for CPP will continue. CSPs in 2002 will increase IT initiatives to improve provisioning and complex billing systems. CSPs will turn to outsourcing, service bureau models and advanced clearinghouse capabilities to increase speed to market and offload capital expenditure. Cable service providers will grapple with digital TV signals, addressing business benefits to local-loop access and the possibilities of interactive commerce. CSPs will need mature solutions that can accommodate not only today's issues but future service offerings and product marketing.

Hot Service Lines

Development and systems integration is the top service line in highest demand from CSPs. Integrating complex business processes of the front-end BSSs with the back-end OSSs, together with legacy systems and in-house solutions, necessitates complex system-integration requirements. Flow-through provisioning has been a heated area, with CSPs experiencing high penalty fines for inept systems. Revenue-assurance strategies and solutions are other areas of top IT initiatives within consulting and systems integration. Consulting in developing new markets and new service offerings as well as charting unknown territories such as mobile commerce, IP networks, digital content and transaction-based billing. CSPs seek thought leadership from IT professional services firms.

Outsourcing is on the rise as CSPs seek ways to reduce capital expenditure and manage their finances in a more controlled environment. IT services and solution vendors in 2002 will continue to expand outsourced noncore solution offerings of customer care, billing and corporate administration.

Subsegment Focus

Many solutions in 2000 addressed specifically the emerging carriers or CLEC market with preintegrated capabilities and complete BSS and OSS infrastructure. One example of segment targeting is the Launch-Now service offering by Accenture. Many of the IT services and solutions providers are targeting the cash-flow-rich CSPs, such as the rural ILECs, to offer their services. ILECs seeking to provide local and long-distance service in the beginning of 2000 and 2001 sought the expertise of IT services and solutions providers for fast implementation and expertise.

Wireless and mobile received much attention in 2001. Many IT services and solutions providers target specific applications and solutions to address this segment such as mobile commerce. Logica is known for its expertise in mobile solution offerings.

Another untapped market segment is the cable service providers and the emerging new media players. IT services and solutions providers are gearing business models and value chains to target this segment. Digital asset management and digital rights management solutions are coming to the forefront.

Next-generation networks demand OSS solutions beyond traditional wireline requirements. IT services firms are addressing these challenges with specific solution offerings tailored to the network, such as Network Service Line by Accenture, New World Networks by PwC Consulting, and Telecom Media Networks by CGE&Y.

Vendor Revenue

IBM is the largest IT services and solutions provider to the communications industry. Estimated revenue for IBM is more than twice the revenue of its next competitor. Over 250 IT services and solutions providers generated over \$38 billion in worldwide services revenue in 2000 (see Figure 5-1).

Figure 5-1
Comparison of Vendor Revenue in the Communications Vertical Market, 2000

\$1B+	\$500M-\$1B	\$200M-\$500M	
Accenture CGEY Convergys EDS Ericsson Fujitsu IBM NEC Siemens Netwroks Telcordia (SAIC) Xerox	Alltel Information Systems Compaq HP Level 3 Communications Lockheed Martin Lucent Oracle	ADP Alcatel AMS Ceridian CGI CSC debris systemhaus Deloitte Gertronics Group Bull KPMG	Logica Marconi NCR Nortel PwC Sema Spherion TRW Unisys

103700-05-01

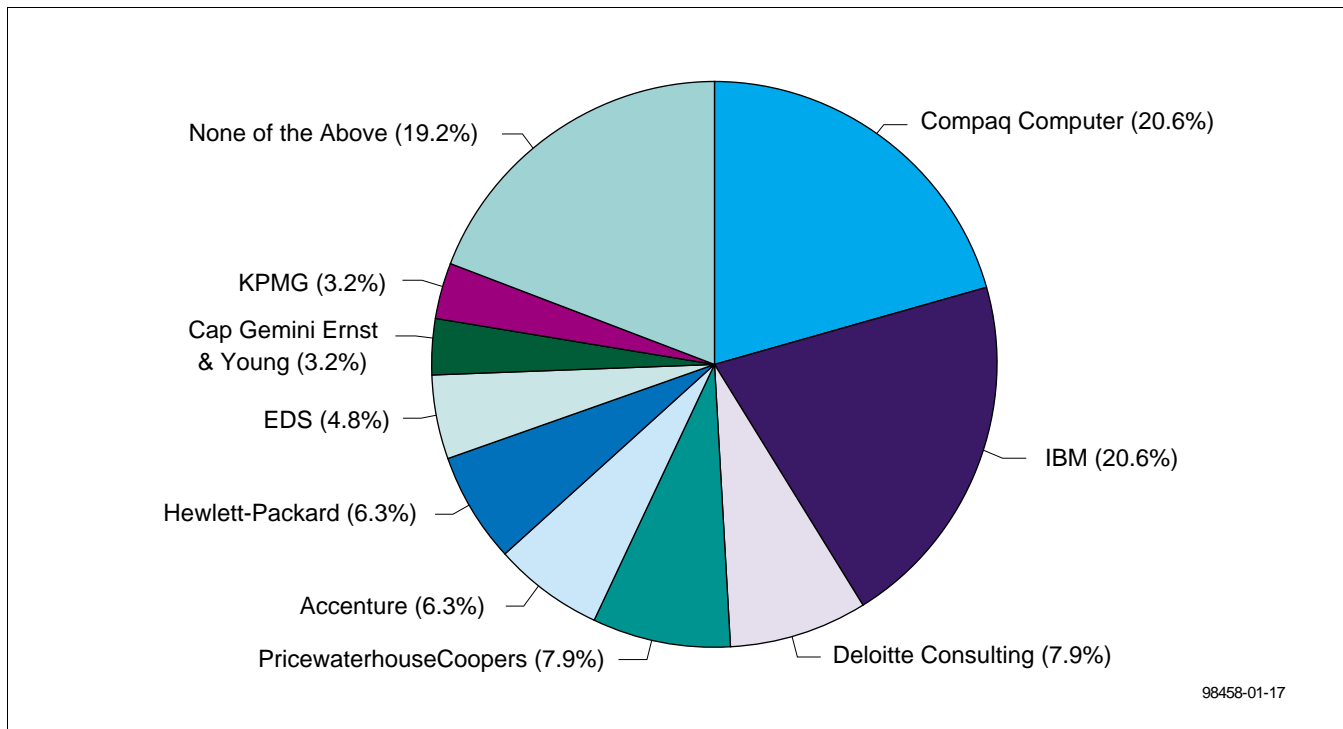
Source: Gartner Dataquest (June 2002)

Marquee Clients

Many CSPs have been known to seek the expertise, additional resources, solutions and services from IT services and solutions providers. Some carriers use several services firms to complement certain aspects of their operations. For example, BellSouth hired AMS to replace its legacy billing system, has hired Accenture in an outsourcing contract to manage its applications, and has a contract with EDS to manage its operations. Sprint has had an engagement with CGE&Y to develop two Advanced Development Centers for its internal purposes as well as outsourcing arrangement. Sprint has also contracted PwC Consulting to improve its backbone operations across its entire networks.

Figure 5-2 shows the IT services firms with which CSPs have contracted in the past two years. Twenty-one percent of our end users indicate that they have contracted with IBM and Compaq. Eight percent have utilized PwC Consulting and Deloitte Consulting's services. Nineteen percent indicate they have not utilized any of these IT services firms. As the market becomes more competitive for the IT services and solutions providers, the importance of client relations, accountability and reputation will increase.

Figure 5-2
IT Services Firms That Have Contracted With Respondent CSPs in the Past Two Years



Source: Gartner Dataquest (June 2002)

Chapter 6

Vendor Profiles

Two IT services and solutions providers in the communications industry are profiled here to provide a sample overview of vertical market expertise and strategic market offerings.

AMS

AMS is an international business and information technology consulting firm with revenue in 2000 of \$1.28 billion. For more than two decades, AMS has helped communications and media providers implement world-class billing and technology solutions focused on customer and revenue management (see Table 6-1). AMS' core billing product, Tapestry, meets communications providers' need for a technologically advanced, functionally rich suite of billing and customer care applications. Tapestry provides customer service management, order management, real-time pricing and bill rendering, with applications that can stand alone or work together to address a client's business needs. AMS also offers the leading credit and collections products for this industry.

Communications Go-to-Market Strategy

The market strategy of AMS is to deliver solutions focused on helping major and emerging carriers solve their most challenging business problems. AMS leverages a world-class consulting organization, AMS-developed software products, third-party vendor relationships and a proven systems integration methodology to deliver tangible results. Over the past two decades, AMS has built long-term relationships with some of the world's leading communications providers. AMS' extensive knowledge of this evolving competitive industry has enabled the company to assist emerging and incumbent providers as they launch new products and services and lines of business.

Subsegment Focus

AMS provides a wide array of solutions for players in the communications marketplace. In addition to focusing on enterprise and emerging companies, AMS offers solutions targeted for the specific needs of wholesale, retail, wireless and media providers. Long-term AMS clients include AT&T, Bell-South, Embratel, KPN Telecom, Lightyear, Microcell, SBC, Sprint, Telstra, Time Warner Telecom, Verizon and Verizon Wireless.

Solution Area

In AMS' New Media and Communications service line, the solution offerings include business and technology consulting services, billing and OSSs, credit and collections, CRM, e-business, and systems integration and development. The CRM solution offering integrates the critical components of customer information management, customer strategy, customer contact, customer operations and value proposition including product and segment marketing. NMC has a long history in billing development with over 25 years of solution development and implementation. The next-generation customer care and billing product, the Tapestry suite, provides a convergent solution for customer service management, ordermanagement, real-time pricing and bill rendering. The CACS family and Strata are products in their risk-offering portfolio and include risk evaluation modeling, collection organization evaluation and collections process management.

Table 6-1
AMS: Solutions Focus in Communications

Solution Area	AMS Enablers	Alliances
<p>Business and Technology Consulting Includes operational readiness assessment, technology readiness assessment, business launch, system/vendor evaluation and selection, process design/re-design, organizational development/change management, program management, training, technical implementation support, interoperability testing, and strategy and planning</p>	<p><i>Project in a Box</i> — Project management toolset <i>Best Practices</i> — Proven methodology and tools <i>Integration Factory</i> — Middleware and adapters</p>	<p>AMS leverages companywide resources including: AMS Industry Experts AMS Best Practices AMS Center for Advanced Technology AMS Solution Center</p>
<p>Billing and OSS Includes billing (retail and wholesale), customer account management, bill presentment and payment, product and service packaging, order management, service provisioning, usage collection and mediation, rating and pricing, fraud management, trouble management, and interconnection gateway</p>	<p><i>Tapestry</i> — Billing and OSS suite <i>EINcent</i> — Channel compensation management <i>INAdvance</i> — Prepaid billing solution</p>	<p>Avolent, BellSouth Intellectual Property Marketing, HP, Lucent/Kenan, MetaSolv, Nortel, Portal Software, Verizon Information Technologies and Xacct Technologies</p>
<p>Credit and Collections Includes credit risk management, accounts receivable management, collections management, and collections outsourcing</p>	<p><i>CACSeVantage</i> — Web-enabled collections management <i>BureauLink</i> — Credit information access utility <i>Strata Enterprise</i> — Decision engine</p>	<p>Afni</p>
<p>CRM Includes data mining, marketing campaign management, churn/retention/winback management, channel compensation management, segmentation analysis and tools, decision analytics, and behavior scoring</p>	<p><i>CRM Lab</i> — Integration solution center <i>Rx Lab</i> — Requirements facilitation <i>Tapestry</i> — Billing and OSS Suite</p>	<p>MarketSwitch, MicroStrategy, Nortel, Oracle, Siebel and Xchange Technologies</p>
<p>E-Business Includes e-CRM, performance reporting/dashboard, Web self-care/provisioning, personalized Web self-care, EBPP, online usage analysis, e-procurement, intranet and knowledge management, Web architecture, security, and Web site usability and analysis</p>	<p><i>Customer Care Anywhere</i> — Secure, Web-based customer care solution <i>eProcurement</i> — Web-based purchasing solution</p>	<p>Ariba, Avolent, Nortel, Seibel, Tibco, Vitria and webMethods</p>
<p>Systems Integration and Development Includes data warehousing, EAI, custom development, data modeling, workflow optimization and integration, business process integration, system and data conversion, system/acceptance testing, enterprise migration, and middleware adapter/connector development</p>	<p><i>Integration Factory</i> — Middleware and adapters <i>Product Portfolio</i> — Enterprise product manager</p>	<p>BEA, FileNET, Vitria and webMethods</p>

Source: AMS

Service Line Focus

AMS offers a wide variety of consulting, integration and business process outsourcing services. AMS' unique "360si" blueprint approach allows seamless integration of application packages, integrates processes across the enterprise, and leverages EAI capabilities. AMS performs systems integration and business integration activities at a variety of levels for seasoned carriers as well as emerging players. Systems integration for AMS is divided into two categories: "application integration" and "infrastructure integration." In the application integration approach, AMS delivers new software solutions to support the business processes by integrating into the client's existing environment. AMS addresses infrastructure integration by managing the design and implementation of the network infrastructure and computing platforms to support the business applications in a seamless and unified manner.

Geographical Focus

AMS has 51 offices throughout North and South America, Asia/Pacific and Europe.

Representative Client

A description of AMS' business with a representative client follows:

- Client — BellSouth
- Background — Established partnership in 1992
- Business challenge — Improving billing operations and operational efficiency
- Scope of solution — AMS is a key provider of billing solutions for BellSouth. In the early 1990s, AMS was contracted for the replacement of the CRIS bill functionality, replacement of CRIS pricing and rating engine, and provision of multilanguage billing. In 1995, AMS licensed its Strata product to handle credit management and segmentation. This was upgraded in 2001. In 1996, AMS implemented a procurement process management across all BellSouth procurement organizations. AMS built long-distance billing system for BSLD in 1996 through a six-year development outsourcing deal and licensed and deployed its Tapestry platform in 2001. Other AMS activities with this client include performing a requirements analysis for next-generation wholesale customer care, e-business consulting and program management.

Cap Gemini Ernst & Young

Telecom Media Networks is a global industry practice of Cap Gemini Ernst & Young, focusing on the consulting and systems integration needs of communications service providers, media distributors and creators, and large corporate enterprises leveraging next-generation networks.

TMN focuses on helping major telecom and media companies worldwide to improve the profitability of their current business models, processes and systems. TMN has more than 30 years of experience providing solutions to major telecom operators and serves over 80 percent of the world's top 50 communications companies. It has delivered over 2,700 projects worldwide to communications service providers, media distributors and media creators. TMN has nine R&D centers and innovation labs in Asia/Pacific, Europe and North America and an extensive portfolio of alliance partners. There is a dedicated marketing group for the TMN practice.

The TMN business unit is a key differentiator for CGE&Y. The unit offers both strategic and business consulting with IT implementation in the network, as well as applications management.

Communications Go-to-Market Strategy

TMN has adapted its strategy to address the current market changes and has been targeting its large global accounts with established revenue flow. Recently, TMN launched a new content-based service offering to target the wireline and wireless segments. CGE&Y is also positioning its IT outsourcing practice to address the needs of communications service providers. Outsourcing is projected to be its fastest-growing service line for 2002.

Subsegment Focus

TMN has expertise across many segments in the communications industry. The solutions are targeted to wireless operators, next-generation network providers and media companies (see Table 6-2). Estimated revenue by segments is 4 percent wireline, 40 percent wireless and 20 percent media and ISPs.

Solution Area Focus

TMN has concentrated its effort on deploying CRM solutions in 2001. Systems and network integration of billing and CRM accounted for over 50 percent of revenue in 2000. With the changes in the market, CGE&Y is focusing on revenue assurance strategies and outsourcing (see Table 6-3).

The core business areas of TMN include strategy transformation and consulting, business solutions and technology, and information systems management (outsourcing).

Table 6-2
CGE&Y: Segment Focus in Communications

Vendor	Wireline	Wireless	Cable	Satellite	xSP	Next-Generation Networks	Media
Cap Gemini Ernst & Young	M	H	M	L	M	H	H

L = low; M = medium; H = high

Source: CGE&Y

Table 6-3
CGE&Y: Solution Area Focus in Communications

Top Solution Areas	Target Communications Subsegment	Business Driver
Applications Management and Outsourcing	Tiers 1 and 2	IT effectiveness Cost reduction
"Back to Profit"	Tiers 1 and 2	Revenue assurance Cost reduction
Digital Content Management	Telecom service providers, broadcasters, publishers, music/video studios	New revenue generation

Source: CGE&Y

Service Line Focus

More than 6,500 partners are in the communications practice, including 350 at the VP level. Systems integration is the largest service line for TMN. Systems and network integration for CRM and billing accounted for 55 percent of revenue. Fifty-three percent of the TMN staff represent the system integration service line. Twenty-one percent of TMN's resources are allocated to its outsourcing practice. Sixteen percent of its staff are dedicated to the IT consulting and business strategy consulting service line.

TMN identifies its service lines as the following:

- Strategic and business consulting
- Operations support services
- CRM
- Billing and customer administration
- E-services
- Network infrastructure solutions

TMN partners with leading software, hardware and platform providers to create cutting-edge solutions for its clients. As a business consultancy and a systems integrator, TMN combines the advantages of a specific product or solution with its expertise as a systems integrator and as a driver of process change.

Technology partners include Vitria, Tibco, HP, Sun Microsystems, Microsoft, webMethods and IBM. CRM service line partners include Amdocs, Cygent, Netonomy, Oracle, PeopleSoft and Siebel. Billing and customer administration partners include ADC, Convergys, Daleen, Ericsson, Intec Telecom Systems, Lucent, Narus, Openet, Portal, SchlumbergerSema and Xacct Technologies. Digital content management alliance members include ATG, Cisco and emc2. E-services alliances include Ipin, iPlanet, Necentrex, Nokia, Openwave, Oracle and Sun Microsystems. OSS strategic alliances include Astacon, Ceon, Cisco, Oracle, Concord, Cramer Systems, Granite, InfoVista, MetaSolv, Micromuse, Riversoft, Kabira and Trendium.

Geographical Focus

CGE&Y has a strong European presence. The North American market is the second area of concentration. Of corporate revenue, 62 percent comes from Europe, 35 percent from North America, and 3 percent from Asia/Pacific. Telecom, media and networks represent 18 percent of 2000 revenue.

Global Technology and Demonstration Centers

Cap Gemini Ernst & Young operates an extensive network of global technology and demonstration centers, many of which enable TMN to showcase its solutions from any location. The solutions available are coordinated by the global service lines — thus offering a complete and comprehensive business service. These centers provide an environment in which to demonstrate leading-edge solutions, some developed in collaboration with CGE&Y partners such as Cisco, Nokia, Oracle and Sun. Clients are invited to choose to focus on implementation of an entire business process or modular solutions that solve an urgent pressure point, and the technical architectures that support the offerings are fully explained so that clients can focus on relevant applications.

Representative Client

A description of CGE&Y 's business with a representative client follows:

- **Client — Sprint**
- **Business challenge —** Sprint's expanding leadership and rapidly rising consumer demand had exceeded the company's ability to meet that demand.
- **Client's selection criteria —** CGE&Y scoped a varied service that encompassed the entire systems life cycle, including analysis, design, development, testing and implementation, as well as post-implementation and production support.
- **Scope of solution —** Outsourcing, as well as development of two Advanced Development Centers for Sprint's sole use. All delivered by TMN.

Appendix A

Glossary of Terms

Table A-1 lists the definitions of the acronyms and abbreviations that appear in this report.

Table A-1
Report Glossary

Acronym/Abbreviation	Definition
2.5G	at a stage between the second and third generations of wireless technology
3D	three-dimensional
3G	third-generation
ADP	Automatic Data Processing
AMS	American Management Systems
AOL	America Online
ASP	application service provider
ATG	Art Technology Group
B2E	business-to-enterprise
BEA	BEA Systems
BSLD	BellSouth Long Distance
BSS	business support systems
CAGR	compound annual growth rate
CGE&Y	Cap Gemini Ernst & Young
CGI	CGI Group
CIO	chief information officer
CLEC	competitive local exchange carrier
CPP	calling party pays
CRIS	Customer Record Information System
CRM	customer relationship management
CSC	Computer Sciences Corporation
CSP	communications service provider
DSL	digital subscriber line
e-CRM	electronic customer relationship management
e-procurement	electronic procurement
EAI	enterprise application integration
EBPP	electronic bill presentment and payment
EDGE	enhanced-data Global System for Mobile Communications environment
EDS	Electronic Data Systems
ERP	enterprise resource planning
FCC	Federal Communications Commission
GI	Gartner Dataquest Global Industries Cluster
GIS	geographic information system
GPRS	general packet radio service
GSM	Global System for Mobile Communications
HDT	high-definition television
HIPAA	Health Insurance Portability and Accountability Act of 1996
HP	Hewlett-Packard
HR	human resources
ILEC	incumbent local exchange carrier
IP	Internet Protocol
ISP	Internet service provider

Table A-1 (Continued)
Report Glossary

Acronym/Abbreviation	Definition
IT	information technology
M&A	mergers and acquisitions
MHz	megahertz
MRO	maintenance, repair and operations
NCR	NCR Corporation
NMC	New Media and Communications
OSP	online service provider
OSS	operations support system
PDA	personal digital assistant
PTT	postal, telegraph and telephone agency
PwC Consulting	consulting and technology service businesses of PricewaterhouseCoopers
R&D	research and development
RBOC	regional Bell operating company
ROI	return on investment
SAIC	Science Applications International Corporation
SCM	supply chain management
SIC	Standard Industry Classification
SLG	State and local government
SP	service provider
TMN	Telecom Media Networks
TRW	TRW Inc.
TV	television
VoIP	voice over Internet Protocol
VP	vice president
VPN	virtual private network
xSP	Internet service provider, application service provider or other service provider on the Internet

Source: Gartner Dataquest (June 2002)