Infrastructure and Applications Worldwide Software Market Definitions

Gartner Dataquest Guide

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GARTNER WORLDWIDE HEADQUARTERS

NORTH AMERICA

Corporate Headquarters
56 Top Gallant Road
Stamford, CT 06904-2212
U.S.A.
Tel: +1-203-316-1111
Fax: +1-203-316-6300

West Coast Headquarters
251 River Oaks Parkway
San Jose, CA 95134-1913
U.S.A.
Tel: +1-408-468-8000
Fax: +1-408-954-1780

Latin America Headquarters
Gartner do Brasil
Av. Nacoes Unidas 12901
19 andar-Torre Oeste
CEP 04578-903
Sao Paulo SP Brasil
Tel: +55-11-3443-1509
Fax: +55-11-3443-1401

EUROPE

European Headquarters
Tamesis
The Glanty
Egham
Surrey, TW20 9AW
United Kingdom
Tel: +44-1784-431611
Fax: +44-1784-268980

ASIA/PACIFIC

Asia/Pacific Headquarters
Level 7
40 Miller St.
North Sydney, NSW 2060
Australia
Tel: +61-2-9459-4600
Fax: +61-2-9459-4601

JAPAN

Japan Headquarters
Aobadai Hills 6F
7-7, Aobadai, 4-chome
Meguro-ku
Tokyo 153-0042
Japan
Tel: +81-3-3481-3670
Fax: +81-3-3481-3644

Gartner

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Authors Fabrizio Biscotti
Roger Fulton

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For More Information...

In North America and Latin America:	+1-203-316-1111
In Europe, the Middle East and Africa:	+44-1784-268819
In Asia / Pacific:	+61-7-3405-2582
In Japan:	+81-3-3481-3670
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Chapter 1
Market Statistics Overview and Methodology

Gartner Dataquest's software industry research covers key areas of the enterprise infrastructure and application software markets worldwide. Our research programs include: Infrastructure Software Worldwide (SWSI-WW); Applications Software Worldwide (SWSA-WW) and regional research programs such as Software Europe (SWSF-EU) and Software Applications Asia / Pacific (SWSF-AP).

Gartner Dataquest collects, estimates and classifies vendors' software revenue in terms of license, maintenance, subscription and other services — that is, the revenue received by the maker, as opposed to the price paid by the end buyer of the software. Our research covers software vendors worldwide by selected software categories, as defined in this guide. Based on this research, we develop and maintain a database of information on software supply by vendor, revenue, region and software segment. We are also starting to analyze supply by vertical industry, enterprise size and sales channels.

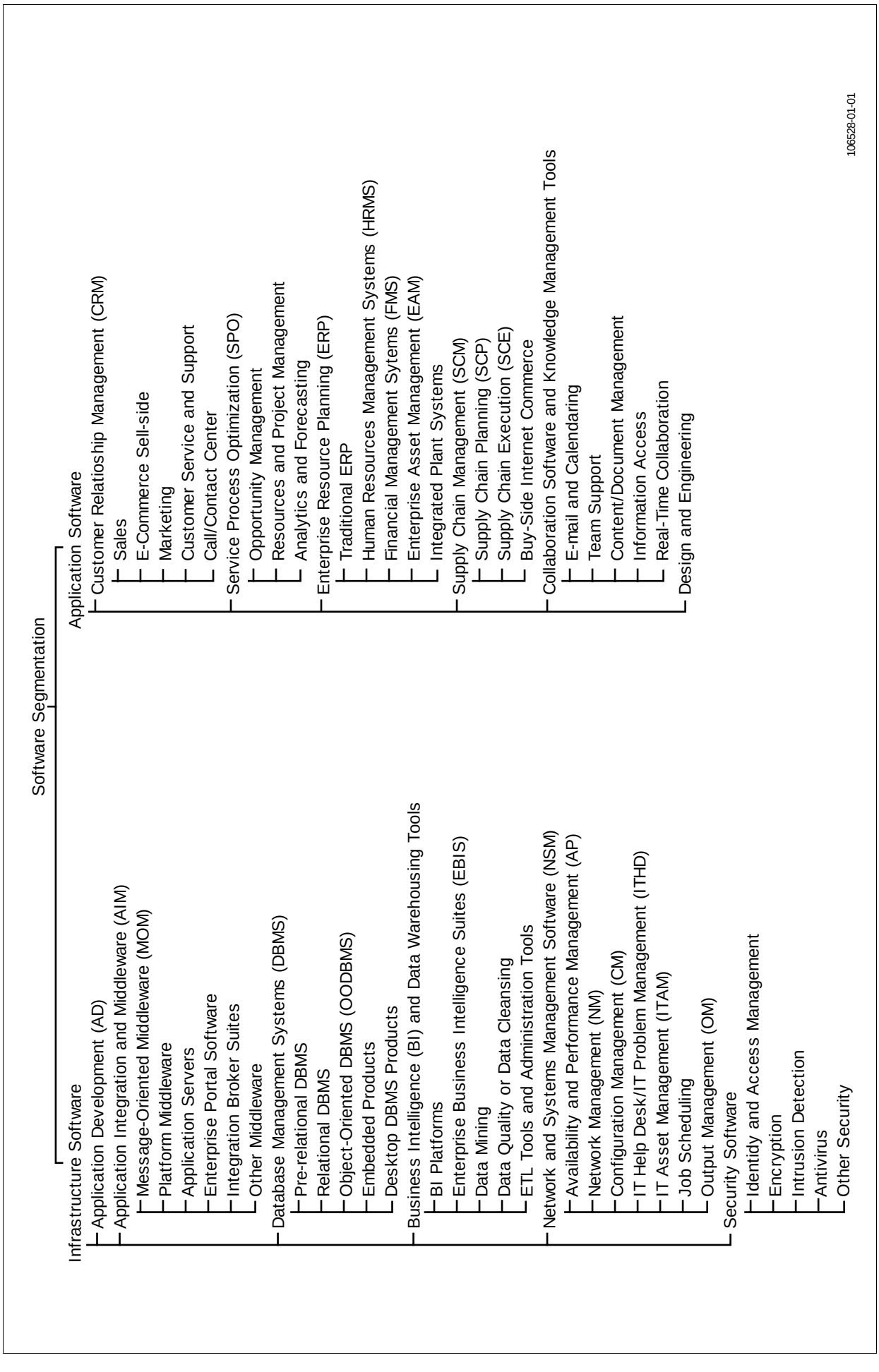
The categories for which software revenue is analyzed are comprehensively defined here for the purpose of providing clarity and guidance to survey participants and those who use Gartner Dataquest's market data. These definitions are revised, altered or expanded each year to reflect changes in software technologies and the software marketplace. Data is not collected or published for every product category defined in this document. Some subsegment details are included for clarification only. Please refer to the software markets focus area on Gartner.com to verify the sectors actively being researched.

Our surveys cover about 800 vendors active in one or more of the following product segments:

- Application development (AD) tools
- Application integration and middleware (AIM)
- Database management systems (DBMS)
- Business intelligence (BI) and data warehousing tools
- Network and systems management (NSM) software
- Security software
- Front office / customer relationship management (CRM) Software
- Service process optimization / professional services automation (SPO / PSA)
- Back office / enterprise resource planning (ERP) software
- Supply chain management (SCM) software
- E-commerce software
- Collaborative software

Figure 1-1 outlines the relative structure of these segments and their subsegments

Figure 1-1
Software Segmentation Structure



Source: Gartner Dataquest (May 2002)

Market Share Methodology

Gartner Dataquest's market statistics methodology combines primary and secondary sources. Gartner Dataquest surveys all major software industry participants in the Asia/Pacific, Europe, Japan, Latin America and North America regions. This primary research is supplemented with additional research to verify market size. Sources of data used by Gartner Dataquest include, but are not limited to, the following:

- Interviews with manufacturers, distributors and resellers
- Information published by major industry participants
- Estimates made by reliable industry spokespersons
- Government data or trade association data
- Published product literature and price lists
- Relevant economic data
- Articles in the general and trade press
- Published company financial reports
- Reports from financial analysts
- Information and data from online and CD-ROM data banks

Gartner Dataquest believes its Market Statistics data is the most accurate and meaningful available. Despite the care taken in gathering, analyzing and categorizing the data, careful attention must be paid to the definitions and assumptions. Various companies, government agencies and trade associations use slightly different definitions of product categories and regional groupings, and they include different companies in their summaries. These differences must be kept in mind when making comparisons between data and numbers provided by Gartner Dataquest and those provided by other research organizations.

Vendor revenue is allocated to individual market sectors by software type, geography, channel and others. Using data collected and estimated on the leading vendors, the total revenue in each sector is assessed for historic growth. Estimates are then made of the revenue of other vendors whose data remains uncollected to establish the total market size in each past year.

Quarterly revenue reports of a smaller selection of representative pure-play vendors are analyzed at the worldwide and U.S. level for each key sector. Pure plays are those that gain a majority of their revenue from a single software sector. This analysis is not necessarily published but used to verify shorter-term fluctuations in buying habits within each year, allowing our short-term and longer-term forecasts to be recast if they do not then reflect our current analyst opinions and predictions.

Forecasting Methodology

In general, Gartner Dataquest forecasts are developed in accordance with a multi-step methodology. The details of this methodology are formally discussed elsewhere. It is sufficient to note that the methodology prescribes a highly structured approach to forecasting that involves three broad process steps. In the first step, the latest available market data is carefully reviewed and compared to the most recently completed forecast. The methodology then directs the formulation of precise assumptions about the future with consideration given to factors that could cause the forecast to stray in one direction or the other and to potential market discontinuities. On this score, the methodology commands forecasters to consider the complete range of influences that can 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 in Gartner Dataquest's analyst community. An integral part of this final step involves comparing forecasts in one sector to those in related markets up or down the value chain.

Gartner Dataquest's structured methodology leaves specific issues of technique open to forecaster discretion. In general, Gartner Dataquest uses a variety of forecasting techniques in its forecast efforts, depending on the product or technology being forecast. Experience has shown that sole reliance on sophisticated statistical techniques tends to produce inferior forecasts. Consequently, we use a mix of quantitative statistical and qualitative judgmental methods to generate forecasts. All-in-all, statistical techniques are heavily used in the early parts of our process to anchor our preliminary forecasts in historical fact. Judgmental techniques are then used to shape the final forecast according to the consensual feel of analysts for the market.

Forecasting Goals

Gartner Dataquest aims to provide clients with forecasts that are useful, credible and as accurate as possible. Because it is impossible to always be right, it is important to provide clients with details of the assumptions that drive the forecast. Gartner Dataquest realizes that clients evaluate its credibility by evaluating the historical accuracy and the quality of written forecast assumptions. This is not to imply that a conservative approach is called for. Where Gartner Dataquest fails to forecast a completely new market, we have failed to inform the client of the opportunity. Gartner Dataquest uses tools and processes that maximize Gartner Dataquest's overall presence in the market research industry by sharing processes and time frames so that a unified, coherent picture of the IT market is built.

For several years, the process of developing IT market forecasts has been undergoing continued refinement at Gartner Dataquest. Today, the process draws upon Gartner Dataquest industry experts and client feedback to devise a forecast that is consistent internally and meets client expectations. The process assimilates vast amounts of disparate and aggregated data that are molded into a forecast that is scrutinized and scrubbed by many seasoned analysts. Forecasts are reviewed regularly to ensure they reflect current analyst opinion. The quarterly analysis of a sample of key vendors is used to fine-tune the forecast, if necessary.

Chapter 2
Software Segmentation

Software Market Measurement

Software vendors are creating new ways to sell their software and related skill-based services (application service provider [ASP], hosting, OEM). Counting only new license revenue gives a distorted picture of the software market, omitting key sources of new business. We analyze the full value of software revenue whether sold as a product, a license or a subscription service. The key criteria is to count only what the customer buys as part of the software contract rather than what ingredients the vendor mixes to deliver the contract. The contract is always some mix of:

- Use of the software (programs, code, fixes, upgrades, results)
- Access to software skills (support and professional services)
- Other offerings (for example, hardware or financing services) which are excluded from our analysis

IT services, which are often supplied to add value to a software purchase, are described in a similar guide and reported in other Gartner Dataquest research programs.

Our data collection only recognizes software revenue as it is billed, for example, as reported to regulators such as the Securities and Exchange Commission (not Pro Forma reports). Some of the most common terms used include:

- Software — Ready-to-use digital computer programs
- Software vendor — Creates software for sale or rent and retains the intellectual property rights (IPR)
- Software offering — A product or a subscription for use during an agreed term (months or years) or in perpetuity
- Software license or subscription — The dominant contract forms of usage constraint, limiting one or more of: the number of copies, user seats, concurrent users, computer platforms, capacity, performance, availability, time, location, departments or enterprises
- Software maintenance offering — Extends the operational use of software and can include any of the following:
  - Software fixes — Software for minor or critical improvements to operational software
  - Software upgrades — New versions of the software which reflect vendor-added-value
  - Software support — Access to software skills and information to help overcome problems
- Software revenue — Vendor revenue associated with delivering software IPR, and can include fixes and upgrades but not skills
- Software skills revenue — Vendor revenue associated with skills-based services, support or professional services such as consulting, development, integration or management

Product Market Definitions

The software market categories covered contain a wide variety of products and technologies. To better understand the range of vendors and products included in this program, this document provides a taxonomy for the market and definitions of the specific categories. Note that the inclusion of a category in this list does not indicate the level of coverage (if any) committed to it.

The categorization of software infrastructure products and application packages poses significant challenges, including the following:

- Products are very often used in ways that differ from their intended purpose.
- The positioning of a product by a vendor may not match the actual functionality of the product.
- Product sets and suites are evolving and devolving. Products are, therefore, moving across category boundaries and new categories must be created.
- In many markets, the lines between product categories are blurring.
- Important attributes, which may be of interest in their own right, do not necessarily constitute a unique market.

Gartner Dataquest categorizes products into mutually exclusive groups to minimize the double counting of vendor revenue. Chapter 5 gives details of emerging software market opportunities which don't fit the standard categories listed in Chapters 3 and 4.

Gartner Dataquest's classification of a product takes into account a variety of factors, including the following: the product's technical features, target audience, competitive positioning and perceived usage of the product by customers. Wherever possible, we intend to position a product within one specific category. However, in cases where we and the vendor see the product being used in multiple categories, percentages of the total license revenue will be allocated to the appropriate categories.

Chapter 3
Infrastructure Software Definitions

The focus for Infrastructure Software (IS) is to increase the performance of IT resources, so in this category, we gather together software primarily for use by IS professionals.

Application Development

No detailed AD market analysis is planned in 2002. These definitions are only for clarity of the terms used.

Development Life Cycle

Modeling and Design

- Data and process modeling — Includes logical (entity relationship) and physical (table, column and key) design tools for data. Physical data modeling is becoming almost mandatory for applications using relational database management systems. Strong support for physical modeling is paired with facilities to manage multiple models, to submodel or extract from larger models, and to reverse-engineer a database design from existing tables. Developers are a secondary market often targeted with a subset of the complete functionality.
- Object-oriented analysis and design (OOAD) — These tools are based around Unified modeling language (UML), Booch, Rumbaugh, and similar OO analysis and design methodologies or notations. They typically defer separation of process and data until late in the analysis process. UML has emerged as a de facto standard notation for these tools. Adoption is being driven by the acceptance of component-based development techniques. Originally, the province of the technical developer, in the aerospace, telecom and embedded system markets, OO analysis methods and tools are breaking out into commercial IT and Microsoft communities. Database physical modeling is often deferred to partner tools.
- Computer assisted software engineering (CASE) and development environments — Originally defined to include tools that support a methodology for the analysis, design and generation of technical, as opposed to commercial, software. The term CASE is used less frequently today, but no clear alternative naming convention has emerged.
- Analysis / design and modeling tools — A set of tools that allows a developer to define high-level system requirements in a rigorous way. It includes tools that support the collection and translation of requirements into models of data, processes and business rules. Also included are integrated products that provide a set of tools that encompass all or most of the aspects of upper, middle and lower CASE with the data model stored in a common repository. These tools should be a sharing of information between design, development and deployment, and integrate with and output to the build process. There are few products that provide all required functionality today, but vendors are beginning to team to provide a total integrated environment.
- Application building blocks (ABBs) — Reusable business objects, application templates, models and technical components (also known as componentware). These items are used as building blocks for applications developed primarily, or partially, as assemblies of components. ABBs form the inventory for a hybrid build / buy model which provides an alternative to buying packaged applications or building applications from scratch. ABBs are categorized into four classifications — logical design, physical design, runtime and full (vs. partial) template solution types. ABBs are also split into two categories — cross-industry and vertical.

Post-Design Phases

Includes software supporting:

- Programming and component assembly
- User training
- Implementation and rollout
- Maintenance and modification
- Documentation

Project and Process Management

Includes software supporting:

- IS project management
- Process management and time tracking

Testing and Software Quality

Includes software supporting:

- Automated software quality (ASQ)
- Other software testing

Development Environments and Suites

Language-Oriented Integrated Development Environments (IDEs)

Typically, these are development environments built around a compiler and a language such as COBOL, C / C++, Fortran, ADA and Pascal, among others. Java language IDEs are included in this category. Language-oriented IDEs generally include graphical user interface (GUI) builders, debuggers, editors and other utilities that are integrated into the environment. There is a fine line between these products and products often categorized as rapid application development (RAD). RAD products typically have more emphasis on visual composition and less emphasis on the specific language and the standard edit, compile and link process.

Model-Driven Development Environments

These typically support an architected, model-based approach to application development and have characteristics that include the following:

- Layered architecture
- Model-driven
- Reuse strategy
- Business process reengineering and formal methodology
- Information warehousing
- Object-oriented analysis / object-oriented design, computer-aided software engineering tools / data administration, or both

Development Environments

Included are tools that use a fourth-generation language (4GL), a visual programming model or some higher level of definition beyond pure specification of code, possibly via a design specification.

- Client/server development — The tool should enable the creation of client-side and server-side application code, supporting two-tier or multi-tier, traditional or component-based development where the business objects can be partitioned to reside where most appropriate. The tools should support a scalable, rapid development methodology using visual tools.
- GUI cross-platform code generators — This tool typically allows the specification of a GUI through a visual composition facility and then generates the required code and stubs to be filled in by the developer.
- Visual development/RAD — These tools typically allow the specification of a GUI and much of the required business logic through a visual composition facility, and the support of a component model.
- Traditional structured — Formerly defined as "E-CASE lite," these tools aim at small enterprises or large workgroups (20 to 50 developers) that want integrated, repository-based, model-driven methodologies not possible with most workgroup modeling tools, yet wish to avoid the cost, long return on investment (ROI), and infrastructure issues associated with enterprise-class development products (E-CASE).

Protocols, Standards and Languages

- Java
- Visual Basic
- Open-Source
- Other languages

Infrastructure Tools

E-Business tools

- Content management
- Production and configuration
- Web site development suites
- Web site analysis and measurement
- Personalization
- Authoring, graphics, video

Embedded Software Tools

This software is researched in Gartner Dataquest's Design and Engineering Worldwide cluster. Please see the Gartner Dataquest Guide "2001 Technical Applications Software Market Definitions" (SOFT-WW-GU-0002)

Application Integration and Middleware

AIM is defined as the system software or runtime infrastructure used to provide intra- and inter-application communication. Intra-application middleware is used for the construction of individual multi-tiered applications; inter-application middleware is used for communication between individually designed applications. Middleware is typically layered between an application program and the operating system and network transport service.

In the IT marketplace, AIM is often referred to as enterprise application integration (EAI).

Message-Oriented Middleware (MOM)

The popular stand-alone (un-embedded) communication middleware products on the market are either MOM or a combination of messaging and other forms of middleware. Unlike remote procedure calls (RPCs), these products do not compete directly against platform middleware for routine, synchronous, intra-application roles. Rather, they complement platform middleware by providing capabilities that are missing or not well supported in platform middleware. (Some platform middleware products, such as Java application transaction processing monitors (TPMs), embed a subset of messaging and queuing functions.) MOM's strengths are in connectionless communication, "store-and-forward" (queuing), guaranteed delivery, broad platform support (run on many operating systems) and, in some cases, content- or subject-based addressing (for example, publish-and-subscribe). Unlike RPCs or platform middleware, they may also support one-to-many (1:mn), many-to-one (m:1) or many-to-many (m:mn) delivery. Such features are helpful for some intra-application and many inter-application roles.

Platform Middleware

Platform middleware includes communication middleware plus resource management services for hosting application program logic at runtime (for example, managing memory and operating-system processes, loading programs from disks, starting and stopping programs, load balancing among programs and responding to errors). The earliest form of platform middleware were the TPMs. Products such as IBM's CICS and IMS and Unisys' TIP have been used on mainframes since the late 1960s, and Unix TPMs, such as Tuxedo, originated in the 1980s. Over the years, these products added support for distributed servers, intelligent desktop clients (rather than dumb terminals) and Web-browser clients, and are now adding component-style programs such as JavaBeans. There is little essential technical difference among most of these TPM products and the newer flavors of platform middleware, such as application servers and object request brokers (ORBs); for example, they can all act as application servers.

Platform middleware is evolving further because of the growing interest in portal services, such as personalization and content management. Numerous vendors offer portal services as separate products, meant to complement Web servers and Web application servers. Some of these portal software vendors are moving to bundle application server features to produce an integrated portal server. Simultaneously, and from the opposite direction, application server vendors are beginning to embed their own rudimentary portal services to produce portal server platforms. This will result in another example of convergence, although the two product types are not equally strong in the different dimensions.

Enterprise Portal Software

This is a single gateway via a corporate Intranet or Internet to relevant work-flows, application systems and databases — integrated using extensible markup language (XML) and tailored to the specific job responsibilities of each individual.

Application Servers

An application server is a modern form of platform middleware. It is system software that resides between the operating system on one side, the external resources — such as DBMS, communications and Internet services — on the other side and the users' applications on the third side. The function of the application server is to act as host (or container) for the user's business logic while facilitating access and performance of the business application. The application server must perform despite the variable and competing traffic of client requests, hardware and software failures, distributed nature of the larger-scale applications and potential heterogeneity of data and processing resources required to fulfill the business requirements of the applications.

A high-end online transaction processing (OLTP)-style application server delivers the business applications with guaranteed levels of performance, availability and integrity. An application server also supports multiple application design patterns, according to the nature of the business application and the practices in the particular industry for which the application has been designed. It typically supports multiple programming languages and deployment platforms, though most have a particular affinity to one or two of these. Some application servers implement standard application protocols, such as J2EE, and others are entirely proprietary. At present, the proprietary application servers are typically built into packaged applications, such as portals and e-commerce solutions, and are not offered as stand-alone products. These application servers are not estimated in this report. Only J2EE compliant application servers are estimated.

Integration Broker Suites

By definition, an integration broker provides transformation and intelligent routing. The broker itself is just one component of a suite of related middleware tools, which may also support business process management or a message warehouse (i.e., a mechanism to store and retrieve messages to be retransmitted or analyzed later). Broker suites must have a repository for metadata descriptions of the input/output message formats (i.e., a message dictionary) and transformation/routing rules. They also include development tools for defining transformation rules and routing flows, security facilities, and administration and monitoring facilities to manage broker configuration. Virtually all provide adapter development tools, off-the-shelf adapters for packaged applications and their own MOM, in addition to gateways to external platform middleware and MOM products. An integration broker may run directly on the operating system or be hosted by platform middleware (for example, a TPM or ORB).

Other Middleware

Other categories of middleware, not directly covered in the market research include the following:

- RPCs — Communication middleware products, which provide synchronous, request/reply communications via RPCs.
- Data management middleware — Products that enable programs to read from and write to databases or files on other computers.
- Open database connectivity (ODBC) drivers, database gateways, products for remote file access, and other products oriented toward providing communication of queries and data to and from a DBMS are examples of data management middleware.
- Web-to-host middleware — Products that facilitate the support of HTML or Java-based clients from host-based applications.

ABBs — Also known as componentware: Reusable business objects, application templates, models and technical components.

Business Intelligence and Data Warehousing Tools

Products that store, access and analyze data in a data warehouse. This includes online analytical processing (OLAP) tools, executive information systems, query-and-reporting tools, multidimensional tools and decision support systems.

BI Platforms

Offer complete sets of tools for the creation, deployment, support and maintenance of BI applications including OLAP servers

Enterprise Business Intelligence Suites (EBIS)

These provide the technical underpinnings for delivering BI tools such as data reporting and analysis, often via the Web

Data Mining

These are tools involved in discovering meaningful new correlation, patterns and trends sifting through large amounts of data stored in repositories, using pattern recognition technologies and statistics.

Data Quality or Data Cleansing

These are tools for improving the integrity of data in a database BI

Extraction, Transformation and Loading (ETL) Tools and Administration Tools

These are functions performed when pulling data out of one database and placing it into another of a different type

DBMS

A DBMS is a product used for the storage and organization of data that typically has defined formats and structures. DBMSs are categorized by their basic structures and, to some extent, by their usage or deployment. For reporting purposes, a product must be assigned to a single category, which may include the following:

Pre-Relational DBMS

DBMS architectures were defined before relational theory became widely used. The DBMS generally is based on either a hierarchical structure or a navigational (also known as network) structure. The pre-relational DBMS generally runs on a mainframe system or on an operating environment provided by a single computer systems' vendor. Pre-relational DBMSs are typically highly optimized for large data volumes and high transaction-processing performance.

Relational DBMS (RDBMS)

This is an architecture based on a formal method of constructing a database in rows and columns using rules that have formal mathematical proofs. Relational databases originated in the work of E.F. Codd. Today's RDBMSs may also be extensible — that is, they may provide options for extending the DBMS with new data types on top of their relational foundation.

OODBMS

This is an object oriented DBMS model that allows the data to be defined and manipulated as objects via methods that hide the base data. The first wave of OODBMSs has added relational interfaces to an object-oriented foundation.

Both the pre-relational and relational segments will be subsegmented to identify the products most commonly used in the embedded market and those typically considered as desktop products.

Mobile Embedded Products

Mobile embedded products, for the purpose of this subsegment, are defined as products targeting the evolving mobile computing environment. The database product may be bundled with sets of application development tools in order to provide a complete development environment, or the development tools may be acquired separately from value-added resellers (VARs) and OEMs. The DBMS should be capable of being installed invisibly when the application is installed.

Desktop DBMS Products

Desktop products, for the purpose of this segmentation, are defined as products that contain not only the database engine but also the tools, such as a forms generator and report writer, that are used to create a complete application environment. Desktop DBMS products are typically used on single-user systems running the DOS, Windows or Macintosh operating systems.

Network and Systems Management Software (NSM)

NSM is intended to represent all of the tools needed to manage the provisioning, capacity, performance and availability of the computing, networking, and application environment. Storage management tools and security products are covered in separate reports. Gartner Dataquest divides the NSM market into ten major segments. (Note: Not all these segments may be estimated or forecast every year. Not all these segments may have operating system breakouts estimated or forecast every year.)

DBMS Management

Included here are tools for monitoring and diagnosing problems with databases, for analyzing and improving the performance of databases, and for routine administration of databases, including configuration changes. Examples include DBMS monitors, SQL turners, space tuners, reorg tools, utilities, loader/unloaders and many others, as well as suites that may include several of the above.

Application Management

Included here are tools for monitoring and diagnosing problems with packaged (and custom Web) applications, for analyzing and improving the performance of applications, and for routine administration of applications, including some configuration changes. Examples include tools for managing MQ Series, email servers, Web servers, J2EE and .NET application servers, ERP applications, CRM applications, and e-commerce applications, etc. Packages most often targeted by vendors include SAP R/3, Domino, Exchange, Siebel, BEA Web logic, and IBM WebSphere. Some vendors offer suites that manage the infrastructure behind the app as well as the app — thus they may include management of DBMSs, systems and network links as all-inclusive features.

Availability and Performance, other NSM

These are software products, including enterprise-wide event consoles, that are used to monitor and manage the performance and availability of systems, networks, (and increasingly storage) mainly beneath the DBMS and Application layers. (Management of databases, applications and networks is covered in separate categories with those names). In cooperation with separate security products, event management / fault management products can recognize and trigger a response to breaches in security via separate security products**.** Event management tools also collect statistics about events and usage and may perform historical trend analysis. Sysadmins can view this analyzed data in near real-time and use the data to respond to conditions displayed and to guide their reassigning of resources using separate configuration management tools. Event management (fault management) tools are used to collect, report and diagnosis problems (faults) identified in the environment. Root-cause analysis tools for networked systems are in this segment. This segment also includes IT operations and administration “policy” software which creates and manage lists of users (in cooperation with security and HRMS products) and lists of the environment's elements, determines appropriate access policies to those elements on a per user or "role" basis, and audits adherence to those policies. Tools for internal chargeback and capacity planning, as well as tools that design an internetwork are in this segment. Performance monitoring and analysis products, not covered in the Service Management or Network Management are included here. (Note: Last year the term availability and performance overall was used for a roll-up category consisting of availability and performance and service management. The equivalent roll up this year, consists of the categories database management, application management, availability and performance and service management.)

Service Management

These products provide a service level view and analysis of end to end performance (and often of availability as well). This category is evolving towards a business activity view of the IT and Web infrastructure (Business Activity Monitoring). This logical, higher level management layer focuses on the quality-of-service and service-guarantee issues linked with underlying more granular network, system, Web and application management. SLM software is sometimes used in in-house or is outsourced from a third party provider, such as a telecom carrier or Web hoster. SLM tools focus on comparing the expected quality of resource availability for a “service” with actual results. The tools use historical data and include features such as baselining, trend analysis, historical usage analysis, service-level reporting, and, in some cases, interfaces to chargeback and billing systems. Included here are service level agreement tools, and customer response time measurement tools. Performance management tools that do not offer a service view are covered in the availability & performance category.

Network Management

These are applications designed to isolate and resolve faults on the network, measure and optimize performance, manage the network topology, track resource utilization over time, initially provision and reconfigure elements, and account for network elements . Suites that include fault monitoring and diagnosis, provisioning / configuration, accounting, performance management, and TCP / IP “application” management -- but only for networks -- are also included here.

This network management segment is intended for products that are mainly or entirely network-oriented and used primarily by enterprises. Tools exclusively for the telecom vertical, including business support service (BSS) and operation support service (OSS) suites are tracked in a separate Gartner service. Revenue of products being sold to both the enterprise and carrier segments are included here.

Configuration Management

Included here are stand-alone products and suites of products that can initially provision / configure desktops, servers and / or mobile devices and then manage the change of configuration settings, software and increasingly the files and data on those elements on an ongoing basis. Included in this category are standalone products for software distribution, remote control, software packaging, personality migration, software usage metering, and mobile device management. Also included here are product suites that lead with provisioning and configuration management, but may include features such as asset discovery, automated back-up, bare metal boot, self-healing functionality, change management, data synchronization or even help desk features. When those features—asset discovery, automated backup, bare metal boot, self-healing functionality, change management, data synchronization and help desk — are sold as stand-alone products, those revenues are in other categories, not CM. This new category replaces the Desktop Management (DTM) category. The product classification boundaries have changed. CM includes server configuration that was in Availability and Performance last year. CM now includes standalone change and configuration management products, which were part of the old Consolidated Help Desk category.

CM is for production systems only and is distinct from software configuration management (SWCM). SWCM manages the change and configuration of development systems and is used primarily by the programming staff rather than the systems admin staff. Some SWCM and CM vendors are partnering to provide a linkage between systems. Also the CM category does not include vendors that position their products primarily as electronic software distribution (ESD)or as content distribution(CD). However, once again, some vendors are partnering across category lines, pointing to a potential market convergence in the future..

IT Service Desk

ITSD products can range from simple call tracking / trouble ticketing products to sophisticated solutions for the complete business management of an IT department's or an outsourcer's people, processes and tangible assets. Most products take advantage of automated escalation policies, and regularly integrate with network and system management systems for links to inventory repositories, configuration information and remote control. The most sophisticated products also may link to dominant brands of corporate portals, workflow engines, procurement modules and HR systems, or include these as proprietary features. Only products that are positioned as IT services desks are included in the ITSD category. For example, portals that include self-service desks are considered portals products, which are tracked in AIM. Products positioned as workflow platforms are also tracked in AIM as integration brokers.

Some service desk / call center vendors have technology that is marketed to the internal IT department and to the external customer support department. The fraction of vendor revenue from customer support software is tracked in the SWSA service as CRM software. Basic functions of an ITSD include call management, problem notification and resolution tracking. Virtually all products support add-on knowledge modules as part of end-user and systems admin problem resolution activity. Self-help involving a knowledge search is included here when it pertains to IT. (Stand-alone automated restore, also called self-healing —where the end user or help desk personnel are not involved — is part of the CM category.)

ITSD tools are often routinely used to orchestrate personnel to manually execute IT change projects, such as card swaps, hard drive swaps, etc. However, "change management" also means automated or scriptable configuration change management, which is part of the CM category. Project management software is also often used for coordinating people-intensive change projects. It is a sub-category of AD tools and is not covered in NSM. Change management is also practiced by programming teams during the development process using software configuration management tools. Thus, change management is an activity that may be addressed by ITSD, CM, SWCM or project management software as well as other tools. Previously, this ITSD category was called consolidated service desk. The boundaries have changed. Stand-alone change and configuration management products that were in CSD are now in the CM category

Asset Management

This is a new category this year and includes products that provide one or all of the following: asset discovery, asset management, an asset database / repository, asset portfolio management, tracking of purchases, leases, contracts and disposal pertaining to IT assets including hardware and software. Links to general ledger accounting systems modules like the capital asset ledger are common. Integration with capacity products, user administration products and order entry and e-procurement is desirable. When paired with an IT service desk, asset management can become part of a complete solution for the business management of an IT department or IT outsourcer.

Job Scheduling

These are tools that supervise a logical process (several jobs or programs) as they execute in a mainframe or distributed environment, providing scheduling and dependency management of the process as it runs, mainly in sequence, across disparate systems, geographies and applications. The tools in this category are used for "batch integration" of heterogeneous applications and data stores. (Workload Management products -- used to divide and distribute the workload of a single job, in parallel, over multiple systems or processing units so it can complete faster. -- have been moved from NSM to the Operating Systems category.)

Output Management

This includes the products to support document, report and file output to printers, faxes and other viewing media, such as the Web. Typical products can translate between different output formats, including popular billing formats. Many have repositories to store output files for Web viewing or other on-demand delivery. Some also deposit and retrieve output from long-term archives. Print management is a subset of output management that focuses only on print management.

Security Software

Security software is the sum of all the segments below and represents all software needed to control and monitor access to internal and external resources. This includes products for security management, such as access control and administration as well as operational security products, such as antivirus, encryption and intrusion detection products.

Identity and Access Management

Identity and access management software products are used to create and manage user identities and to provide access to system resources based on predefined criteria. This segment includes Web-based management products as well as single-sign on (SSO) and other secure provisioning products.

Encryption

Encryption software products provide a mechanism to systematically encode and decode data so that an unauthorized party cannot decipher it, and includes the following subsegments.

Mobile Encryption

Mobile encryption software products are used to encrypt data on the hard drive of laptop computers and other mobile devices, such as personal digital assistants (PDAs) to prevent unauthorized access in the case of theft. Encryption products for cell phones are not included in this segment.

Public-Key Infrastructure (PKI)

PKI software products are necessary to manage and enable the effective use of public-key encryption technology

Antivirus

Antivirus software products scan, detect and correct viruses and malicious mobile code at the desktop, at the server level and, increasingly, embedded in other devices in the network.

Intrusion Detection

Intrusion detection products monitor network traffic through observation of actions, security logs or audit data to detect, identify and isolate attempts to make inappropriate or unauthorized access to system resources.

Other Security

This segment contains the rest of security software, including but not limited to such products as firewall and virtual-private networks (VPN), Web content security and security

Storage Management

This software is researched in Gartner Dataquest's Storage Worldwide cluster. Please see the Gartner Dataquest Market Statistics "Storage Management Software: 2000 Market Share" (HWST-WW-MS-0102) for full descriptions. Subsegments include:

- Storage infrastructure products
- Data management products
- Enterprise storage resource management

Chapter 4
Application Software Definitions

The focus for application software is to increase the performance of business or personal resources. It enables users to leverage the power of computers toward achievement of their business, professional or personal objectives or goals. Gartner Dataquest includes in this category:

Customer Relationship Management

Gartner Dataquest believes that CRM technologies should enable greater customer insight, increased customer access, more effective customer interactions and integration throughout all customer channels and back-office enterprise functions. CRM is a business strategy whose outcome optimizes profitability, revenue and customer satisfaction by organizing around customer segments, fostering customer-satisfying behaviors and implementing customer-centric processes. Most enterprises have a CRM strategy, and the majority use some form of CRM software to achieve this strategy. The CRM software sector, part of the enterprise software market, provides functionality to enterprises in four segments: sales, marketing, call/contact center, and customer service and support. The subsegments listed below are defined as components or functions within a CRM application and are not reflective of a separate market or in its entirety.

Sales

Account Management

This includes client account management functions, including cross-functional capabilities (such as access to customer service, sales and accounting personnel), multi-organizational level capability and overall client account profile.

Sales Automation

This is a suite approach to CRM sales automation, covering account management, contact/opportunity sales intelligence, quoting, proposing, pricing, commission, configuration, order entry and order tracking.

Contact/Opportunity Management Systems

This is part of a suite or a stand-alone, and its functions include entry and tracking of customer profiles, contact information and some relationship capabilities.

Sales Configuration

This is an application focused on configuring complex products, used by sales representatives or customer service agents in an up- or cross-sell function.

Sales Compensation

This is an application that captures sales orders, and calculates and tracks commissions and bonuses by sales agent, product, region or other category.

Point of Sales

This is an application that records a sales transaction at the point of sale, usually a cash register or order-entry function on a Web site.

Partner Relationship Management (PRM)

These are applications that consolidate data and transactions, set business rules and track activity, typically used to manage channels partners, distributors, alliance or strategic partnerships, and often a portal to allow bi-directional information flow and communications between partners.

Merchandising Software for Retailers

This is an application that provides functionality to enable store-level inventory control, purchase order management, merchandise planning, open-to-buy, automated replenishment, returns to vendor, sales analysis, pricing management and category management.

B2C Sales Applications

These are sales systems designed for consumer interaction.

E-Commerce Sell-Side

E-commerce sell-side (B2B and B2C) enterprise software applications (which falls somewhere in between SCM and CRM) offer manufacturers and retailers the ability to sell, service and market their products to customers through the Web and channel partners. Sell-side software solutions also enable enterprises to automate the Web sales process and customer experience, gain insight into customer behavior and preferences, improve visibility into channel activities and performance, and improve customer satisfaction and loyalty.

The sell-side e-commerce software market segment has expanded and is comprised of sell-side pure play (a software product without bundled commerce or a database server) and sell-side bundled suites in the following subsegments:

Marketing Management

This allows sellers to collaborate with suppliers and channel partners to plan marketing campaigns and promotions.

E-Customer Service

This allows the seller to provide direct, Web-enabled customer service via various methods including the Internet, fax and voice.

E-Sales (Interactive Selling System)

This responds to customers richly, intelligently and without the necessity of constant human interaction, although allowing for it when required. It is for selling in environments other than the direct Web site.

E-Commerce Content Management

This handles the creation and posting of marketing and corporate content to a complex Web site without recourse to FTP or other non-business application intervention.

E-Catalog Management

This manages a catalog, even though its genesis is in multiple repositories and its state is dynamic, including pricing and configuration, which is unique to customers.

Order Management

This deals with the capture, parsing and administration of order information, including its export into legacy systems and communication with those systems to surface ongoing order status back to end-customers.

Channel Management

These are new communication links and integrated content management automation designed to make the channel partner process more time and cost efficient.

E-Marketplace or Net-Exchange

These include content management, communication links, etc. They can provide a Web-enabled link to a trading community in which buyers and sellers can transact. This is only a functional component, and not a pure-play e-marketplace application.

E-Business Analytics/Personalization

These measure and understand the circumstances that drive e-business to discern patterns of sales and profitability.

Mobile

This personalizes and extends sell-side solutions to mobile users.

E-Payment/Integration Infrastructure E-Financial Supply Chain

- Purchase order financing
- Payment and settlement
- Payment processing
- Global trade
- Letters of credit
- Internet bill presentment and payment

Mobile E-Commerce B2B E-Procurement

- Peer-to-peer (P2P) retail
- E-finance
- E-bill payment

Auctions B2B and B2C Proxy bidding

- Dynamic interfaces
- Asynchronous notification
- Administrative interface
- Reverse Auctions

Marketing

Customer Management

These are applications that allow prospecting, segmentation, campaign management, multi-channel interaction, multi-channel personalization, event-driven and e-marketing.

Resource Management

These are applications that allow strategic planning and budgeting, program management, creative development and distribution, content management, media planning and exectution, events coordination and resource management.

Analytics for CRM

This is an application providing measurement and reporting, predictive modeling, profitability and optimization.

Brand and Product Management

These are applications that provide for trade promotion, product development management and market research.

Demand Network Management

These are applications providing content distribution, trade promotion and lead management.

Customer Service and Support

Customer Service

These are CRM application or functions designed to allow employees or agents of a company to support the clients directly, usually within a call or contact center, typically non-product support focused on service that is business related (such as dissatisfaction, problems with shipment, billing).

Customer Support

These are CRM applications or functions designed to allow employees or agents of a company to support the clients directly, usually within a call or contact center, typically focused on clients' product usage, implementation, and problem resolution.

Field Service Dispatch/Service Management

These are applications designed within a CRM environment that enable agents to diagnose problems categorically, identify resource and dispatch it to client with proper tools or materials required for the specific problem

Problem Resolution/Trouble Ticket

This is a help desk system used in customer support enabling agents to identify and track problems, often with functions that assist in problem resolution (such as knowledge tools, FAQs and escalation ability).

Diagnostics

These are CRM application or functions that assist in diagnosis of complex problems, typically used by customer support agents.

Call/Contact Center

Universal Queue Management

This is a software application providing multimedia connectivity in a universal mode to contacts through telecommunications, live chat and e-mail.

Predictive Dialers

This is a software application designed to enable outbound calls from a large contact database containing name and phone number. It can automatically call the contact and determine if a human voice has answered (rather than a voice mail recording) and serve the call to an available agent. It is often used by marketing campaign and telesales agents.

Workforce Management Systems

This is a call and contact center application enabling the management of communication queues, agent schedules, monitoring call flow and traffic. It is designed to automate the workforce management, and increase efficiencies by reducing waste and streamlining work paths to the workforce.

Interactive Chat

This is an application that enables communication with multiple clients or prospects over the Web using a chat forum. It includes queue management, service to available agents and typically allows multiple sessions by the agent.

E-Mail Response Management Systems (ERMS)

This is an application that enables communication with multiple clients or prospects over the Web using e-mail. It includes queue management and e-mail flow to available agents, assists in response creation, monitors response rates and typically enables a company to manage inbound e-mails and outbound responses.

Self-Help/Self-Healing

This is an application or tool enabling end users to solve technical or business-related problems without intervention from an agent. It is customer-facing, used directly by the end user.

Knowledge Base

This is an application or tool that processes, stores and maintains knowledge-level information used to solve repetitive problems. It is typically used in a customer support center or by self-help applications.

Service Process Optimization

SPO software — also known as professional services administration (PSA) software — optimizes the allocation of resources (people, intellectual capital and time), outward functions, and inward processes of service intensive industries, organizations, and departments. SPO software is an aggregate of existing front-office and back-office functions combined with BI analytics. The SPO sector, part of the Enterprise Agreement for Software (EAS) market, provides functionality to enterprises in three segments: opportunity management, resource and project management, and analytics and forecasting.

Opportunity Management

This functionality allows organizations to manage their outward-facing/CRM-related functions. Its functions are described in the following paragraphs.

Contacts and Leads

This application maintains an updated list of contacts and dates/times/individuals/ and communications with any prospect or client. It also allows organizations to qualify leads, track sales opportunities and forecast potential revenue.

Proposals/Bids

This application tracks the proposals submitted to each prospect, monitors success rate and feeds back to analytics.

Pricing/Costing

This application tracks the difference between historical bids and actual project costs. It feeds back to analytics for future adjustment in bids.

Resources and Project Management

This is used to break down a project into smaller tasks and assign resources to manage the overall project. The applications allow for management of projects, expenses, work in progress, changes in priorities, and deliverable schedules as well as the overall career paths of consultants, including their skills, certifications and interests. Its segments/functionalities include the following categories.

People

Skills, certification, education, geographic location, availability, bill rates, work experience, areas of interest, employee utilization and career goals of individuals are maintained in a searchable database.

Time/Scheduling

This schedules tasks, assignments and goals to individuals as well as set critical timetables and deadlines for projects.

Expenses: Professional Services

This tracks and obtains client approvals for expenses associated with professional services providers, including the out-of-pocket expenses for time and travel.

Expenses: Other

This tracks expenses that are not related to professional service providers, such as procurement of project materials or purchase of necessary equipment.

Knowledge

This represents the repository of templates as well as intellectual property that is drawn upon by professional services providers to bid, structure and execute engagements. This functionality also enables coworkers and business partners to collaborate on projects as well as capture and utilize the knowledge gained from previous projects.

Analytics and Forecasting

SPO / PSA analytics makes use of intelligence capabilities to store, stimulate, report, forecast and exploit the knowledge gained from each project to improve planning, increase ROI, decrease inefficiencies in the purchasing organization, and forecast potential profitability.

Risk Management/Portfolio Management

This matches investments with priorities and monitor projects throughout their cycle.

What If Analysis

This identifies and corrects undesirable results before they happen.

Reporting/Forecasting

This gathers information from all the above segments to report on progress and setbacks, client satisfaction, create updated forecast, and use the information / intelligence obtained to feedback into the system and improve the service delivery process.

Integration

This leverages front- and back-office applications to provide missing functionality.

Enterprise Resource Planning

ERP is a market group category consisting of several distinct EAS markets. In general, ERP involves software packages that automate and support the processes of the administrative, production, inventory and product development aspects of an enterprise. ERP is considered the back-office application set and is defined as traditional ERP, human resources management systems (HRMS) and financial management systems (FMS).

Traditional ERP

Traditional ERP is an integrated application software suite that helps automate manufacturing, distribution and financial business functions as they relate to manufacturing. Traditional ERP evolved from manufacturing resource planning (MRP II) with the introduction of RDBMS, 4GL development tools, BI and second- and third-generation architectures (client/server and Web-based, three-tier technologies). Traditional ERP consists of: plant/manufacturing operations, corporate functions and direct purchasing/procurement "blue collar".

Plant/Manufacturing Operations

This includes, but is not limited to, master production scheduling, material requirements planning (including regenerative MRP), costing, inventory control, bills of material/routing (including engineering change control), capacity requirements planning (including input/output control, finite scheduling and infinite scheduling), and quality tracking/control.

Corporate Functions

This includes, but is not limited to, fulfillment, order management, asset management, service management, project management, corporate compliance and quality assurance and quality control.

HRMS

HRMS is a suite of application software to meet the HR function of an enterprise. The HR system must store appropriate employee information, provide the IT component for running the relevant business processes and generate reports for management. Employee relationship management (ERM) systems are included in these segments. HRMS consists of recruitment, benefits, education and training, personnel administration, contingent workforce management, time and attendance, organizational development, performance management, compensation planning and strategy, workforce analytics, and payroll.

Recruitment

These are applications used for the process of finding and attracting capable individuals to apply for employment. Functionality includes, but is not limited to: needs analysis, job description, labor market analysis, contingent staffing, internal staffing, advertising, online recruiting, resume tracking, screening and job matching, background checking, drug screening, and testing and assessment.

Benefits

These are applications used for the distribution of healthcare and retirement plan information, managing eligibility questions regarding coverage, maintaining retirement earning histories, enrollments, new hire processing, retirement or vested rights estimates, and benefits termination administration.

Education and Training

These are applications used in the selection, acquisition, development, delivery and maintenance of resources that enhance employee knowledge and skills.

Personnel Administration

These are applications used for employee relations, employee lifecycle, employee communication, onboarding, relocation and expatriate administration, labor management, and local compliance issues (for example, working time directive).

Contingent Workforce Management

These are applications utilized for planning and managing the contingent workforce (temporary and contract staff). These solutions assist in activities associated with contract management, billing, performance tracking, scheduling, skills and competency tracking, and tracking job experience.

Time and Attendance

These are applications used for planning, collecting and analyzing labor.

Organizational Development

These are applications used for developing / updating of competency models, creation / update of job profiles as well as competency assessment, gap analysis, developing / implementing improvement plans, and management of improvement efforts.

Performance Management

These are applications used for assessing an enterprise's performance, using analytical metrics, strategic planning, and a data warehouse approach to accessing and analyzing information.

Compensation Planning and Strategy

These are applications used for creating and administrating job descriptions / updates, salaries and employee surveys, setting and maintaining salaries, setting and maintaining short and long-term incentives, and development and implementation of overall compensation packages.

Workforce Analytics

These are applications use to measure and monitor workforce metrics, including comparison against external benchmarks. These solutions for analyzing workforce metrics (such as turnover and time to hire) require ad hoc analysis and query capabilities with multidimensional capability.

Payroll

These are applications used to process payroll data, reporting and payment of payroll taxes, issuing payments (via check or electronic payment) and reports to employees, issuing payments to third parties (for example, employee IRAs) and reporting of data to the end user.

Financial Management Systems (FMS)

FMS is an application software suite focused on the automation and process support required by the corporate finance function and related departments of an enterprise (such as accounting). The financials package stores relevant data, provides the IT foundation for running the organization's finances and prepares reports for management and external authorities. FMS consists of accounting, budgeting, activity-based management, consolidation and indirect purchasing / procurement "white collar."

Accounting

These are applications that enable job cost accounting and control, and that are focused on their use in manufacturing and production environments related to product, labor, parts, time and other inventory, and production expenses.

Budgeting

These are applications used to allocate funds for specific business activities.

Activity-Based Management

These are applications driven by the general ledger system as costs and associated personnel are reconstituted or allocated to specific activities. This functionality enables organizations to manage costs in more detail than general ledger or budget applications allow.

Consolidation

These are applications that amalgamate an enterprise's general ledger data from internal divisions. These applications can consolidate data by country, geographic region, currencies and internal charge-backs, enabling further consolidation into a corporate view.

Indirect Purchasing/Procurement "White Collar"

These are applications that facilitate the purchase of goods and service that are not incorporated into a final delivered product or service. Office supplies and computer equipment that is important to operating a business, but are generally much less delivery-time-dependent are often called "white collar". The functionality within this segment is not fully Internet enabled and is thus differentiated from buy-side Internet commerce software (also called Web-or Internet-based e-procurement software). The buy-side Internet commerce software segment includes components, such as auctions, e-marketplace or net-exchanges, components, electronic catalogs that reside behind the corporate firewall, punchout interfaces to catalogs at suppliers' Web sites, requisition management, electronic RFQ/RFP, workflow engines, ERP integration API's, search engines, and exchange of business documents, such as purchase orders, shipping notification and order acknowledgements

Enterprise Asset Management

Developed from the more basic computerized maintenance management systems (CMMS) functionality, EAM systems have traditionally been a key tool in asset care and MRO procurement. EAM is a key strategy to increase plant capacity, using information technology in lieu of new construction in large, asset-intensive enterprises. It integrates key plant control systems (PCS) and ERP with maintenance activities and functions to reduce downtime and minimize maintenance spending. In its most complete form, it equates to an ERP II solution for a non-manufacturing environment. The key features of a leading EAM solution include:

- Detailed asset registry combined with detailed parts and support descriptions
- Detailed, long-term maintenance and work schedules, complex inventory relationships for indirect (blue-collar MRO) goods associated with forecasts of planned and unplanned work
- Probability-based (just-in-case, rather than just-in-time) inventory and procurement, complex logistics for inbound material
- Sophisticated human capital management (HCM) capabilities to match skills, training and availability with work requirements
- Statistical analysis of equipment production, performance and reliability
- Electronic monitoring of assets
- Preventive, predictive and reliability-centered maintenance (RCM)
- Relatively simple (or separately managed and specialized) revenue model
- Serial number tracking and tracing
- Field-service and call-management capabilities

- Financial support through detail cost analysis
- Project management for construction
- Extensive warranty tracking
- Differentiation of fixed, mobile and continuous assets

EAM consists of asset management, materials management, HRMS and financials.

Asset Management

Its application functionality assists in identifying assets and activities, and manages requests for service and work schedules. In addition, these applications manage job costing, work orders, asset registration, fixed assets, and predictive and preventive maintenance.

Materials Management

The application functionality in this segment assists in planning parts and material requirements for maintenance. The applications in this segment have capabilities to integrate with procurement management, enable automatic assignment of ABC classes to stock, as well as cycle counting. Modules in this segment include parts, inventory, orders management and bill of materials.

HRMS

While part of an integrated solution within the EAM space, HRMS functionality will be tracked under the HRMS segment.

Financials

While part of an integrated solution within the EAM space, FMS functionality will be tracked under the FMS segment.

Integrated Plant Systems

Integrated plant functions include software systems and or components for open control, production management, production information management and analysis, process modeling and knowledge management, plant resource planning and plant resource reconciliation functions. IPSs combine Open Control Systems (OCS), Manufacturing Execution Systems (MES) and Plant / Production Information Management Systems (PIMS) functionality in the broader context of enterprise and supply-chain management applications. IPS Functionality includes plant resource management, production operations management, open control systems, production information management, and process modeling and knowledge management.

Plant Resource Management

This is "ERP for the plant manager" and operations management. Its functionality allows a more granular view of resources specific to plant operations with tools to manage resources effectively in synchronization with enterprise objectives and resources. Its functionality includes plant-to-enterprise integration management, plant capability and performance portal, plant-specific (finite capacity) scheduling, plant-specific material management, and plant-specific asset and maintenance management.

Production Operations Management

These are tools to mount production campaigns and execute them with proper control of shop floor operations while enabling enforcement of process / test parameters, product genealogy and quality. Their functionality includes production order management, work routing and enforcement, work instructions delivery, unit / lot tracking, and regulatory / quality assurance

Open Control Systems

This includes process control and data acquisition built on open-systems standards to enable the flow of data from the most fundamental point-of-product transformation / assembly through the value-adding chain. Its functionality includes controls-to-plant integration management, data acquisition, safety and shutdown systems, and process control (regulatory, batch, logic and motion).

Production Information Management

This includes the recording and archiving of process / test parameters, product genealogy and quality measures plus the data transformation methods and analytical techniques to turn raw process data and parametric measures into useful information consumable by enterprise business transactions and decision support systems. Its functionality includes process data archive, production data archive, product genealogy and quality / test analyses, production cost analysis, production data reconciliation and yield accounting.

Process Modeling and Knowledge Management

These are manufacturing and business process modeling tools and templates linked via shared knowledge management practices to relevant business units and commercial partners. Their functionality includes process modeling and optimization, process simulation, product specification / recipe management, bill of material (BOM) synchronization and management, line balancing, and bill of process (BOP) synchronization and management.

Supply Chain Management

This is a business strategy to improve shareholder and customer value by optimizing the flow of products, services and related information from source to customer. SCM encompasses the processes of creating and fulfilling the market's demand for goods and services. It is a set of business processes that encompasses a trading partner community engaged in a common goal of satisfying the end customer. Thus, a supply chain process can stretch from a supplier's supplier to a customer's customer. Functionally, SCM encompasses transactional execution systems (for example, ERP, warehouse management system, MES, transportation management system and international trade-systems (ITS), planning, optimization systems (for example, supply chain planning), and supply chain analytics (for example, data warehousing).

Supply Chain Planning (SCP)

A subset of SCM, SCP applications assist in the process of coordinating assets to optimize the delivery of goods, services and information from supplier to customer, balancing supply and demand. An SCP application suite sits on top of a transactional system to provide planning, what-if scenario analysis capabilities and real-time demand commitments. Typical modules include network planning, capacity planning, demand planning, manufacturing planning and scheduling, and distribution and deployment planning.

Supply Chain Execution (SCE)

A subset of SCM, this is a framework of execution-oriented applications that enables the efficient procurement and supply of goods, services and information across enterprise boundaries to meet customer-specific demand. The logistics-oriented elements of SCE include the transportation management system, warehouse management system, ITS, real-time decision support systems (for example, dynamic routing and dynamic sourcing systems), federated order management systems, and supply chain event management (SCEM). SCE consists of warehouse management systems (WMS), transportation management systems (TMS) and ITS.

WMS

This is a software application that manages the operations of a warehouse or distribution center. Its application functionality includes all or subsets of receiving, putaway, inventory management, cycle counting, task interleaving, wave planning, order allocation, order picking, replenishment, packing, shipping, labor management and automated material-handling equipment interfaces.

TMS

These systems are used to plan and procure freight movements, freight rating and shipping across all modes, select the appropriate route and carrier, and manage freight bills and payments.

ITS

These execution systems are designed to automate the import/export business process. The basic functional components are trade documentation generation and transmission, and regulatory compliance validation.

Buy-Side Internet Commerce

Buy-side software applications are exclusively Internet or Web-based solutions that support the automation and management of corporate purchasing (or procurement) of direct and indirect goods, suppliers, and content (for example, product catalogs, parts databases and supplier directories). These applications also support online connection of thousands of buyers and suppliers to enable global purchasing transactions via e-marketplaces or net-exchanges, and provide ongoing analysis to evaluate the right mix of products and services to determine appropriate suppliers. The buy-side Internet commerce software market segment has been expanded this year and is comprised of the following sub-segments:

Buy-Side E-Procurement

Buy-side procurement applications automate and put on the Internet corporate purchasing for direct and indirect procurement. They are designed to help companies reduce costs by automating the purchasing processes, connecting buyers and suppliers on the Internet and controlling corporate spending. Their functionality includes e-catalogs that reside behind the corporate firewall, punchout interfaces to catalogs at suppliers' Web sites, e-RFQ/RFP, approval workflow engines, ERP and legacy system connectors, integration of shpping receipts, invoices and purchase orders, search engines, spend management, and support for exchange of business documents, such as purchase orders, order acknowledgement, and shipping notifications.

E-Sourcing/Strategic Sourcing

E-sourcing applications allow companies to conduct auctions among a group of suppliers for a particular product or piece of business. E-sourcing overlaps with the buy-side and content management applications but represents a distinct class of applications in the e-procurement market segment. They include functionality such as reverse auctions, RFQ, bid evaluations, supplier qualification, conduct on and offline negotiations, and asset management (procurement of used assets and surplus equipment through e-marketplaces, auctions, etc.).

Strategic sourcing applications are also evolving into the practice of managing longer-term purchasing activity and supplier relationships.

Both types of sourcing are mainly used for direct materials procurement, but some sourcing applications will have the capability to interface with indirect procurement systems.

E-Marketplace

E-marketplace software provides a Web-enabled trading community in which multiple buyers and suppliers can transact. The functionality of e-markarket-place software overlaps with other procurement applications as it also supports catalog-based purchasing and auction functionality. E-marketplace software can also include strategic sourcing, contract negotiation, legacy integration and Web-based order management functionality. The key distinguishing factor is the ability to support thousands of different buyers and suppliers. Vendors in this space inlcude i2, PurchasePro, CommerceOne Marketsite, SAP Marketset, and Oracle Exchange.

E-Commerce Content Management

The content management sub-segment addresses the problem of how to take unstructured product content and create and manage structured data. This segment includes solutions in data cleansing, parts databases and supplier directories. It also provides functionality that includes catalog conversion, parametric matching engines, dynamic congtent aggregation, automated inte-gration to back-end databases, online content updating and multiple language translation.

Vendors in this segment included Commerce One, i2, Peregrine Systems, Reqjuisite, Saqqara, Broadvision and Vignette.

Collaboration Software and Knowledge Management (KM) Tools

This sector covers software products, tools and hosted services that support collaboration and knowledge management as a generic capability. It does not include products targeted at specific business functions or processes (such as engineering design or customer service and support) where these may include some collaboration and KM support.

Collaboration products have traditionally been deployed to support the inter-nal operations of an enterprise. Increasing these products may be supporting inter-enterprise collaborative processes.

This market segment is comprised of software products, tools and hosted services that support collaboration and knowledge management as a generic capability. It does not include products targeted at specific business functions or processes (such as Engineering design, Customer Service and Support, etc) where these may include some collaboration and KM support. The five sub-segments included in this market are e-mail and calendaring, team sup-port, content / document management, information access, and real-time collaboration.

E-Mail and Calendaring

This category contains workgroups to global enterprise platforms, offering e-mail and potentially additional services such as calendaring, collaborative service applications, or Web-based unified messaging.

Collaboration support, in the past, has been provided by monolithic suite prod-ucts that provide a range of functions. These have been termed groupware and also "electronic workplace framework products" by Gartner Dataquest. The only remaining products of any significance in this segment are Exchange, Domino and GroupWise. Even these are beginning to be offered unbundled. Lotus now offers a version of Domino for mail and calendaring only. Novell has introduced NIMS, which offers e-mail only. Since the primary role of these products had been for e-mail and calendaring, they are covered in this seg-ment. Lotus' Domino application server, which excludes e-mail, is included under team support systems.

This segment includes mail-only, calendar-only and combined systems. These products may also include integrated directory capability.

Team Support

These products primarily provide for document-based collaboration, targeted at teams with self-administration. They do not include e-mail capability, which is assumed to be already in place.

Content/Document Management

This segment covers products for management of documents and document production processes in a collaborative environment. It does not include content management systems intended purely to support Web content created for publication. These systems include basic document library functionality with version control and check-in/check-out abilities.

Information Access

These products provide search and information categorization capabilities. They may also include personal profiling and information alerting.

Real-Time Collaboration

These are products supporting interaction between participants in real time, in a meeting or presentation format. They include application sharing and shared whiteboard.

Design and Engineering

This software is researched in Gartner Dataquest's Design and Engineering Worldwide cluster. Please see the Gartner Dataquest Guide "2001 Technical Applications Software Market Definitions" (SOFT-WW-GU-0002) for full descriptions. Its subsectors include:

- Architectural, engineering and construction (AEC)
- Electronic design automation (EDA)
- Embedded software tools
- Mechanical computer-aided design/manufacturing/engineering (CAD/CAM/CAE)
- Product data management (PDM)

Chapter 5
Emerging and Merging Markets

The previous two chapters defined baseline mutually exclusive product markets, that together provide insight into how the money flows through the software industry. However, many of the most interesting and challenging opportunities for vendors have other dimensions. Some are a composite mix of baseline sectors, others are virtual concepts or new technology standards, not real markets. Still others take less conventional forms, such as the ASP and BSP markets. All of them overlap in some way with other markets defined in this or other segmentation documents.

Composite Markets

A composite market is one not necessarily tracked and measured on an ongoing basis, but that offers an alternative view or cut of our baseline market data (identified in Chapters 4 and 5). A composite market definition can be useful for tracking a temporary phenomenon. Occasionally, a composite market definition foretells the emergence of a long-lasting baseline Gartner Dataquest market definition at a later date.

Business Activity Monitoring

BAM is neither a market nor a product. It is a concept, such as quality or knowledge management, and it is not new. BAM solutions focus on cross-business processes rather than divisional-, departmental- or technology-specific processes. The scope of integration in BAM solutions expands far beyond the four walls of a plant or a division, and real time is not necessarily nanoseconds but rather is determined by the requirements of the business process. It brings the near real-time world of the BI operational data store together with NSM monitoring and business process monitoring (BPM) through integration brokers and shared messaging.

Business Intelligence Applications (BIA)

These software products are described here because they are already included in various application software segments in the previous chapter. Their distinction as applications is that they utilize BI tools.

Gartner Dataquest first defined BI in 1993 as a category of applications and tools by which end users without a high degree of computer literacy could access, analyze and act on information.

Packaged BI applications are shared applications, supporting multiple users, in which interaction with the data is programmed by the vendor. Analytical functions, performance metrics and application processes are prebuilt. BI applications reflect the best practices for a given decision-support application. Gartner Dataquest has identified three categories of BI applications: strategic, operationl and analytical.

Strategic

These are process-specific applications targeted at strategic leaders to help them formulate and monitor corporate strategy. Examples include balanced scorecard, strategic planning, business simulation and value-based management.

Operational

These are process-specific applications targeted at operational managers responsible for executing strategy. Examples include budgeting and forecasting, financial consolidation, activity-based costing, profitability modeling, sales forecasting and customer relationship planning.

Analytical

These are targeted at analysts and knowledge workers to support domain-specific analysis. Examples include financial analysis, supply-chain analytics, workforce analytics, sales analysis and customer segmentation.

Business Process Management

BPM is a general term describing a set of services and tools that provide for explicit process management (for example, process analysis, definition, execution, monitoring and administration). BPM technology is found in multiple markets, such as integration broker suites (IBS) and collaborative applications.

Collaborative Commerce (C-Commerce)

C-commerce involves the collaborative, electronically enabled business interactions among an enterprise's internal personnel, business partners and customers throughout a trading community. The trading community can be an industry, industry segment, supply chain or supply chain segment. For some enterprises, c-commerce is already a fact of business life, but how can they measure it? It is not yet quantifiable with any consistency. It is not a class of software and it is difficult even to define.

E-Commerce

Instead of treating e-commerce as a separate functional application area, we have now placed the main segments back in the supply and demand areas of the enterprise applications markets. Buy-side Internet commerce software is included in the SCM segmentation. E-commerce sell-side software is defined under front office / CRM.

ERP II

The emerging next generation of ERP strategy is called ERP II by Gartner Dataquest. ERP II is an application and deployment strategy that expands out from ERP functions to achieve integration of an enterprise's key domain-specific, internal and external collaborative, operational and financial processes.

Mobile Commerce (M-Commerce)

The concept of m-commerce — buying and selling things using smart phones and wireless personal digital assistants (PDAs) — is futuristic and compelling to the technologically shrewd, which is why it has generated heaps of media coverage. However, convincing consumers in some regions of the world is proving more difficult than generating headlines.

Mobile and Wireless

The terms mobile application and wireless application are bandied about in the trade press, often used interchangeably, and can refer to simple stand-alone software or to internetworked processes of great complexity. Mobile and wireless applications can mean anything from a menuing system on a smart phone, a calendar or a tic-tac-toe game on a PDA to Internet / corporate e-mail connectivity up to a sales force automation order-entry system that updates back-end databases over a wireless link.

Software Solutions Markets

Software products are often bought and sold as part of a larger package containing some mix of hardware, software, services, expertise, information content and financing service. To implement, operate and use the solutions requires investment in internal resources. The methodology behind our market data analysis allows us to unbundle these elements so that we are counting or comparing like with like. Most of our solutions market research is clustered into analyst teams for global industry vertical market analysis and enterprise solutions.

Web Services

Deploying Web services-enabled software will be an evolutionary process, not a revolutionary one. While the majority of software vendors have committed to supporting Web services software standards within their existing product lines, it will take more than four years to evolve these immature standards, build up skills, and plan, build and test for new versions of software that gradually incorporate these standards. Web services standards will be deployed through multiple markets, such as IBS, AD tools and some enterprise application segments.

Other Markets

ASPs and Application Hosting

This is a service addressing the life cycle needs of the application from the initial IT infrastructure development to maintenance of a complete set of IT business applications. The provider offers software maintenance, conversion, enhancement and support in a hosted environment. This is considered an indirect channel for software delivery. This sector is also researched within Gartner Dataquest's IT services practices.

Free Software

Our focus is to measure the direct value of software markets. However, free software can and does have a significant influence on the dynamics of demand and supply, and it influences our research agendas.

New Categories

New markets are always emerging, which are either the result of the bundling of several component markets or the arrival of a new layer of tools on top of existing technology. For example, application platforms have emerged as a result of demand for more cost-effective and proven suites of middleware. Rather than continually reorganize the component segmentation, we will address new markets as exceptional or fringe until they are clearly an established and well-defined market segment in their own right.

Chapter 6
Operating System Platform Definitions

Gartner Dataquest defines an operating system as software that maps logical constructs to physical locations in the computer. The system is the program that lets a user access data by a file name without knowing where the file is physically located on the disk. The operating system controls the computer's operations by managing disk, screen, file maintenance and printer activity while loading and running application programs. Operating system platforms are defined here to allow analysis of the changing popularity of different platforms. Not all software segments have operating system platform breakouts estimated or forecast.

Windows 16-Bit

Microsoft's 16-bit operating environment (Windows 3.x) runs on top of DOS. It allows the display of several individual screens at one time and enables the user to switch between several windows. This encompasses all Windows 3.x products.

Windows 32-Bit

This includes Windows 9x and Windows NT Workstations. Windows 9x is Microsoft's 32-bit operating system and GUI for desktop PCs, while Windows NT Workstation is an operating environment for workstations.

Windows NT Server and Windows 2000 Server

These are Microsoft's 32-bit operating environments for servers and networks.

MVS, VM, OS/390, z/OS

These are IBM's operating systems for System 390 mainframe and e-server zSeries computers.

OS/400

This is IBM's operating system for its AS/400-series and e-server iSeries computers.

Unix

Originally developed at AT&T Bell Laboratories, Unix is a 32-bit, multitasking, multiuser operating system, which is portable and can be found on most CISC and RISC CPUs, including Intel Pentium and 80xxx, Motorola 68xxx and Sun SPARC.

Linux

Linux is an open source version of Unix. Linus Torvalds developed the original kernel at the University of Helsinki.

Java

Although not truly a complete operating system, the Java platform provides much of the same functionality and is the focus of increasing development activity.

Other Proprietary Operating Systems

Examples include the following:

- Virtual memory system (VMS), OpenVMS: Compaq's proprietary operating system for the virtual address extension (VAX) and Alpha series of computers. VMS was originally designed for the VAX series of computers from Digital Equipment.
- BS2000: Siemens' proprietary operating system.
- GCOS: Bull's proprietary operating system.
- MPE: Hewlett-Packard's proprietary operating system for its 3000-series computers.
- Plug-compatible manufacturer (PCM): A PCM is a peripheral equipment manufacturer that makes compatible plug-in devices that can be used interchangeably among different computers. PCMs, such as Amdahl or Hitachi Data Systems, ship computers with an operating system that is compatible with IBM's VM or MVS.
- VME: ICL's proprietary operating system.

Other Desktop Operating Systems

Examples include the following:

- DOS: MS-DOS, PC-DOS or DR-DOS operating systems — MS-DOS, designed by Microsoft, was the original IBM PC operating system. PC-DOS is IBM's version of the disk operating system and DR-DOS is the Digital Research (Novell) version. Not included in this category are incompatible variants, such as NEC-DOS and J-DOS, which are included in the proprietary category.
- Mac OS: Apple Computer's proprietary GUI operating system.
- NetWare: Novell's network operating system.
- OS/2: IBM's operating system for high-end PCs or PC servers. OS/2 is a 32 bit, multitasking operating system with a GUI interface and virtual memory capabilities.

Chapter 7
Worldwide Geographic Regional Definitions

The following regional hierarchy and definitions are used for all Gartner Dataquest's geographic segmentation.

Asia/Pacific

Australia, China, Hong Kong, India, South Korea, Indonesia, Malaysia, New Zealand, Singapore, Taiwan, Thailand

Rest of Asia/Pacific

The sub-region includes: American Samoa, Ashmore and Cartier Islands, Baker Island, Bangladesh, Bhutan, Bouvet Island, Brunei, Cambodia, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Coral Sea Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Kiribati, Laos, Macau, Maldives, Marshall Islands, Midway Islands, Mongolia, Myanmar (Burma), Nauru, Nepal, New Caledonia, Niue, Norfolk Island, Northern Mariana Islands, North Korea, Pakistan, Palau, Palmyra Atoll, Papua New Guinea, Paracel Islands, Philippines, Pitcairn Islands, Solomon Islands, Spratly Islands, Sri Lanka, Tokelau, Tonga, Tuvalu, Vanuatu, Vietnam, Wake Island, Wallis and Futuna, and Western Samoa

Europe

Belgium, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland and United Kingdom

Rest of Western Europe

The sub-region includes: Austria, Andorra, Cyprus, Denmark, Finland, Portugal, Norway, Ireland, Greece, Faroe Islands, Gibraltar, Greenland, Guernsey, Iceland, Isle of Man, Jersey, Liechtenstein, Luxembourg, Malta, Monaco, San Marino and Svalbard

(Note that Gartner Dataquest Enterprise Software research does not cover specific countries in Rest of Western Europe.)

Eastern Europe

The sub-region include: Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russia, Slovakia Ukraine Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Macedonia, Moldova, Romania, Slovenia, Tajikistan,Turkmenistan, Uzbekistan, and Yugoslavia (Serbia and Montenegro)

(Note that Gartner Dataquest Enterprise Software research does not cover specific countries in Eastern Europe.)

Japan

Japan is a single-country region.

Latin America

The Latin America region consists of Anguilla, Antigua and Barbuda, Argentina, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Cayman Islands, Chile, Clipperton Island, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Falkland Islands (Islas Malvinas), French Guiana, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Navassa Island, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Tortola (British Virgin Islands), Trinidad and Tobago, Turks and Caicos Islands, Uruguay, Venezuela, and Virgin Islands (St. John, St. Croix and St. Thomas).

(Note that Gartner Dataquest Enterprise Software research does not cover specific countries in Latin America.)

Middle East and Africa

The Middle East and Africa region includes Afghanistan, Algeria, Angola, Bahrain, Bassas da India, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Europa Island, Gabon, Gambia, Ghana, Glorioso Islands, Guinea, Guinea-Bissau, Iran, Iraq, Israel, Jordan, Juan de Nova Island, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Oman, Qatar, Reunion, Rwanda, Saint Helena, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Syria, Tanzania, Togo, Tromelin Island, Tunisia, Turkey, Uganda, United Arab Emirates, Western Sahara, Yemen, Zaire, Zambia, and Zimbabwe.

(Note that Gartner Dataquest research does not cover specific countries in the Middle East and Africa.)

North America

The North America region consists of the United States and Canada.

Chapter 8
Research Metrics

The following describes the research metrics Gartner Dataquest uses for reporting market revenue, market size and market share. Not all of these metrics are used by every software program or by every software segment tracked within a program. Some may have more of these metrics and some may have fewer.

Compound annual growth rate (CAGR) — The annualized average rate of revenue growth between two given years, assuming growth takes place at an exponentially compounded rate. The CAGR between given years X and Z, where Z - X = N is the number of years between the two given years, is calculated as follows:

CAGR, year X to year Z = [(value in year Z/value in year X) ^ (1/N) -1]

For example, the CAGR for 2000 to 2004 is calculated as follows:

CAGR, 2000 to 2005 (X = 2000, Z = 2005, N = 5) = [(value in 2005/value in 2000) ^ (1/5) -1]

Revenue — The gross sales generated by a vendor, measured in unit currency

Vendor — A vendor is the last entity in the chain that brands a product and sells it either directly to end users or through a channel. A vendor may design and manufacture its own products, assemble complete systems from components produced by others, or procure products from an OEM or contract manufacturer. A vendor may also provide services, maintenance or non-maintenance for its own products or for other vendors' products and may also provide services for IT technologies.

Vendor license revenue — That revenue of a manufacturer or vendor that is generated by sales of new software licenses. It excludes revenue from software maintenance, support and professional services. It also excludes the sale of products manufactured by other vendors.

Chapter 9
Exchange Rates

Gartner Dataquest also gives due consideration to the impact of exchange rates on its forecasts. Gartner Dataquest generally compiles its worldwide forecasts from individual region-level forecasts. These regional level forecasts are, in turn, frequently compiled from country-level forecasts, each of which are subject to the vagaries of the local exchange rate. For the sake of consistency and uniformity, Gartner Dataquest uses the U.S. dollar as a common currency for all comparisons and aggregations. As a rule, Gartner Dataquest analysts reckon their forecasts in local currency and then convert them to U.S. dollars using projected exchange rates. Gartner Dataquest does not forecast exchange rates. Instead we project rates into the future based on the latest available monthly exchange rate at the time our quarterly market sizing study begins.

Table 9-1 presents the exchange rates assumed in this forecast. These rates are based on monthly exchange rates observed through January 2002. Additional information about historical exchange rates and Gartner Dataquest's method for projecting future rates may be requested through Gartner Dataquest's client inquiry service.

Table 9-1
Prevailing Annual Exchange Rates, 2000-2003 (Foreign Currency per U.S. Dollar)

	2000	2001	2002	2003 +	Foreign Currency Appreciation vs. U.S. Dollar 2001-2002 (%)
North America					
Canada (Dollar)	1.49	1.55	1.58	1.58	-1.89
Latin America					
Argentina (Peso)	1.00	1.00	1.00	1.00	0.00
Brazil (Real)	1.83	2.35	2.36	2.36	-0.44
Chile (Peso)	539.56	635.41	666.90	666.90	-4.72
Colombia (Peso)	2,090.06	2,300.68	2,304.58	2,304.58	-0.17
Mexico (Peso)	9.46	9.34	9.16	9.16	2.01
Peru (New Sole)	3.49	3.51	3.44	3.44	2.08
Venezuela (Bolivar)	680.47	724.34	753.64	753.64	-3.89
Western Europe					
Austria (Schilling)	14.94	15.38	NA	NA	NA
Belgium (Franc)	43.81	45.08	NA	NA	NA
Denmark (Krone)	8.09	8.33	8.35	8.35	-0.28
EMU (ECU/Euro)	1.09	1.12	1.12	1.12	-0.41
Finland (Markka)	6.46	6.64	NA	NA	NA
France (Franc)	7.12	7.33	NA	NA	NA
Germany (Mark)	2.12	2.19	NA	NA	NA
Greece (Drachma)	365.86	380.77	NA	NA	NA
Iceland (Krona)	78.88	97.74	104.48	104.48	-6.45
Ireland (Punt)	0.86	0.88	NA	NA	NA
Italy (Lira)	2,102.77	2,163.67	NA	NA	NA
Netherlands (Guilder)	2.39	2.46	NA	NA	NA
Norway (Krone)	8.81	8.99	8.97	8.97	0.24
Portugal (Escudo)	217.72	224.03	NA	NA	NA
Spain (Peseta)	180.69	185.93	NA	NA	NA

Table 9-1 (Continued)
Prevailing Annual Exchange Rates, 2000-2003 (Foreign Currency per U.S. Dollar)

	2000	2001	2002	2003 +	Foreign Currency Appreciation vs. U.S. Dollar 2001-2002 (%)
Sweden (Krona)	9.18	10.34	10.58	10.58	-2.19
Switzerland (Franc)	1.69	1.69	1.66	1.66	1.90
United Kingdom (Pound)	0.66	0.69	0.69	0.69	0.11
Central and Eastern Europe					
Bulgaria (Lev)	2.10	2.18	2.18	2.18	-0.10
Czech Republic (Koruna)	38.63	38.02	36.34	36.34	4.62
Hungary (Forint)	282.16	286.46	276.98	276.98	3.42
Poland (Zloty)	4.34	4.09	4.02	4.02	1.88
Romania (Lev)	21,422.64	28,900.57	31,319.68	31,319.68	-7.72
Russia (Ruble)	27.97	29.09	30.20	30.20	-3.66
Slovakia (Koruna)	46.21	48.33	48.29	48.29	0.09
Ukraine (Hryvna)	5.48	5.38	5.36	5.36	0.41
Japan					
Japan (Yen)	107.82	121.52	127.59	127.59	-4.76
Asia/Pacific					
Australia (Dollar)	1.73	1.94	1.95	1.95	-0.53
China (Yuan)	8.28	8.28	8.28	8.28	0.01
Hong Kong (Dollar)	7.79	7.80	7.80	7.80	0.01
India (Rupee)	45.00	47.23	47.93	47.93	-1.47
Indonesia (Rupiah)	8,373.70	10,189.44	10,273.11	10,273.11	-0.81
Malaysia (Ringgit)	3.80	3.80	3.80	3.80	0.00
New Zealand (Dollar)	2.20	2.38	2.41	2.41	-1.00
Philippines (Peso)	44.26	51.01	51.77	51.77	-1.49
Singapore (Dollar)	1.72	1.79	1.84	1.84	-2.48
South Korea (Won)	1,131.38	1,291.67	1,292.29	1,292.29	-0.05
Sri Lanka (Rupee)	76.98	89.62	93.19	93.19	-3.84
Taiwan (Dollar)	31.27	33.83	34.68	34.68	-2.46
Thailand (Baht)	40.22	44.51	43.95	43.95	1.26
Rest of World					
Egypt (Pound)	3.53	4.04	4.42	4.42	-8.76
Israel (New Shekel)	4.08	4.21	4.28	4.28	-1.61
South Africa (Rand)	6.95	8.63	11.68	11.68	-26.13
Turkey (Lira)	624,177.48	1,204,238.09	1,455,568.42	1,455,568.42	-17.27

Effective January 1, 2002, Euro became common currency of Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands Portugal, and Spain. ECU converted to Euro on January 1, 1999 at parity. Exchange rates for reported Euro participants fixed as follows: Austria, 13.7603 schillings/euro; Belgium, 40.3399 francs/euro; Finland, 5.94573 markka/euro; France, 6.55957 francs/euro; Germany, 1.95583 marks/euro; Ireland, 0.787564 punts/euro; Italy, 1,936.27 lire/euro; Netherlands, 2.20371 guilder/euro; Portugal, 200.482 escudos/euro; and Spain, 166.386 pesetas/euro. Greece converted to Euro on January 1, 2001 at 340.75 drachmas/euro. Bulgarian lev revalued in July 1999; 1 revalued lev equal to 1,000 original leva.
Source: Dataquest (January 2002)

Chapter 10
Vertical Market and Company Size Segments

Sources of software revenue, where analyzed, will be segmented into the primary vertical markets in Table 10-1. ISIC is the International Standard Industry Code. SIC is the SIC code in wide use in the United States. NAICS are the emerging North American standards. Company size segmentation is shown in Table 10-2.

In our demand-side research, we will be seeking to segment by organization / company size using the following criteria:

Table 10-1
Vertical Market Segmentation

Primary Segment	Secondary Segment	Additional Description	ISIC	US SIC	NAICS
Agriculture, Mining and Construction	Agriculture	Agriculture, forestry and fishing	1-9	1-9	11
	Mining	Mining of coal, petroleum, gas, metal, minerals	10-14	10-14	12
	Construction	Construction and contractors	45	15-17	23
Process Manufacturing	Pharmaceutical and medicine	Pharmaceuticals, medicinal chemicals and botanical products	2423	2833-2835	3254
	Chemical, plastics, rubber	Chemicals, plastics, rubber, minerals	2421, 2422, 2424, 2429, 25	30: 2812-2824, 2836-2899	3251, 3252, 3253, 3255, 3256, 3259, 326, 327
	Petroleum, coal		23	29	324
	Textiles and apparel	Textiles, apparel, leather	17, 18, 19	22, 23, 31	313,314, 315,316
	Metal, wood, minerals, paper, printing, publishing	Newspaper, book, periodical publishers, paper and printing, wood, minerals, stone, clay, glass, primary metals	20, 23, 22, 26, 27	24, 25, 27, 32, 33	51111-3, 51119 322, 323 331, 332
	Consumables	Food, beverages and tobacco	15-16	20-21	311, 312
Discrete Manufacturing	Transportation equipment	Transportation equipment (motor vehicles, aerospace, rail, ship)	34, 37	37	336
	Computer and electronic products	Computers, office, electronic and communication equipment, semiconductors	30, 31, 32.	36	334
	Industrial and electrical equipment	Industrial and commercial machinery	29	35	333 335
	Medical equipment and supplies	Medical, optical, industrial measuring and controlling, scientific equipment and instruments, photographic, watches and clocks	33	38	3391
	Other discrete manufacturing	Fabricated metal, furniture, recycling, miscellaneous manufacturing	28, 36, 37	25, 34, 39	332 337
Utilities	Electric and gas	Electric, gas, steam	40	4911-4939, 4961	2211
	Water	Water and sewer systems	41	4941-4959	*2213
Wholesale	Wholesale durable and nondurable goods		51	50-51	42

Table 10-1 (Continued)
Vertical Market Segmentation

Primary Segment	Secondary Segment	Additional Description	ISIC	US SIC	NAICS
Retail	General retailers	Non-specialized stores	521	53	452
	Specialty retailers	Specialty stores include building materials, hardware, automotive, fuel, apparel, furniture, miscellaneous, and nonstore	50, 523, 524, 525	52, 55, 56, 57, 59	441-444 446-451, 453, 454
	Grocery	Food, beverage and tobacco stores	522	54	445
	Restaurants and hotels		551, 552	58, 70	72
Transportation	Rail and water		601, 61	40, 44	482,483
	Motor freight	Truck, transit, sightseeing	602	41, 42	484,485,487
	Air transport		62	45	481
	Pipelines	Pipelines except natural gas	603	46	486
	Warehousing, couriers, and support services	Transportation support activities, postal, couriers, warehousing	63, 641	47, 4221-4226, 43, 4513, 4215	488, 491, 492, 493
Communications	Wireless		*642	4812	51332
	Wireline		*642	4813, 4822	51331
	Satellite and other communications		*642	4988	51333
	Broadcasting and cable	Radio, TV, cable broadcasting and distribution	*642	4832, 4833, 4842	5131,5132
Financial Services	Banking	Monetary authorities-central banks, credit intermediation	65	60, 61, 67	521-522
	Securities	Security and commodity brokers	67	62	523, 525
	Insurance (other than health)	Insurance carriers and agents	*66	*63, 64 Insurance	*524
	Health insurance (payer)	Insurance carriers and agents	*66	*63, 64	*524
Healthcare	Healthcare provider	Doctor, nursing, dental and clinical offices; medical and dental laboratories; hospitals and other health and allied services	851, 852	80	621-623
Services	Software publishers	Supplier in ISIC software consultancy and supply segment	723	7372	5112
	IT service providers	IT service providers except software publishers	72	7371, 7373-7379, 8742	*541
	Professional, scientific and technical services except IT	Legal, accounting, design, engineering, management, scientific, advertising, and technical services except IT	73, 741-743	7311, 81, 83, 87 except 8742	*541
	Real estate	Real estate, rental, leasing	70	65	53
	Business and consumer services	Motion picture, video, audio recording, information services and data processing, holding companies, business and building support, employment, travel, security, arts, entertainment, recreation (performances, sports, museums), personal and repair services, religious, civic and membership organizations	90-93, 71, 526, 749, 853	7322-7363, 7381-7389, 75-79, 83-86, 88, 89	624, 512 514 55 56 71 81

Table 10-1 (Continued)
Vertical Market Segmentation

Primary Segment	Secondary Segment	Additional Description	ISIC	US SIC	NAICS
Education	Primary and secondary	Primary and secondary schools	801, 802	8211	6111
	Higher education	Colleges, professional, other	803, 809	8221, 8222-8299	6113,6116
National and International Government	Defense and intelligence	National defense and intelligence	7522	*90	*92
	Civil	National government excluding defense	*75	*90	*92
Local and Regional Government	Local and regional government	Local, provincial, state, regional government	*75	*90	*92
Home	Home	A home purchase is an item that has been paid for by private funds. It includes all products where the primary use is for personal, edutainment and home office purposes. It excludes home business use where the cost has been written off against a company's (or charity's) accounts.	NA	NA	NA

Note: * indicates partial match
NA = Not applicable
Source: Gartner Dataquest (May 2002)

Table 10-2
Company Size Segments

	Primary Cut (Headcount)	Optional, Secondary (Turnover)
Small-to-Midsize Business		
Very Small/SOHO	1-19	
Small	20-99	Less than $49.9 Million
Low End MSB	100-499	
High End MSB	500-999	$50M-$249 Million
Large Business		
Large	1,000-2,499	$250M-$999 Million
Very Large	2,500-4,999	$1 Billion-$2.49 Billion
Mega	5,000 or More	Greater than $2.5 Billion

Source: Gartner Dataquest (May 2002)

Chapter 11
Channel Definitions

This section describes the channel definitions used by Gartner Dataquest. Our software distribution channel research is intended to cover at least the two top segments. Definitions are as follows:

- Direct channel — This is a channel through which hardware, software and peripherals are sold by the manufacturer directly to the end user.
  - Direct salesforce — This is a channel through which products move directly from the manufacturer or vendor to the end user, usually by a professionally trained field sales force
  - Direct fax / phone / Web — This is a channel through which manufacturers sell their own products directly to end users through the use of the telephone, Web, fax, fax back and mail, including e-mail and catalog
  - Direct retail — These are storefront operations owned and managed by the vendor, typically a manufacturer of computer systems. Direct stores are more common in Europe and Japan than in other parts of the world. Sales through direct stores are not reported separately by Gartner Dataquest's worldwide services. They are grouped under direct sales force or one of the indirect channels.
- Indirect channel — This is a channel through which independent third-party organizations resell products. In software markets, VARs and systems integrators (SIs) are two typical examples of the indirect channel.
  - Dealer — This is a group of resellers including independent, regional and national organizations that normally sell products and services to the business, education and government sectors. Client meetings are typically scheduled ahead of time and are most often solicited by an outbound sales force. Dealers usually provide a low level of service, training and customer assistance, and other value-added services.
  - Vendor-specific agent — This is a reseller dedicated to selling one vendor's products. The reseller store will carry the logo and products of that vendor but is not owned by the vendor (for example, some Xerox copier resellers in the United States).
  - Indirect fax / phone / Web — This is a channel through which resellers sell a variety of products to end users through the use of the telephone, Web, fax, fax back and mail, including catalog sales. This is different from the direct fax / phone / Web channel in that the products are sold by resellers rather than direct from the vendor.
  - VAR — This is a reseller that usually is not a storefront operation and typically acts as a consultant to clients. To qualify as a VAR, a reseller must have developed or configured some type of software package targeted at a particular market or offer significant integration expertise to the customer. VARs typically generate 40 percent or more of their revenue from custom products, service and support. VARs do not apply their label to the product and may, or may not own the hardware or software.
  - Systems integrators — These are system vendors and independent service providers that supply professional services to apply, migrate and integrate technology into business processes.
  - Hosting and ASPs — These offer access to software over a network and may, or may not include customization services