Market Definitions and Methodology: Vertical Industries

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Initiatives: Industry Markets and Technologies; Technology Market Essentials

This report provides a guide for understanding the Gartner vertical industry market segmentation, definitions, research methodologies, and metrics that form the basis of vertical industry market research and enterprise IT spend forecast statistics.

Additional Perspectives

- Update: Gartner to Expand Its Vertical Forecast Segmentation for IT Services
(28 June 2021)
- Update: Gartner to Revise Its Utilities and Transportation Industries Forecast Segmentation
(11 December 2020)
- Update: Gartner to Revise Its Retail Industry Forecast Segmentation
(19 November 2020)
- Update: Gartner to Expand Its Communications, Media and Services Industry Forecast Segmentation
(24 November 2020)
- Update: Gartner to Revise Its Manufacturing Industry Forecast Segmentation
(03 December 2020)
- Update: Gartner to Rename Its Banking and Securities Industry Forecast Segmentation
(19 November 2020)
- Update: Gartner to Expand Its Insurance Industry Forecast Segmentation
(24 November 2020)
- Update: Gartner to Expand Its Vertical Industry Forecast Segmentation
(25 November 2020)

What You Need to Know

Gartner publishes comprehensive Market Trends and forecast statistics reports by vertical industry. The foundation for all vertical industry research is based on consistent nomenclature and classification. Primary survey data and vendor revenue are captured based on the Gartner-defined industry market segmentation. This report is intended to outline the classification and description for our vertical industry coverage.

Introduction

Vertical Industry Market Overview

Gartner publishes IT spending forecast statistics every quarter by vertical industry market. The forecast reports provide a view of the estimation of current year and the last two years, as well as the forecast of the next four years. Forecast reports produced include:

- Enterprise IT Spending by Vertical Industry Market, Worldwide Forecast Database — Data includes business IT spending for segments of hardware, software, IT services categories, enterprise communications equipment, mobile devices, fixed and mobile network services, and internal spending by industry market. The data is presented as two-year historical data, the current year and a four-year forward forecast.
- Industry-Specific Forecasts — Specialized industry-specific forecasts of selected IT solutions and/or technologies within a given vertical market. Industry-specific forecasts are a subset of the enterprise IT spending by vertical industry market worldwide forecast.
- IT Services Worldwide Market Share Database — IT services market share data published annually includes IT services provider revenue by major service line, Tier 1 vertical and geographical area.

Notable Changes

Gartner is implementing a multiyear program that will bring significant changes to its global IT market coverage, definitions and forecast methodology for all IT sectors. To provide consistent coverage of both new and converging IT markets, we are undertaking a number of projects designed to expand coverage, update market definitions, revise segmentations and enhance forecast methodologies.

Effective June 2020, Gartner has made the following changes to its IT services segmentation and definitions:

- **Implementation services:** This includes software product engineering services within its definition of implementation services. Hardware product engineering services will continue to be excluded from Gartner's definition of implementation services.

Methodology

Vertical Industry Market Statistics Methodology

Forecasting Methodology Overview

Gartner's forecasting objective is to provide clients with forecasts that are useful, credible, accurate, transparent and timely. It is important to provide clients with details of the assumptions that built the forecast. As such, Gartner provides additional documentation on forecast assumptions to accompany forecast documentation in the form of quarterly Forecast Analysis reports and annual Forecast Overview reports. Gartner uses tools and processes that maximize our overall presence in industry research to provide a unified, coherent picture of the IT market.

Gartner analyzes a full range of influences that can affect a forecast. These include general macroeconomic conditions, intensity of competition, the rate of innovation among competitors and suppliers, changes in business models, changes in production or delivery models, access to capital, buyer behavior and demographics, and influence of regulatory and standards bodies. Analysts also look at currency and interest rate fluctuations, business expectations and capital-spending plans, and changes in key economic indicators. In the geopolitical arena, analysts assess the impact of trade issues, political stability, tariff and nontariff barriers.

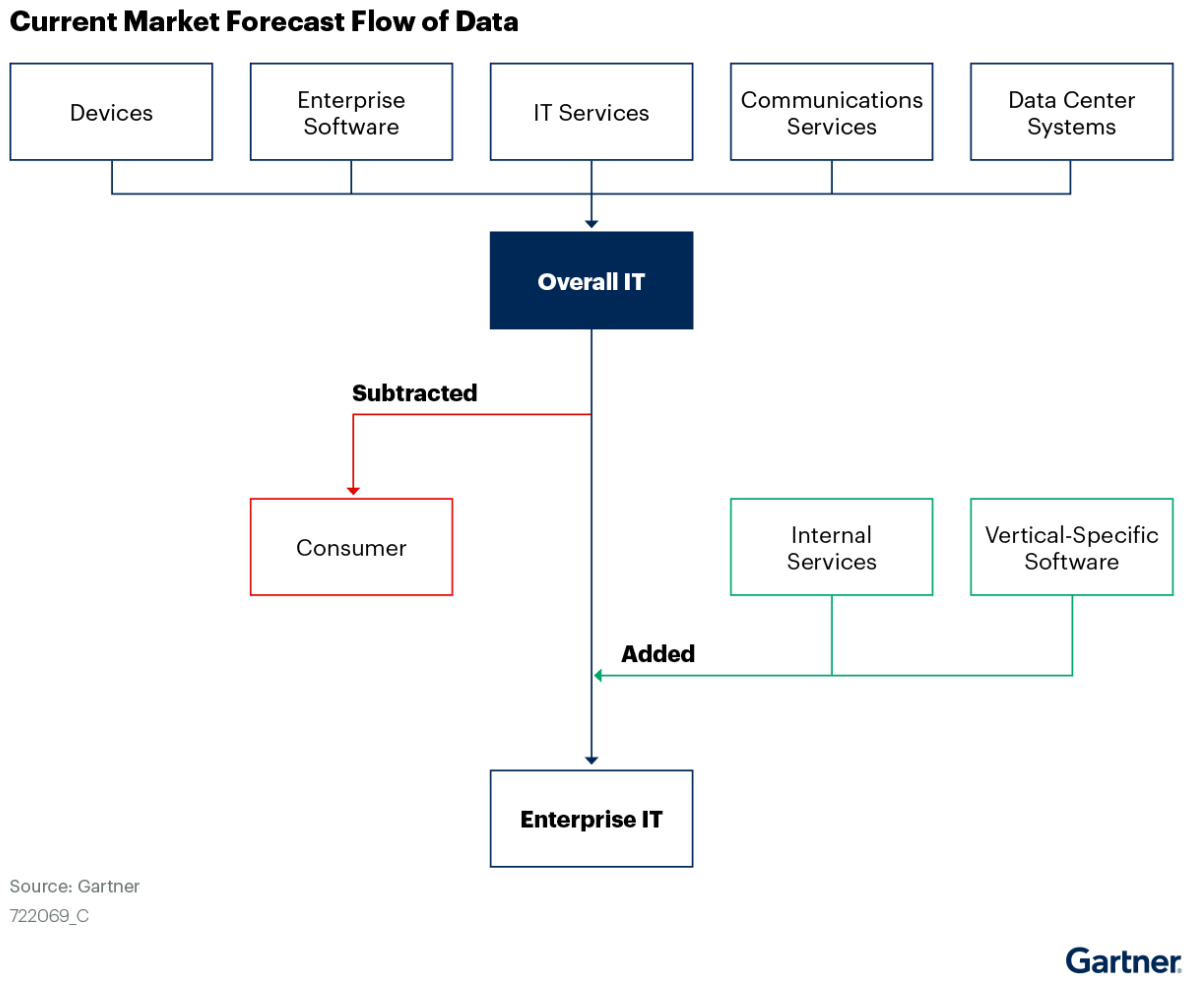
Enterprise IT Spending Flow From Gartner Overall IT Spend

Gartner's technology and service provider research group covers five technology areas with defined market forecasts and various market share data points comprising the overall IT market: devices, enterprise software, IT services, telecommunications services and data center systems. Each area contains many levels of granularity (see the Enterprise IT Spending Forecast Component Definitions that are detailed in the High-Level Definitions and Segmentation section of this document).

End-user spending on enterprise IT is derived from overall IT, from which consumer spending, double-counted items, carrier network infrastructure and carrier-network-infrastructure-related IT services are removed and to which internal services and vertical-specific software are added (see Figure 1).

Also, please note that operational technology (OT), other than carrier network infrastructure, is not included in the overall IT category.

Figure1. Current Market Forecast Flow of Data



Internal Services

Internal service spending is estimated as part of the enterprise IT spending forecast publication. Internal services are not a market in that they are not commercial, third-party services. Rather, internal services are IT payroll costs that enterprises (including governments) assume to support their own IT operations and initiatives. We estimate spending on internal services in the enterprise IT spending forecast by verticals to assist technology providers in estimating opportunity for capturing the work performed within the IT department via outsourcing services. Baseline estimates for each industry are developed using primary and secondary research sources that include end-user budget data and industry benchmarks. External factors that impact changes in IT staffing requirements, such as shifts in how software and service technologies are being provisioned and managed within industries, shape the comparative size and growth trajectory of internal versus external spending ratios.

Vertical-Specific Software

Creating the forecast for the vertical-specific software (VSS) market is primarily a two-pronged process. It involves:

- Sizing of the market
- Forecasting for the next five years

To size the market, Gartner conducts primary surveys about spending on VSS and collects supportive secondary data, such as vendors' financial analysis and users' budgeting. Gartner estimates the total size of the market by country based on a combination of bottom-up and top-down analysis. A combination is used to avoid the systematic biases that could arise if either of these process types were used on their own.

For forecasting, we plan for different scenarios of future changes in market conditions — this helps us to identify expected changes in spending. The forecast that is arrived at is based on our assumptions for the set of influencing factors that could affect our forecast, including general macroeconomic conditions and exchange rate fluctuations.

Market Share and Market Size Overview

Gartner's market share methodology combines primary and secondary sources to produce estimates of technology and service provider revenue for a given historical period. Typically, in a particular market segment, we survey every major participant active in that segment to solicit inputs about sales revenue by product or service line and by geographic region. This primary research is supplemented, where appropriate, with additional research to verify market size, shipment totals and pricing information. Vertical industry market size is leveraged from data sources, such as IHS Economics & Country Risk sector sales.

Vertical industry analysts formulate the vertical market size percentages and projected growth rates based on primary and secondary research, and insights obtained through inquiries, along with analysis with other domain experts. Therefore, a mix of quantitative (statistical) and qualitative (judgmental) methods is used to generate forecasts.

Metrics

Gartner's vertical industry forecasts are reported in current and constant currency:

- Current-dollar figures indicate the U.S. dollar end-user spending that vendors/providers could expect to earn, given prevailing exchange rates.
- Constant-dollar figures, on the other hand, reflect the equivalent U.S. dollar value of market spending at fixed exchange rates.

The forecasts are expressed in nominal dollars and nominal growth rates. To say our forecasts are "nominal" means they express the actual dollars exchanged during the indicated period. Further information on exchange rates and metric calculations can be found in "Market Definitions and Methodology: IT Markets."

Research Metrics

This section describes the research metrics Gartner uses for reporting end-user spending, market size and market share:

- Compound annual growth rate (CAGR) — The annualized rate of revenue or unit shipment growth between two given years, assuming growth takes place at an exponentially compounded rate. The CAGR between 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 five-year CAGR for 2019 through 2024 is calculated as follows: CAGR 2019 through 2024 = [(Value in 2024/Value in 2019) ^ (1/5) - 1]. Similarly, the annual growth rate (AGR) between 2019 and 2020 is calculated as follows: AGR 2019 to 2020 = [(Value in 2020/Value in 2019) ^ (1/1) - 1].

$$\left(\frac{Value\ in\ 2024}{Value\ in\ 2019}\right)^{\frac{1}{5}} - 1$$

$$\left(\frac{Value\ in\ 2020}{Value\ in\ 2019}\right)^{\frac{1}{1}} - 1$$

High-Level Definitions and Segmentation

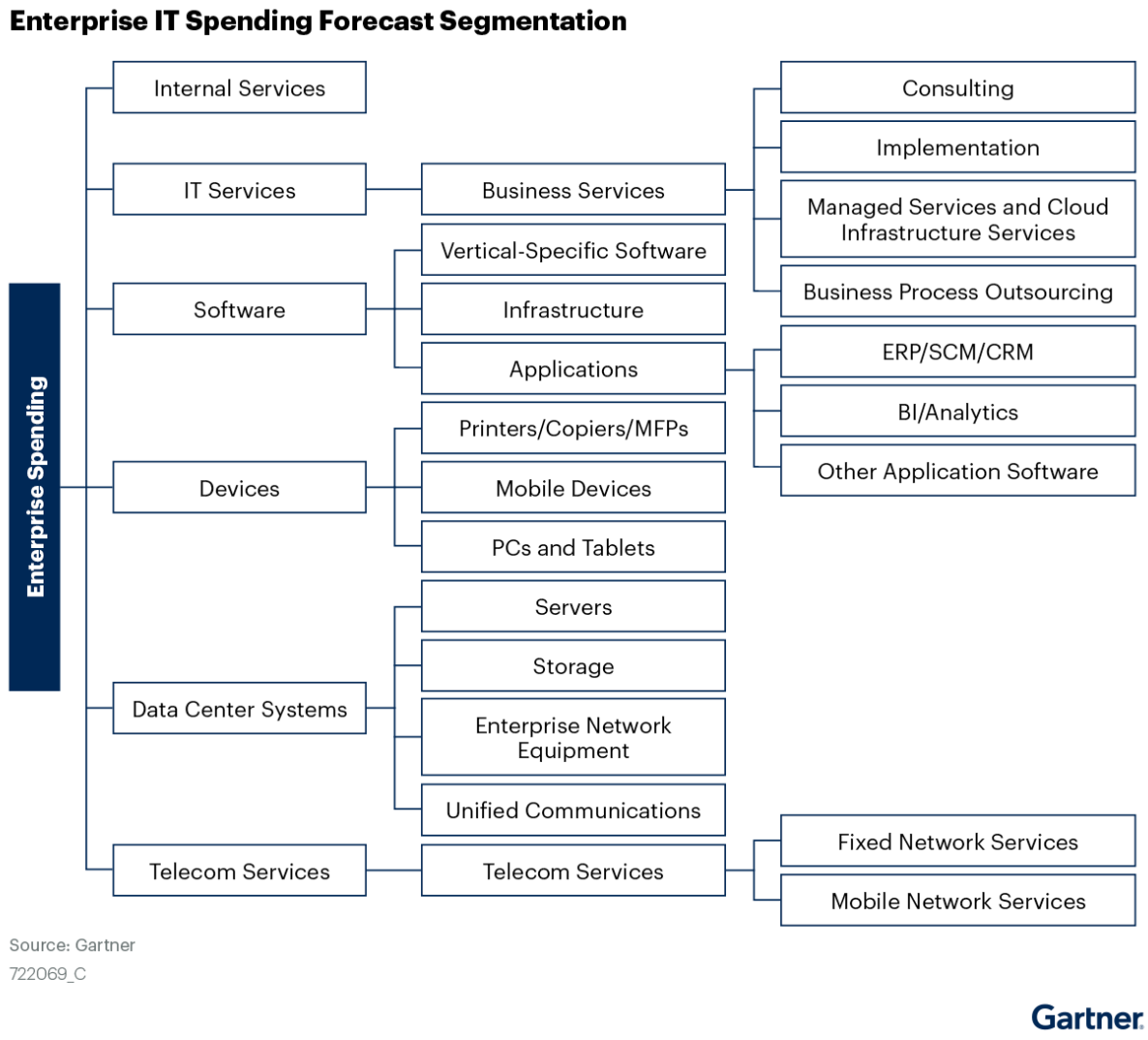
Enterprise IT Spending Forecast Segmentation

The vertical industry forecast comprises total enterprise IT spending, including internal spending on IT payrolls (that is, internal services), as well as spending on devices, data center systems, enterprise software, IT services and communications services. Enterprise spending on OT within industries, as well as non-IT-related areas, is not included.

Enterprise IT Spending Segmentation

Enterprise IT spending encompasses all third-party market transactions by end users in public and private organizations. Business IT spending forecast components are identified in Figure 2. The specific technologies and IT-related services included within each of the top-line forecast components are defined later in this document.

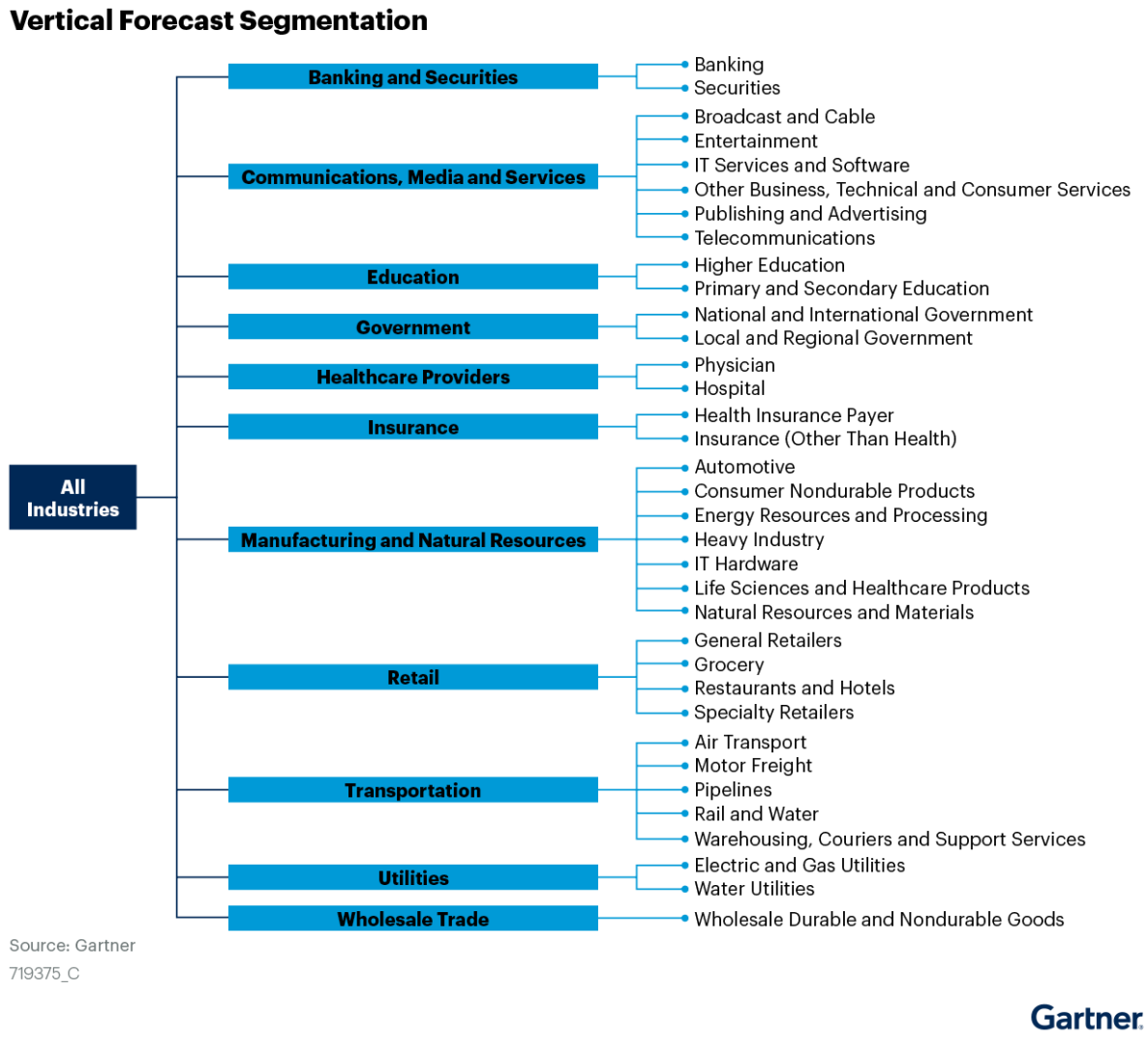
Figure 2. Enterprise IT Spending Forecast Segmentation



Vertical Industry Market Segmentation

The industry IT spending forecast identifies 11 primary or Tier 1 vertical industries and 35 secondary or Tier 2 vertical industries, as outlined in Figure 3.

Figure 3. Vertical Forecast Segmentation



Geographic Segmentation

The vertical industry market IT spending forecast is segmented by 50 countries (or provinces or markets) within 11 geographies. The geographic segmentation has been updated to better reflect market opportunity. Table 1 outlines the geographic segmentation of the forecast.

Table 1: Vertical Industry Forecast Regions and Countries/Markets

(Enlarged table in Appendix)

Region	Country (or Province or Market)
North America	Canada
	United States
Latin America	Argentina
	Brazil
	Chile
	Colombia
	Mexico
	Rest of Latin America
Western Europe	Austria
	Belgium
	Denmark
	Finland
	France
	Germany
	Greece
	Ireland
	Italy
	Netherlands
	Norway
	Portugal
	Spain
	Sweden
	Switzerland
	United Kingdom
	Rest of Western Europe
Eastern Europe	Czech Republic
	Hungary
	Poland
	Rest of Eastern Europe
Eurasia	Russia
	Rest of Eurasia
Middle East and North Africa	Israel
	Saudi Arabia
	Turkey
	Rest of Middle East and Africa
Sub-Saharan Africa	South Africa
	Rest of sub-Saharan Africa
Mature Asia/Pacific	Australia
	New Zealand
	Singapore
	South Korea
Greater China	China
	Hong Kong
	Taiwan
Emerging Asia/Pacific	India
	Indonesia
	Malaysia
	Thailand
	Rest of Emerging Asia/Pacific
Japan	Japan

Source: Gartner (August 2020)

Many individual countries are not tracked individually and instead are combined in subregional designations. These designations include the following countries:

- **Rest of Latin America:** Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Cayman Islands, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, French Guiana, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, the Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Virgin Islands (St. John, St. Croix and St. Thomas), and Venezuela
- **Rest of Western Europe:** Andorra, Cyprus, Iceland, Liechtenstein, Luxembourg and Malta

- **Rest of Eastern Europe:** Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Kosovo, Latvia, Lithuania, North Macedonia, Moldova, Montenegro, Romania, Serbia, Slovakia, and Slovenia
- **Rest of Middle East and North Africa:** Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, the Palestinian Authority, Qatar, Sudan, Syria, Tunisia, United Arab Emirates and Yemen
- **Rest of sub-Saharan Africa:** Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of Congo, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Tanzania, Togo, Uganda, Zambia, and Zimbabwe
- **Rest of Eurasia:** Afghanistan, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan
- **Rest of Emerging Asia/Pacific:** American Samoa, Bangladesh, Bhutan, Brunei, Cambodia, Democratic People's Republic of Korea, East Timor, Fiji, Guam, Kiribati, Laos, Macau, Maldives, Micronesia, Myanmar, Nepal, Pakistan, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Sri Lanka, Tonga, Tuvalu, Vanuatu and Vietnam

Vertical Industry Market Classification

Gartner utilizes widely accepted standardized classifications for the delineation of vertical markets. Gartner maps vertical markets to various industry codes, such as SIC, NAICS and ISIC. ISIC is the International Standard Industrial Classification code. SIC is the Standard Industrial Classification code from 1987 that is widely used within the United States. NAICS is the North American Industry Classification System that was jointly developed by the U.S., Canada and Mexico as a system of classification to replace the SIC system. Many of these national and international classifications are continually updated and revised to accurately capture established and new vertical markets. The most recent ISIC update is to Rev. 4, released in August 2008, and a 2017 update to the NAICS, released in 2017.

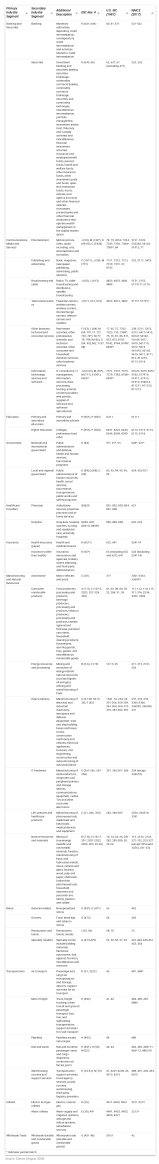
None of the industry codes map perfectly to each other or, by extension, to Gartner's industry taxonomy. As a result, we leverage common codes to develop our own taxonomy. When undertaking a data modeling effort that involves integrating data developed by different sources and methodologies, it is important to recognize that the result will be unique to the organization creating the model.

Vertical Industry Market Segmentation

The primary vertical markets are identified in the Gartner vertical classification, and secondary vertical markets are provided to augment detailed analysis and market strategies. Therefore, Gartner provides a detailed vertical market segmentation map, as shown in Table 2, to illustrate how we define vertical markets.

Table 2: Vertical Market Industrial Code Map

(Enlarged table in Appendix)



Vertical Industry Market Definitions

Gartner defines vertical industry markets in the following categories. While the segmentation map is outlined in order of standard industrial code numbering, primary vertical industries are outlined here in alphabetical format.

Banking and Securities

Banking and securities is composed of the banking industry and securities industry, as defined below.

Banking

Banking includes monetary authorities (such as central banks or federal reserve banks); depository institutions (such as national and state commercial banks, savings institutions, credit unions, branches and agencies of foreign banks, and other depository credit intermediation); nondepository credit institutions (such as credit cards, sales financing, consumer lending, real-estate credit, international trade financing and secondary market financing and other nondepository credit intermediation); activities related to credit intermediation (such as mortgage and nonmortgage loan brokers, building societies, financial transactions processing, reserve and clearinghouse activities, and other activities related to credit intermediation).

Securities

Securities includes securities and commodity brokers and services, such as securities dealers and underwriters, flotation companies, securities brokers, commodity contracts brokers and dealers, securities and commodity exchanges, and investment advice. Funds, trusts and other financial vehicle managers include insurance and employee benefit funds or other investment pools and funds. This category also includes investment and private banks, as well as other financial institutions that operate wealth management in the capital market space.

Communications, Media and Services

As the industry is undergoing much convergence, Gartner has combined and reclassified the industry sectors of communications, media and services (CMS). CMS includes categories of the communications industry, media industry and services industry. This industry category is composed of broadcasting and cable, telecommunications, IT services and software, publishing and advertising, entertainment, and other business, technical and consumer services.

Broadcast and Cable

This industry includes the transmission of sound, images, data or other information via cables, broadcasting, relay or satellite. A cable provider is defined as an entity that owns cable infrastructure and provides cable TV (and, increasingly, telecom) services. A multisystem operator (or MSO, as it is called in the U.S.) is basically a cable service provider. Cable also includes noncable networks and other pay-TV services. Radio and TV broadcasting are included, as well as the transmission and transport of radio and TV programs. Direct-to-home (DTH) satellite broadcasting companies and other satellite providers that transmit voice, video and data using satellite infrastructure are included.

Telecommunications

This industry includes both wireline and wireless providers, where the origin of company uses or resells the telecommunications network and equipment to deliver voice, video and data, either through a fixed line or through wireless technologies. A wireline provider is defined as an entity that owns or operates a switching and transmission facility to provide point-to-point communications via fixed-line network infrastructure (including fixed wireless). It also provides telecom services as a primary business to all or a subset of enterprises, government, consumers or other telecom operators. A wireless provider is defined as an entity that owns or operates a switching and transmission facility to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as mobile phone services, paging services, wireless internet access and wireless video services. This category also includes mobile virtual network operators (MVNOs), which leverage the infrastructure from another wireless provider, offering a mobile storefront of services.

Please note that Gartner research addresses “communications service providers (CSPs),” which is a term to include the traditional classifications of wirelines and wireless, together with cable providers and over-the-top (OTT) and cloud CSPs. We consider only normal enterprise IT spend for CSPs — not their OT spend. In our traditional classification for the definition segmentations, internet content providers and internet value-added service providers, such as Google, Yahoo and Facebook; IM platform providers, such as Tencent; and portal companies are classified under the IT services and software category.

IT Services and Software

This category includes IT services firms, IT services providers, internet content providers (including on-demand music and video streaming providers), internet value-added service providers and software companies. IT services providers include companies that perform services related to computer programming, computer-integrated system design, computer processing, data preparation and processing, information retrieval, computer facilities management, computer rental and leasing, computer maintenance and repair, and other computer-related services.

This category includes IT management consulting service firms and business consulting service firms. This industry also comprises web hosting, data processing, portal companies, internet search portals and internet content providers. It includes news syndicates. Software companies involved in software publishing, gaming software and the reproduction of software, as well as companies providing software as a service, are included.

Publishing and Advertising

This segment includes publishing-related industries, such as newspaper publishers, magazine publishers and book publishers, as well as public relations services and advertising agencies.

Entertainment

Entertainment includes entertainment categories of motion pictures, music, amusement and recreational services, museums, art galleries, botanical and zoological gardens, commercial photography, sound-recording studios, audio-taping services, stock photo agencies, press-clipping services, microfilm services, videotape distribution, motion picture theater, drive-in motion picture theater, videotape and DVD rental, and other motion-picture-related activities. Amusement and recreational services include dance studios, theatrical producers, bands, orchestras, actors, entertainment groups, bowling centers, professional sports clubs and promoters, racing operators, amusement arcades, golf courses, fitness centers, amusement parks, theme parks, skiing facilities, lottery, bingo, and other gaming and ticket agencies. This segment excludes on-demand music and video streaming providers (that are included in “IT Services and Software” segment).

Other Business, Technical and Consumer Services

This segment includes a wide range of other business, technical and consumer services, as well as real-estate-related services. It comprises companies providing legal services, bookkeeping services, engineering services and other professional, scientific and technical services other than IT-related services. It includes personal services, domestic household services, consumer services and other miscellaneous services. It includes dry-cleaning services, upholstery and carpet cleaning, laundry services, beauty shops, barber shops, funeral services, crematories, shoe repair shops, adjustment and collection services, credit reporting services, employment agencies, auto repair services, other automotive services, and other repair shops. Real estate includes operators of nonresidential buildings, operators of apartment buildings, operators of dwellings other than apartment buildings, operators of residential mobile home sites, lessors of real property, real estate agents, managers, appraisers, land developers and subdividers, residential construction services, and cemetery subdividers and developers.

Education

The education industry is divided into primary and secondary education, and higher education and other educational services. Education includes both private and public schooling.

Primary and Secondary Education

Primary and secondary education is classified as more or less the term of compulsory school attendance. It is also termed as “kindergarten through the 12th grade” or “K-12.” Education can be provided in the classrooms or through internet, broadcast or correspondence courses. Special courses for handicapped students at the primary and secondary levels of education are included.

Higher Education

Higher education is postsecondary education that may or may not lead to a university degree or equivalent. Junior colleges, colleges, universities, professional schools and technical schools are included. Specialized training and institutions, such as business and secretarial schools, data processing schools, art schools, culinary schools, vocational schools, and other adult education, are included.

Government

Government is composed of local and regional government, and national and international government.

Local and Regional Government

Local, provincial, state and regional government includes justice, tax/revenue, health programs (such as Medicaid in the U.S.), transportation/public works and safety activities (such as courts, police and fire departments), the administration of human resources programs (administration of education programs, public health programs and social programs); the administration of environmental quality programs; the administration of housing programs; urban planning and community development; and the administration of economic programs.

National and International Government

This category includes military/intelligence affairs and civilian programs. Military/intelligence affairs include the administration, supervision and operation of land, sea, air, space and cyberspace technologies and services throughout their entire life cycle, from R&D through retirement. Civilian programs include the executive, legislative and financial branches providing general government support, such as health and social services, justice, commerce, employment/labor, transportation or public safety.

Healthcare Providers

The healthcare provider industry includes hospitals and hospital systems, as well as ambulatory service and physicians' practices.

Hospitals

Hospitals include health service facilities, such as healthcare delivery organizations (HDOs), integrated delivery networks (IDNs), medical centers, general medical and surgical hospitals, university hospitals, psychiatric hospitals, children's hospitals, substance abuse hospitals, other specialty hospitals, and surgical and emergency centers; skilled nursing care facilities; intermediate care facilities; and other health and allied services.

Physicians

Physicians include health service facilities, such as offices and clinics of doctors of medicine; offices of physicians and mental health specialists; offices and clinics of dentists, osteopathy, chiropractors, optometrist, podiatrists, health practitioners, physical, occupational, recreation, and speech therapists and audiologists; pathology laboratories; dental laboratories; kidney dialysis centers; home healthcare services; family planning centers; outpatient mental health facilities and other specialty outpatient facilities; and blood and organ banks.

Healthcare provider spending does not include government spending on healthcare such as Medicare or Medicaid spending, spending on veterans, or spending by individual government departments.

Insurance

This category includes health insurance and insurance agencies other than health.

Health Insurance (Payer)

Health insurance includes health and medical insurers, reinsurance carriers for health and medical, and self-insurers for hospital and medical service plans.

Insurance (Other Than Health)

Insurance includes insurance carriers other than health and insurance agents, brokers and service. It includes reinsurance; life insurance; accident insurance; fire, marine and casualty insurance; surety insurance; title insurance; property, rental and earthquake insurance; and all other insurance carriers.

Manufacturing and Natural Resources

The manufacturing and natural resources industry includes automotive, consumer nondurable products, heavy industry, energy resources and processing, life sciences and healthcare products, natural resources and materials, and IT hardware.

Automotive

Automotive includes motor vehicles (cars and light trucks) and parts.

Consumer Nondurable Products

This segment includes food producers, processing and products; beverage producers, processing and products; tobacco producers, processing and products; and textiles, apparel and footwear, personal care items, household cleaning products, and housewares.

Heavy Industry

Heavy industry includes industrial and electrical machinery, transportation equipment other than automotive (aerospace and defense equipment, ship and rail building), electrical appliances, construction, and subcontracting of infrastructure and industrial plants.

Energy Resources and Processing

This segment includes energy mining (coal, uranium, and oil and gas), and refining and blending of fuels.

Life Sciences and Healthcare Products

This segment includes pharmaceuticals, medicinal, biotechnology, medical devices and medical supplies.

Natural Resources and Materials

This segment includes nonenergy mining, basic and fabricated metals, stone, cement and glass, forestry and wood products, pulp and paper, chemicals (excluding pharmaceuticals and household detergents), plastics and rubber.

IT Hardware

IT hardware includes semiconductors, computers and peripherals, communications devices, electronics, and electronic components.

Retail

The retail industry includes general retailers, specialty retailers, grocery, and restaurants and hotels.

General Retailers

General retailers include department stores, variety stores and miscellaneous general merchandise stores.

Specialty Retailers

Specialty retailers include stores that sell special goods, such as building materials, hardware, automotive dealers, gasoline service stations, fuel, apparel, furniture and other miscellaneous specialty retailers.

Grocery

Grocery includes convenience stores with or without gas, supermarkets and grocery stores, meat and fish markets, fruit and vegetable markets, candy stores, nut and confectionery stores, dairy product stores, retail bakeries, and miscellaneous food stores.

Restaurants and Hotels

This segment includes restaurants, cafeterias, snack and nonalcoholic beverage bars, food service contractors, caterers, drinking places (bars and pubs, as well as hotels and other lodging facilities), casino hotels, motels, bed and breakfast inns, rooming and boarding homes, sporting and recreational camps, recreational vehicle parks, campsites and lodging houses, and other organization hotels.

Transportation

The transportation industry is composed of rail and water, motor freight, air transport, pipelines, and warehousing, couriers and support services.

Rail and Water

This segment includes rail transportation (line-haul railroads and short-line railroads) and water transportation. Water transportation includes deep-sea foreign transportation of freight, deep-sea transportation of passengers, water transportation of freight and passengers, ferries, marine cargo handling, towing, tugboat services, and marinas, ports and harbor operations. Rail transportation includes commuter rail, interurban rail transit, local and suburban passenger rail, subways, and other rail transport modes.

Motor Freight

This segment includes motor freight transportation and warehousing, and privately owned local and interurban passenger transit. This includes local trucking without storage, such as solid waste collection, hazardous waste, general freight trucking, household goods moving, local specialized freight trucking, long-distance trucking, local trucking with storage, bus and motor vehicle transit, airport limousine transportation, taxicabs, and school buses.

Air Transport

Passenger air transportation, freight air transportation, air ambulance, airports, flying fields, airport terminal services, hangar operations, air traffic control and all other air transport are included in this category. All support activities for air transport are included.

Pipelines

Pipelines, except natural gas, are included in this segment, such as crude petroleum pipelines, refined petroleum pipelines and other pipeline transportation.

Warehousing, Couriers and Support Services

Warehousing, couriers and transportation support services, such as travel agencies, global distribution service (GDS) firms, tour operators, car pools and van pools, are included in this segment. Third-party logistics (3PL) providers and lead logistics providers (LLPs)/fourth-party logistics (4PL) providers are included. The U.S. Postal Service, and other postal services and courier services are also included. Other areas include general warehousing and storage, farm product warehousing and storage, refrigerated warehousing and storage, and other special warehousing and storage facilities.

Utilities

The utilities industry is composed of electric, gas and water segments.

Electric and Gas Utilities

This segment, along with sanitary services, includes hydroelectric power generation, electric power generation by fossil fuels, electric power generation by nuclear fuels, other electric power generation, electric power transmission and control, electric power distribution, natural gas manufacture, pipeline transport of natural gas and distribution of gaseous fuels through mains, and other combination utilities.

Water Utilities

Water includes water supply, irrigation systems, sewage systems, refuse systems for material recovery facilities, hazardous waste treatment and disposal, solid waste landfills, solid waste combustors and incinerators, other nonhazardous waste treatment and disposal systems, and other sanitary services.

Wholesale Trade

The wholesale trade category includes durable and nondurable goods.

Wholesale Durable and Nondurable Goods

The wholesale durable goods segment includes automobile wholesalers; automotive parts and accessory wholesalers; tire and tube wholesalers; furniture and home furnishing wholesalers; building material wholesalers; and all wholesalers of office equipment, computer equipment, medical equipment, dental equipment, industrial machinery and equipment, farm and garden machinery and equipment, and other durable goods products.

The nondurable goods segment includes wholesalers of stationery, printing, writing paper, drugs, piece goods, clothing, footwear, groceries, packaged frozen foods, dairy products, poultry products, meat products, fish and seafood, confectioneries, fruits, vegetables, grains, flowers, tobacco, paint, and other nondurable goods.

Enterprise IT Spending Forecast Component Definitions

Internal Services

Internal services refer to salaries and benefits paid to the information service staff of an organization. The information service staff includes all company employees who plan, develop, implement and maintain information systems.

IT Services

IT services refer to the application of business and technical expertise to enable enterprises to create, access, manage, and optimize IT and IT-intensive business processes provided by an external IT services vendor. IT services do not include stand-alone product development. IT services include business services.

Effective June 2020, Gartner has made the following changes to its IT services segmentation and definitions:

- Implementation services: This includes software product engineering services within its definition of implementation services. Hardware product engineering services will continue to be excluded from Gartner's definition of implementation services.

For further detailed information, see "Market Definitions and Methodology: IT Services."

Business Services Definitions

Business services include consulting, implementation, managed services and cloud infrastructure services and business process outsourcing (BPO). These services are defined in the following sections.

Consulting services are advisory services to help companies analyze and improve the efficacy of business and technology strategies and operations. Consulting services include two subsegments: business consulting and technology consulting.

Implementation services provide project-based services to install, develop and customize IT solutions, assets and processes, as well as to integrate them with established application, infrastructure and processes. Software product engineering services, where a service provider is contracted to develop or build software that will become part of their clients' products or services, are included in Gartner's definition of implementation services. Hardware product engineering services, where a service provider is contracted to develop or build a physical thing for their client, continue to be excluded from Gartner's definition of implementation services.

Managed services and cloud infrastructure services provide day-to-day maintenance, enhancement, optimization, management and operations of IT services, processes and methodologies, including infrastructure and business applications through both traditional and cloud deployment models. Managed services and cloud infrastructure services contracts are differentiated from project services in that they are ongoing, performance-based contracts (SLA-driven) that are typically multiyear to deliver day-to-day IT operations and management versus custom, project-based efforts. The capabilities can include the hardware, software, labor and facilities. Managed services and cloud infrastructure services market segments are differentiated by the degree and type of vendor responsibility specified in the service contract.

BPO is the delegation of one or more IT-enabled business processes to an external provider that, in turn, owns, administers and manages the processes and agreed-upon outcomes based on predefined performance metrics. BPO providers offer buyers improved business process efficiency and effectiveness. Outsourced processes include knowledge-based processes and transactional ones, as well as include the support and administration of front-office, middle-office and back-office activities. Almost any business process or discrete part thereof can be awarded to a BPO provider, with the boundaries regularly being widened to include more sophisticated processes. Entire processes or discrete subprocesses can be outsourced to form end-to-end, comprehensive service arrangements.

BPO contracts range from contracting for labor only, to labor plus process enhancement technologies and services (PETS) to BPO plus ITO on a single contract to business process as a service (BPaaS). BPaaS as the delivery of business process services whose underlying construct is multitenancy — is often achieved by leveraging cloud services. Services are often automated, and the required labor pool is shared (so it is not overtly dedicated to a specific client). The pricing models are consumption-based or subscription-based commercial terms that may be gain-sharing-based or outcome-based.

In most cases, the inherent risk and responsibility associated with the administration of the outsourced processes (and agreed-upon outcomes) belong to the service provider, but this is not always the case; these risks and responsibilities are outlined in the contract's statement of work.

Software Definitions

For the complete definition and description of Gartner's software market methodology, see "Market Definitions and Methodology: Software."

For the vertical market IT forecast, there are several notable inclusions and exclusions related to software components, as identified below:

- Operating system spending is included in the hardware forecast, because the hardware team includes the price of operating systems in the hardware forecasts, but it does not delineate the value. The software team does provide a detailed operating system forecast (PCs, mainframes) to clients; however, it is not included in the vertical industry IT software market sizing to avoid double-counting.

- Lastly, the vertical market IT forecast embeds voice recognition software spending in the telecom equipment forecast, because software does not cover voice recognition, and telecom considers voice recognition software to be a part of call center equipment sales.

The software market model consists of the following fundamental components:

Enterprise Application Software

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.

- ERP/SCM/CRM:
  - Enterprise resource planning: ERP is an application strategy focused on several distinct enterprise application suite markets. ERP is referred to typically as a back-office application set, but ERP applications typically automate and support more than administrative processes and include the support of production and inventory processes, as well as the asset management aspects of an enterprise.
  - Supply chain management (SCM): SCM is a business strategy to improve shareholder and customer value by optimizing the flow of products, services and related information from the source to the 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. At a high level, SCM software is segmented into planning, execution and procurement components. Planning deals typically with activities to develop demand forecasts, establish relations with suppliers, plan and schedule manufacturing, and develop metrics to ensure efficient and cost-effective operations. Execution functions manage the processes and activities to ensure completion of the plans, including creating purchase orders, taking customer orders, updating inventory, managing movement of products in the warehouse, and delivering goods to the customer. Procurement applications are used to help companies identify and improve the terms and conditions of trade to understand enterprise spending.
  - Customer relationship management: 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, the outcome of which 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: customer service and support (CSS), digital commerce, marketing, and sales.

- Analytics and business intelligence (BI):
  - Analytics and business intelligence (BI): It is an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance.
  - BI platforms: BI platforms provide the infrastructure and tools to enable users to build applications that facilitate decision making and help organizations learn, understand and improve their business. Gartner defines a BI platform as "a software platform that delivers more than one-third of the following capabilities under three overarching categories of functionality: information delivery, analysis and integration."
  - Analytic applications: Analytic applications are packaged BI capabilities to address a particular domain or industry vertical business problem. Their advantage is that, as packaged solutions, they provide faster deployments and easier maintenance, and they incorporate domain expertise and best practices. Examples of packaging include a user interface (UI) suitable for casual users, predefined integration with standard business process applications, issue-specific data models, and best-practice templates or wizards.
  - Data science platforms: Gartner defines data science platforms as "one or a set of software applications that allow data scientists, statisticians and citizen data scientists to conduct the following activities either as stand-alone or in concert: data import, modeling (for example, prediction, classification, clustering, affinity analysis, simulation and optimization) and model deployment." It does not include packaged analytic applications specific to particular domains or services.
  - Geospatial and location intelligence platforms: Geospatial and location intelligence (GLI) platforms are software applications that enable access to and the utilization of geospatial and location data associated with people, objects or landmarks, along with information for location-referenced analysis.

- Other application software:
  - Corporate performance management (CPM): “CPM” is an umbrella term that describes the methodologies, metrics, processes and systems used to monitor and manage the business performance of an enterprise. Applications that enable CPM translate strategically focused information into operational plans and send aggregated results.
  - Email and authoring: This market consists of two product categories that are purchased together in what used to be known as an “office suite” or a “productivity suite.” Office suites have expanded to include many more capabilities than just email and authoring. So to the extent an office suite has more than just email and authoring, Gartner tracks only email and authoring software targeted at enterprises. Where a single price is paid for applications that cross categories, an allocation has been made to allocate just the portion specific to general-purpose content creation applications to this category.Authoring software is a collection of general-purpose content creation applications for tasks such as word processing, spreadsheet manipulation and presentation graphics. Subscription models for office suites are becoming more prevalent to smooth out revenue cycles, fund improvements and stem piracy.Both email and calendaring are included in this market.
  - Collaboration services: Collaboration is goal-focused and often centered on documents and other forms of content, processes and projects. General-purpose, enterprise social software suites provide shareable virtual workspaces that contain artifacts such as documents, pages of text, images and tools for activities such as shared discussions or project calendars. Wikis and team sites are common types of collaboration spaces.

- Project and portfolio management (PPM): PPM applications support an integrated view across the portfolio of resource effort, including both project and nonproject work. Organizational resource information can be grouped into taxonomies of roles, functions and skill sets, thus allowing for better tracking of resource assignment and utilization. PPM applications also support integrated planning of multiple, dependent projects in programs, with a view of cross-project dependencies, program-level budgets, costs, schedules and resource plans, and with flexible reporting of project and program data. Applications allow for logging project problems and issues, as well as analyzing the impact of proposed changes.Portfolio management supports decision making that aligns initiative investments with business value, and it also features mechanisms to review benefits realization. Functions provide BI on project or service delivery and dashboard views of initiative alignment, schedule and budget variances, resource capacity, service levels, and more.
- Content services: The content services market contains many subsegments — imaging and document workflow, records management, and structured content creation, to name just a few. But Gartner tracks only two:
  - Content collaboration platforms (CCPs) (an expansion of the enterprise file synchronization and sharing [EFSS] market)
  - Content services platforms (CSPs) (formerly known as enterprise content management [ECM])
- Other application software: Other application software includes, but is not limited to, collaboration, digital content creation (DCC), e-discovery, enterprise IM, web conferencing, engineering applications, enterprise search, and stand-alone mobile and wireless applications. The segment also includes other application software that is reported in vendors' income statements but is not reported in our Market Share publications.

Infrastructure Software

The focus of infrastructure software is to build, run and manage the performance of IT resources. In this category, we gather software primarily for use by IT professionals.

The infrastructure software includes:

- Application development

- Application infrastructure and middleware
- Data management
- IT operations management software
- Security software
- Storage management software
- Virtualization Infrastructure software
- Other infrastructure software

Vertical-Specific Software

Vertical-specific software (VSS) is defined as software applications that are unique to a vertical industry. These are stand-alone applications that are not modules or extensions of horizontal applications. This category does not include custom-developed applications. Examples of VSS are as follows:

- Banking and securities — Examples include:
  - Core banking, Islamic banking, online banking, mobile banking, check processing, card processing, lending, syndicated lending, leasing, dealer finance, factoring, credit administration, repo and securities lending, specialty lending, private banking, payments, cash management, funds transfer, automated clearinghouse (ACH), estate planning software, financial planning software, and equipment finance/leasing.
  - Treasury management: Banking treasury systems, reconciliations, cash-flow management, corporate finance, treasury management, trade finance, and asset and liability management (ALM).
  - Trade/trade-related/settlement: Order management, trade capture, reconciliation, confirmation, document and collateral management, settlement/exchange systems, valuation, profit and loss (P&L), derivatives, multiasset, and clearing.
  - Governance, risk and compliance: Liquidity risk management, value at risk (VAR) calculations, risk databases, operational risk, credit risk, enterprise risk management, anti-money-laundering (AML), know your customer (KYC), regulatory reporting, capital adequacy norms (such as Basel accords), and data solutions for risk.
  - Investment management: Institutional “asset management” and retail “wealth management” (funds management, portfolio analytics, performance attribution, wealth management, trust, share registry, net asset value [NAV] calculations, financial planning).
  - Other industry-specific software such as PitchBook. This software category does not include either data providers or data solutions/reference data management software (such as software whose main functionality is to provide data it is bundled with, such as in the case of market data subscriptions).

- Communications, media and services — Examples of VSS in the media sector include digital asset management, scheduling management, automation software, scheduling software, resource management, rights and royalty software, 3D creation software, scriptwriting software, music score software and other related music software, and e-book software. The service industry VSS includes, but is not limited to, testing software, product design and engineering software, and other profession-related software, such as paralegal software, and real estate and property management software. Please note: VSS for CSPs that include business support system (BSS), operations support system (OSS) and service-delivery-platform-related software and other CSP operational technology application software are no longer included in IT spending (but included in OT spending) (see "Market Definitions and Methodology: Communications Service Provider Operational Technology"). Other categories of OT software specific for CSPs and nonoperational technology software, such as software related to delivering value-added services and media and entertainment-related software such as content creation and content-delivery-related software, gaming software and other apps software are included.

- Education — Education VSS spending aligns to the major process areas around students, administration, operations and so forth. This would include student administration systems, test administration systems, loan administration systems, distance learning systems, unified digital campus systems, fundraising management systems, enrollment management systems, power management systems, computer-aided design/engineering and geographic information systems (GISs).

- Government — Government VSS spending tends to focus on agency-specific processes and domain areas. This includes community development and regulation systems (administration), integrated tax systems (revenue), case management systems (human services), Women, Infants and Children (WIC) management systems (health), computer-aided dispatch (public safety), jury management systems (courts), hazardous waste tracking (natural resources), operations management systems (public works), net-centric applications (defense), and border security applications (homeland security). Please note that Gartner actively tracks more than 70 VSS categories in the government market.

- Healthcare providers — VSS includes software related to the delivery of healthcare and the specialized revenue cycle management related to providing those services. These applications include computer-based patient records, electronic medical records, audit and fraud detection, health information management, patient financial management, contract management, rule/coding content, patient access management, medical content, master patient index, health information exchanges, personal health records, personal health information systems, ambulatory/physician practice, emergency department systems, hospital departmental systems, medical imaging, telehealth solutions, clinical data repositories, patient self-service kiosks, patient throughput logistics management, e-prescribing, healthcare asset management, International Classification of Diseases-9 (ICD-9), ICD-10 crosswalk, and medical natural-language processing.

- Insurance — This includes agent and/or broker platforms, applications and portals, asset management, billing and payment processing, claims management, platforms, applications and portals for customer self-service and/or sales via the internet, incentive and compensation management, policy administration, product management/product configurators, reinsurance management, risk management, and regulatory and/or compliance, insurance-specific fraud applications and underwriting.

- Manufacturing and natural resources — VSS in manufacturing and natural resources includes applications for: electronic laboratory notebooks, bioinformatics, laboratory information management systems, product formulation and recipe management systems, product engineering and design software (computer-aided design [CAD]/computer-aided manufacturing [CAM]/computer-aided engineering [CAE]), product data management, product life cycle management, manufacturing process simulation and management, and product configuration systems. Also included are manufacturing operations management; manufacturing visibility/manufacturing intelligence; manufacturing execution systems; electronic work instructions; shop floor control systems; plant and production historians; product tracking and tracing systems; real-time plant scheduling systems; product quality and test management systems; lean manufacturing systems; electronic Kanban and line balancing systems; corrective and preventive action systems; environmental, health and safety compliance systems; warranty management systems; maintenance, repair and overhaul systems; reverse logistics systems; and computerized plant maintenance management systems.

- Retail — Retail VSS includes software related to merchandising management systems and in-store operations applications. Modules in the merchandising suite include merchandise planning, replenishment and allocation, point-of-sale applications, in-store analytics, in-store workforce management, and in-store customer management. Also included are hospitality-related software, such as property management systems, reservations systems, recipe management systems and point-of-sale applications.

- Transportation — Transportation VSS includes software related to financial import/export management, revenue accounting, reservations systems (air, rail, car and cruise), revenue/yield management, dynamic packaging, loyalty management, journey management, online travel shopping/ticketing, passenger self-service check-in via laptops, mobile phones and airport kiosks, flight operations, airport operations, baggage management, passenger services/departure control, load/weight balancing, fuel management, crew management and scheduling, transportation management systems (TMSs), warehouse management, yard management, shipment/package tracking, load/driver matching, fleet management, fleet vehicle tracking, route dispatching and accounting, cross-border compliance, operations control and dispatch, advance management reporting (U.S.), cargo portals, time-definite bookings, global trade management, driver/operator mobile communications, and e-freight-related software.

- Utilities — VSS for utilities includes supply domain applications and business processes, such as energy trading and risk management (ETRM), which optimize the energy company's portfolio. Also included are fixed-asset management support, generation scheduling, meter data management, fuel management, delivery-specific applications and processes, such as wholesale market operations, energy management systems (EMSs), and load forecasting that supports operational excellence and service reliability. Delivery-specific applications and processes range from transmission-related — such as GISs — to distribution-related — such as outage management systems (OMSs), distribution design tools, transmission and distribution (T&D) network engineering analysis tools, advanced distribution management systems, and field service. Retail-specific applications and business processes that support customer intimacy and product leadership include customer service examples, such as commercial off-the-shelf customer information systems (CISs) and complex billing.

- Wholesale trade — Examples of VSS for wholesale trade cover planning systems, including the ability to perform profitability analysis; systems that support the procure-to-pay process, including e-procurement, sourcing, purchase order management, and rebates and returns; supply chain execution and optimization software; support for the order-to-cash process, including customer management, sales order management, and billing and collections; and cross-enterprise software that includes financial and asset management, HR, office and productivity software, and analytics and performance management.

Device Definitions

Gartner segments the device market into the following:

- Printers, copiers and multifunction products (MFPs)
- PCs and tablets
- Mobile devices

Printers, Copiers and Multifunction Products

This segment includes printers, copiers and MFPs. For more information, see "Market Definitions and Methodology: Imaging and Printing Services."

Gartner uses the following technology definitions to discuss printers, copiers and MFPs:

- Printer — Gartner defines a printer as a peripheral output device of a computer system for producing computer-generated images on paper using any of several marking technologies.
- Copier — This is an image-duplicating device with an integrated platen used to make copies. The copier will integrate an image formation process that receives a scanned image, exposes that image to a photoconductor and then transfers the image to a variety of media.
- MFP — Some products have multiple functions as standard features. All these products are counted as MFP shipments in Gartner market share and forecast statistics if one of these functions is PC printing. Other products are single-function in their basic form and gain their multifunctional status with the addition of an optional accessory. In this case, only those products being sold with this optional accessory are counted as MFPs. The cost of the accessory (port or server) is included in the end-user average purchase price of the MFP.

Mobile Devices

Mobile devices are defined and segmented into the following. For more information on mobile devices, see "Market Definitions and Methodology: PCs, Ultramobiles and Mobile Phones."

- Premium phone — A premium phone is a device that offers a rich communication experience, such as the latest processor, advanced camera functions (multicamera, depth sensor, wide-angle lens) and hardware; with premium materials for the case and hardware, high-end screen technology and virtual personal assistant (VPA) integration. Its price would be typically higher based on consumer perception (typically $300 and above). Premium phones use widely deployed OSs, such as Android and iPhone operating system (iOS).
- Basic phone — A basic phone is a device generally running Android but with limited features and lower technology advancements compared to premium phones. This translates into lack of high-end camera hardware (such as depth sensor) and lower-end screen technology with a resolution of 1080p and higher. Compared to premium phones, they typically feature lower-quality displays and materials with fewer advanced sensors. The average selling price (ASP) is generally lower and could be considered "midrange" to "lower midrange" (typically $90 to $300) compared to a premium price tag for the premium phone category.
- Utility phone — Utility phones are a mix of voice-centric and entry-level data experience devices, generally low-cost (below $90 street price), with limited specifications and functions. It is mainly targeted at emerging markets and first-time users and is often used for prepaid subscriptions in developed markets. Most are from white-box vendors, but the category also includes original design manufacturer handsets for branded devices, as well as proprietary-OS-based phones from HMD Global (Nokia brand), TCL and other first-tier brands.Utility phones generally run proprietary OSs and also increasingly run Android, KaiOS as well as Puffin OS. Utility phones running proprietary OSs usually have a screen smaller than three inches and a keypad. Utility phones running one of the main open OSs have a variety of screen sizes from 3.5 inches up to 6.5 inches and support mainly the same use cases as basic or premium phones, but the user experience is very different.

PCs and Tablets

PCs include desk-based, notebook and premium ultramobile. For more information on PCs, see "Market Definitions and Methodology: PCs, Ultramobiles and Mobile Phones." For more information on tablets, see "Market Definitions and Methodology: Semiconductor Devices and Applications."

- Desk-based— The desk-based PC is typically immobile and intended for use in a single location. PCs are either traditional with a separately purchased monitor and input devices or all-in-one machines. With high-speed data connectivity, desk-based PCs are optimized for traditional data processing tasks, for personal or corporate use, or for media consumption or manipulation. These devices, with high levels of processing power, have access to a wealth of applications, software and content for mainstream OSs. This also includes certified workstations for high-end desk-based computing. Moreover, there is a certain group of devices emerging in this category that is partially mobile but conceptualized for stationary usage. Such a device has a tablet form factor and a display of 17.75 inches or more. A variation of this is Microsoft's Surface Studio, which is dubbed an all-in-one PC but can be lowered to a flat angle, serving as a drawing board. Both examples are all-in-one devices that fall into our desk-based category.

- Notebooks — Notebooks largely replicate the experience and usage patterns of a desk-based PC, but with reduced physical characteristics, such as screen size but added portability — although not necessarily mobility. Such trade-offs have minimal impact on performance. Notebooks are able to run the same full range of software and applications as desk-based PCs and have access to the same content. Notebooks will be in a clamshell or convertible form factor and are more comfortable to use when placed on a fixed surface rather than on the move.For some users, notebooks can be viewed as desk-based PC replacements. This also includes certified workstations for high-end mobile computing.

- Premium ultramobile — Premium ultramobiles extend the notebook usage model toward the tablet by refinement of physical characteristics, such as lower weight, smaller size and instant-on. Premium ultramobiles typically have a weight of 3.5 pounds (1.6 kg) and below. For example, the 14-inch Lenovo Yoga S940 weighs 1.2 kg. There are some products on the market with a hybrid form factor that deviate from the typical 1.6 kg and weigh closer to 2 kg. Those products also fall into the ultramobile premium category. They are user-interface-optimized for media consumption, while retaining capabilities for full-scale data processing. Such a device will provide good productivity and content creation capability compared with basic ultramobiles. It will therefore be an alternative to a notebook, dependent on the trade-offs that a user wishes to make between the characteristics of devices and their expected usage pattern.

A tablet has a completely open, slate-style design with a touchscreen, shipped without a dock or keyboard.

- Premium tablet — Premium tablets offer a rich experience for both content creation and content consumption, and they have the same definition as a premium clamshell except for different form factors. Premium tablets include Intel x86 architectures with a display larger than 10 inches, such as Microsoft's Surface Pro.
- Basic tablet — Basic tablets provide good capabilities in content consumption, but their 7-inch to less than 10-inch displays limit their capabilities in content creation. Examples of devices included in this category are Windows RT devices and Windows 8 devices with a display of up to 10 inches; iPads and iPad minis; all Android-based tablets (excluding white-box devices); and Chromebooks.
- Utility tablet — Utility tablets provide basic capabilities in content consumption. They come with low-end specifications so they can run on only embedded OS. Their display size is in the same range as basic tablets, but their resolution is lower to save costs. They are mostly small or unbranded products using turnkey solutions, and their target market is cost-sensitive consumers in emerging markets.

Data Center System Definitions

Gartner segments the data center system market into the following:

- Server
- Storage
- Enterprise network equipment (ENE)
- UC

For more information about the Gartner data center definitions, see "Market Definitions and Methodology: Servers," "Market Definitions and Methodology: External Storage Systems," "Market Definitions and Methodology Guide: Enterprise Network Equipment," and "Market Definitions and Methodology: Unified Communications, Contact Center and Digital Workplace Solutions."

Servers

As the technology, usage and positioning differentiation among the server segments has eroded, all server systems are now classified as general-purpose servers.

- x86 servers are defined as servers equipped with x86-architecture processors — such as Intel Xeon (including Xeon D) or Atom, and AMD EPYC — with a maximum CPU count of one to 64. Hyperscalers such as Alibaba and Amazon typically buy or produce custom chips to optimize their data center infrastructures. These servers predominantly run Windows or Linux OSs as well as containers.
- Non-x86 servers are defined as servers that do not have an x86 processor. Key processor groups are reduced instruction set computer (RISC) processors, or processors running typically UNIX or mainframe-class OSs. IA-64 architecture is made up from Intel's Itanium processors. The "other" category provides a classification for the remainder of CPU processors that are proprietary or unclassified. This category used to be synonymous with mainframes, however growing ARM-based servers may have changed the concept.

Storage

ECB storage is an external disk storage system that has one or more embedded controllers. The controllers, aka disk array controllers or redundant array of independent disks (RAID) controllers, are computing units that manage the drives within the system and virtualize them (often with RAID algorithm) as logic storage units to the connected computers.

- Primary storage: An ECB primary storage array's foremost purpose is to support response time and input/output per second (IOPS)-sensitive structured data workloads. Typical use cases include mission-critical workloads such as IBM Db2, Microsoft SQL, Microsoft Exchange and SharePoint, Oracle Databases and applications, SAP HANA, and in-house-developed transactional applications. Primary storage platforms provide a broad library of data services that conserve capacity utilization, protect against data loss, and enhance recovery via local and remote replication. The storage media can be solid-state drives (SSDs) or hard-disk drives (HDDs) or a combination of the two. The form factor can be scale-up or scale-out. Host interface protocols can be block (Fibre Channel [FC], Internet Small Computer System Interface [iSCSI], Serial Attached Small Computer System Interface [SAS]); or file (Network File System [NFS], Server Message Block [SMB]); or a combination of block and file protocols. The emerging nonvolatile memory express over fabrics (NVMe-oF) host interface will be increasingly predominant in future primary storage infrastructures.

- Secondary storage: An ECB secondary storage array's foremost purpose is to cost-effectively support unstructured data workloads where latency and IOPS are not essential attributes. Typical use cases include long-term archiving, repositories for big data analytics applications, deep historical research and backup/recovery targets for backup/restore software. The media is mostly HDD, but can also be SSD. The form factor of choice is scale-out. Access protocols include RESTful HTTP APIs, such as Amazon Simple Storage Service and OpenStack Swift, as well as distributed file systems that support NFS and SMB protocols. The emerging NVMe-oF host interface may also be used increasingly in future secondary storage infrastructures.

- Backup/recovery appliances: ECB backup/recovery appliances are purpose-built to support the backup/recovery process. Increasingly, these platforms will include backup software integrated into the appliance. The media is largely HDD-based, but can also be SSD-based or a combination of both. Backup/recovery appliances can be used as either scale-up or scale-out architectures, but in the vast majority of cases, will be used as scale-out architectures supporting file-based or object-based data access protocols.

Enterprise Network Equipment

ENE includes enterprise local-area network (LAN) equipment (such as enterprise Ethernet switches and enterprise WLAN) and enterprise wide-area network (WAN) equipment (including WAN edge equipment, intrusion prevention system [IPS] equipment and application acceleration equipment, such as WAN-optimized controllers). For reference, some definitions are provided; for further detail, see "Market Definitions and Methodology Guide: Enterprise Network Equipment." Note that while ENE is categorized within data center systems, it also includes ENE that applies to campus and branch environments.

- An enterprise LAN is the collection of equipment (hardware and software) that enables the connection of PCs, servers and other devices to a network that serves a building or a campus environment.

- An Ethernet switch provides discrete Ethernet segments to one or more users on each switched port. Ethernet switches determine the forwarding destination for frames based on message authentication code (MAC) address (Layer 2 forwarding) and/or network number (Layer 3 forwarding, or higher-layer information). Switches are differentiated from routers by the use of hardware forwarding (usually application-specific integrated circuit devices). They can typically forward Ethernet frames at or close to the maximum possible frame forwarding rate for the speed of media at each port. This is also known as "wire speed" forwarding.

- A WLAN is a wireless local-area network. WLAN equipment is used to connect computers (and other devices, such as printers, security cameras and Internet Protocol [IP] phones) without wires. These devices, referred to as "clients," connect to the wireless medium by having an integrated or add-on WLAN adapter. The other main component of a WLAN is one or more access points (APs). Their task is to receive and transmit data from/to wireless-enabled client devices, allowing them to communicate and form a network.

Unified Communications

For more information, see "Market Definitions and Methodology: Unified Communications, Contact Center and Digital Workplace Solutions."

UC is defined as the aggregate of multiple fundamental forecast components:

- Enterprise telephony: Enterprise-grade (premises-based or cloud-based) solutions that provide many or all of the features typically found on a PBX (for example, call forwarding and caller ID), including toll-quality voice and emergency calling support.
    - Cloud-based telephony: Enterprise-grade telephony that is owned, maintained and hosted by a provider. The infrastructure is shared and is consumed in a one-to-many model.
    - Premises-based telephony: Enterprise-grade telephony that is provisioned using equipment dedicated for use by a single company. The equipment may be premises-based or hosted externally in a data center.
    - Telephony product support services: Hardware and software support services associated with premises-based, enterprise-grade telephony. Service contracts include support services associated with telephony hardware replacement, hardware repair, software-associated technical support and software patches, and security updates.

- Conferencing: Meeting solutions with associated audio and video capabilities in premises-based and cloud-based deployment modes. Types of meetings and communications include team and online meetings, screen sharing, e-learning and training, and webinars. A separate telephone bridge is sometimes used for the audio portion, but lower-cost voice over IP (VoIP) is increasingly being used.
  - Cloud-based conferencing: Includes cloud-based web conferencing functionality and associated real-time video and audio. Gartner also includes the video as a service (VaaS) segment. The conferencing services enable interactions over a network between participants in multiple meeting formats.
  - Premises-based conferencing: Includes premises-based web conferencing functionality and associated real-time video and audio. The conferencing services enable interactions between participants in multiple meeting formats.
  - Conferencing product support services: Includes hardware and software support services associated with premises-based web conferencing and associated real-time video and audio. Service contracts include support services for conferencing hardware replacement, hardware repair, software-associated technical support and software patches, and security updates.

- Group videoconferencing systems: Includes group systems (video endpoints/codecs) designed for anything from a large conference room to a huddle space, these tend to be modular, with endpoints that accommodate a variety of room configurations. Also included are — now rare — multiscreen immersive telepresence suites, which give conference participants from different locations the appearance of being in the same room. Excluded are lower-cost endpoints and video appliances (often USB-based) and costs associated with additional audiovisual technologies (such as external video screens and audio equipment) and room remediation for optimal video usage (such as retrofitting rooms for power, lighting, furniture and automation).
    - Group video product support services: Includes hardware and software support and maintenance services associated with multiscreen, immersive telepresence suites and group systems designed for traditional conference rooms and huddle spaces. Service contracts include support services associated with group video hardware replacement, hardware repair, software-associated technical support and software patches, and security updates.
    - Premises-based video infrastructure: Available as dedicated chassis hardware or as software instances. Video infrastructure facilitates both multipoint conferencing among a vendor's own endpoint portfolio, as well as interoperability with other standards-based video endpoints, including Session Initiation Protocol (SIP) and H.323. Interoperability includes transcoding of media, as well as interworking of signaling, to facilitate point-to-point and multipoint calling. Vendors may also offer this capability as a service or through relationships with partners.
    - Video infrastructure product support services: Includes hardware and software support and maintenance services for video infrastructure associated with multipoint conferencing and video endpoints. Service contracts include support services associated with video infrastructure hardware replacement, hardware repair, software-associated technical support and software patches, and security updates.

The forecast for UC is the sum of the forecasts for each of the markets for telephony with messaging, conferencing, group videoconferencing systems and premises-based video infrastructure, and associated product support services.

Telecom Service Definitions

Telecom services include fixed network and mobile network services. See "Market Definitions and Methodology Guide: Enterprise Communications Services" for more information.

Fixed Network Services

Fixed network services segment consists of two subsegments not separated in the IT spending forecast: enterprise fixed data and enterprise fixed voice services.

Enterprise fixed data services are enterprise network services — access and transport — used by an enterprise for connecting different offices, sites or locations and/or for connecting to the internet. Enterprises adopt different types of WAN and access services, depending on their requirements for connectivity.

Enterprise spend on data services incorporates the enterprise adoption of the core data service, which is typically a WAN solution based on MPLS or Ethernet, and the access service (either access to the WAN, or internet access provided on an Ethernet/fiber to the x [FTTx], generic DSL [xDSL] or leased line). Access service spend also includes situations where enterprises use access services for connecting their private corporate networks to the internet. Enterprise spending on data communications also includes the consumer-grade broadband internet spending made by employees (who are reimbursed by their employers) and small offices that may purchase a consumer-grade connection.

This segment refers to fixed voice services that are used by enterprises. This segment incorporates and combines PSTN (including ISDN [primary rate and basic rate]) and voice over Internet Protocol (VoIP)/Session Initiation Protocol (SIP) channels. A virtual line must come with a public telephone number assigned for terminating PSTN calls to an IP or SIP phone, a softphone (PC), or IP-enabled time division multiplexing (TDM) phone.

The end-user spending for fixed voice combines the calling and connection spend. It incorporates and combines PSTN (including ISDN [primary rate and basic rate]) and VoIP/SIP spend. The average spend associated for fixed voice includes the recurring monthly connection fees and value-added fees for supporting services (such as E911 services, calling line identification and voicemail) in addition to calling charges, where appropriate. (In many markets, the connection fee bundles some level of call minutes to certain types of numbers [for example, local, national or international geographic numbers].)

Mobile Network Services

This is the total amount enterprises (or reimbursed employees) spend on mobile connections. This includes spending on voice services (including the cost of connections and monthly access fees, if applicable), messaging services (SMS and Multimedia Messaging Service [MMS]) and data-over-cellular services (whether charged as prepaid data, data bundled with a contract or as a stand-alone mobile data contract).

This segment includes spend from mobile phone, cellular modem and data-only connections (often available in media tablets, e-readers, watches, portable navigation devices, etc.) that are used by employees, but excludes spend from machine-to-machine (M2M) or Internet of Things (IoT) connections (for more information, see "Internet of Things Forecast Database"). This segment excludes noncellular wireless technologies such as Wi-Fi, WiMAX, ultrawideband (UWB) and satellite connections. It does include 2G to 5G capabilities but does not separate the technologies.

Document Revision History

Market Definitions and Methodology: Vertical Industries - 22 May 2019

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

Market Definitions and Methodology: IT Markets

Market Definitions and Methodology: IT Services

Market Definitions and Methodology: Software

Market Definitions and Methodology: Servers

Market Definitions and Methodology: Imaging and Printing Services

Market Definitions and Methodology: Enterprise Network Equipment

Market Definitions and Methodology: External Storage Systems

Market Definitions and Methodology: Unified Communications, Contact Center and Digital Workplace Solutions

Market Definitions and Methodology: Communications Services

Table 1: Vertical Industry Forecast Regions and Countries/Markets

Region	*Country (or Province or Market)*
North America	Canada
	United States
Latin America	Argentina
	Brazil
	Chile
	Colombia
	Mexico
	Rest of Latin America
Western Europe	Austria
	Belgium
	Denmark
	Finland
	France
	Germany
	Greece

Region	*Country (or Province or Market)*
	Ireland
	Italy
	Netherlands
	Norway
	Portugal
	Spain
	Sweden
	Switzerland
	United Kingdom
	Rest of Western Europe
Eastern Europe	Czech Republic
	Hungary
	Poland
	Rest of Eastern Europe
Eurasia	Russia
	Rest of Eurasia
Middle East and North Africa	Israel

Region	*Country (or Province or Market)*
	Saudi Arabia
	Turkey
	Rest of Middle East and Africa
Sub-Saharan Africa	South Africa
	Rest of sub-Saharan Africa
Mature Asia/Pacific	Australia
	New Zealand
	Singapore
	South Korea
Greater China	China
	Hong Kong
	Taiwan
Emerging Asia/Pacific	India
	Indonesia
	Malaysia
	Thailand
	Rest of Emerging Asia/Pacific

Region	*Country (or Province or Market)*
Japan	Japan

Source: Gartner (August 2020)

Table 2: Vertical Market Industrial Code Map

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
Banking and Securities	Banking	Monetary authorities, depository credit intermediation, nondepository credit intermediation and activities related to credit intermediation	K (641, 649)	60, 61, 671	521-522
	Securities	Investment banking and securities dealing, securities brokerage, commodity contracts dealing, commodity contracts brokerage, securities and commodity exchanges, miscellaneous intermediation, portfolio management, investment advice, trust, fiduciary, and custody activities and	K (643, 66)	62, 637, 67 (excluding 671)	523, 525

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
		miscellaneous financial investment activities. Insurance and employee benefit funds, pension funds, health and welfare funds, other insurance funds, other investment pools and funds, open-end investment funds, trusts, estates, and agency accounts and other financial vehicles. Investment, private banks and other financial institutions that operate wealth management in the capital market space.			
Communications, Media and Services	Entertainment	Motion picture, video, audio recording, arts, entertainment and recreation	J (59), M (742*), R (90-93), C (1820)	78, 79, 3652, 7334, 7335, 7336, 7384*, 7389*, 84	5121, 5122, 532282, 54143, 51912, 71

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Publishing and advertising	Book, magazine, newspaper publishing; advertising, public relations	C (1811), J (58), M (731)	7311, 7312, 7313, 7319, 7331, 27, 8743	323, 5111, 5418
	Broadcasting and cable	Radio, TV, cable broadcasting and distribution, satellite broadcasting	J (60), J (613)	4832, 4833, 4841, 4899	5151, 5152, 517311*, 5174
	Telecommunications	Fixed-line carriers, wireline carriers, wireless carriers, interexchange carriers, telecom carriers and resellers	J (611, 612, 619)	4812, 4813, 4822	5173*, 517911
	Other business, technical and consumer services	Real estate activities; other professional, scientific and technical activities; other consumer and household domestic services; other business services	F (43), L (68), M (69, 70*, 71, 72*, 732, 74*), N (77, 78, 799, 80-82), S (94, 952,96), T (97, 98)	17, 65, 72, 7322, 7323, 735, 7389*, 75, 76, 81, 86, 871, 872, 873, 8741-8742, 8744, 8748*, 8999*	238, 5311, 5312, 5313, 5411-5413, 54141-54142, 54149, 5417, 5419, 561110, 5612, 5613, 561410, 56142, 5616, 5617, 8111, 812, 811219, 8113, 8114

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Information technology services and software	IT consultancy, IT management, information services, data processing, hosting, internet content providers, web portals; supplier of software and software reproduction	J (62-63), M (70*), M (71*), S (951), 6020*	7371, 7372, 7373-7379, 7383, 8748*, 8999*	54143, 5415-5416, 5182, 517919, 51911, 51913, 51919, 334614, 811211, 811212, 811213
Education	Primary and secondary education	Primary and secondary schools	P (851), P (852)	8,211	61111
	Higher education	Colleges, professional and other	P (853), P (854)	8221, 8222, 8243, 8244, 8249, 8299	6112, 6113, 6114, 6115, 6116
Government	National and international government	Public administration and defense; health and human services; tax/revenue programs	O (84)	97*, 91*, 93	928*, 921*

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Local and regional government	Public administration of human resources, health, social services, tax/revenue, transportation; public works and safety programs	O (84),Q (88), U (99)	83, 92, 94, 95, 96, 99	624, 922-927
Healthcare Providers	Physician	Ambulatory services, physician practices and at-home services	Q8620	801, 802, 803, 804, 807, 808	621
	Hospital	Hospitals, hospital systems, nursing and residential care, university hospitals	Q869, Q87, Q8610, Q8690	805, 806, 809	622, 623
Insurance	Health insurance (payer)	Health and medical insurers	K (651*)	632, 64*	524114
	Insurance (other than health)	Insurance, reinsurance and agencies, brokers, claims adjusting, and third-party administrators	K (65*)	63 (excluding 632 and 637), 64*	524 (excluding 524114)

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
Manufacturing and Natural Resources	Automotive	Motor vehicles and parts	C (29)	371	3361-3363, 336991
	Consumer nondurable products	Food producers, processing and products; beverage producers, processing and products; tobacco producers, processing and products; textiles, apparel and footwear, personal care items, household cleaning products, housewares, sporting goods, toys, games, and miscellaneous nondurable goods	A (1-3), C (10-15, 2023, 321-324, 329)	01, 02, 08, 09, 20-23, 284, 31, 39	111-112, 114, 115, 311-316, 3256, 3322, 3399
	Energy resources and processing	Mining and extraction of energy-related natural resources (coal and lignite, oil and gas), refining and manufacturing of fuels	B (5-6), C (19)	12-13, 29	211, 213, 2121, 324

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Heavy industry	Manufacturing of electrical and industrial machinery, aerospace and defense equipment, train and ship building, buses and heavy trucks, construction machinery and vehicles, electrical appliances, furniture; civil engineering, construction and subcontracting of industrial plants	C (27-28, 30-31, 33), F (42)	1541, 16, 234, 25, 351-356, 358-359, 361-364, 369, 372-379, 381-382, 387	237, 333, 335, 3364-3366, 336992, 336999, 337
	IT hardware	Manufacturing of semiconductors, computers and peripheral printers and storage devices, communications equipment, radios, TVs and other consumer electronics	C (261-265, 267-268)	357, 365-367, 386	334 (except 334510)

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Life sciences and healthcare products	Manufacturing of pharmaceuticals, medicinals and botanicals, medical devices and equipment	C (21, 266, 325)	283, 384-385	3254, 334510, 3391
	Natural resources and materials	Mining of (nonenergy) metallic and nonmetallic minerals; forestry; manufacturing of basic and fabricated metals, stone, cement and glass, forestry, wood, pulp and paper, chemicals (other than pharmaceuticals, household cleansers and personal care items), plastics and rubber	B (7-8), C (16-17, 201, 2021-2022, 2029, 203, 22-25)	10, 14, 24, 26, 281-282, 285-289, 30, 32-34	113, 2122, 2123, 321-322, 325-327 (except 3254 and 3256), 331-332
Retail	General retailers	Nonspecialized stores	G (45*), G (471)	53	452
	Grocery	Food, beverage and tobacco stores	G (472)	54	445

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Restaurants and hotels	Restaurants, hotels, motels	I (55, 56)	58, 70	72
	Specialty retailers	Specialty stores include building materials, hardware, automotive, fuel, apparel, furniture, miscellaneous and nonstore	G (473-479)	52, 55, 56, 57, 59	441-444, 446-451, 453, 454
Transportation	Air transport	Passenger and cargo air transportation and storage, airports, support activities for air transport	H (51, 5223)	45	481, 4881
	Motor freight	Truck, freight trucking, urban transit and ground passenger transport, bus, taxi, and sightseeing transportation, support activities for road transport	H (492)	41, 42	484, 485, 487, 4884

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
	Pipelines	Pipelines except natural gas	H (493)	46	486
	Rail and water	Rail and maritime passenger travel and cargo shipments, commuter rail, ferries, ports	H (491), H (50) H5222	40, 44	482, 483, 485111-485112, 488310
	Warehousing, couriers and support services	Transportation support activities, travel agency services, postal, couriers, warehousing, third-party logistics providers	H (52,53), N (79)	47, 4221-4226, 43, 4513, 4215	488, 491, 492, 493, 5615
Utilities	Electric and gas utilities	Electric, natural gas	D (35)	4911-4939, 4961	2211-2212
	Water utilities	Water supply and irrigation systems; sewage and refuse systems; remediation services	E (36), 49*	4941, 4952, 4953, 4959, 4971	2213*

Primary Industry Segment	*Secondary Industry Segment*	*Additional Description*	*ISIC Rev. 4*	*U.S. SIC (1987)*	*NAICS (2017)*
Wholesale Trade	Wholesale durable and nondurable goods	Wholesale trade (durable and nondurable goods)	G (45*, 46)	50-51	42

* Indicates partial match

Source: Gartner (August 2020)