Taxonomy

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Taxonomy, 2018

Stephen Minton   Jessica Goepfert   Angela Vacca   Ivana Slaharova
Roberto Membrila   Naoko Iwamoto   Ashutosh Bisht   Nikhil Anand
Jebin George

IDC'S WORLDWIDE INDUSTRY AND COMPANY SIZE TAXONOMY

FIGURE 1

IDC's Standard Industries, 2018
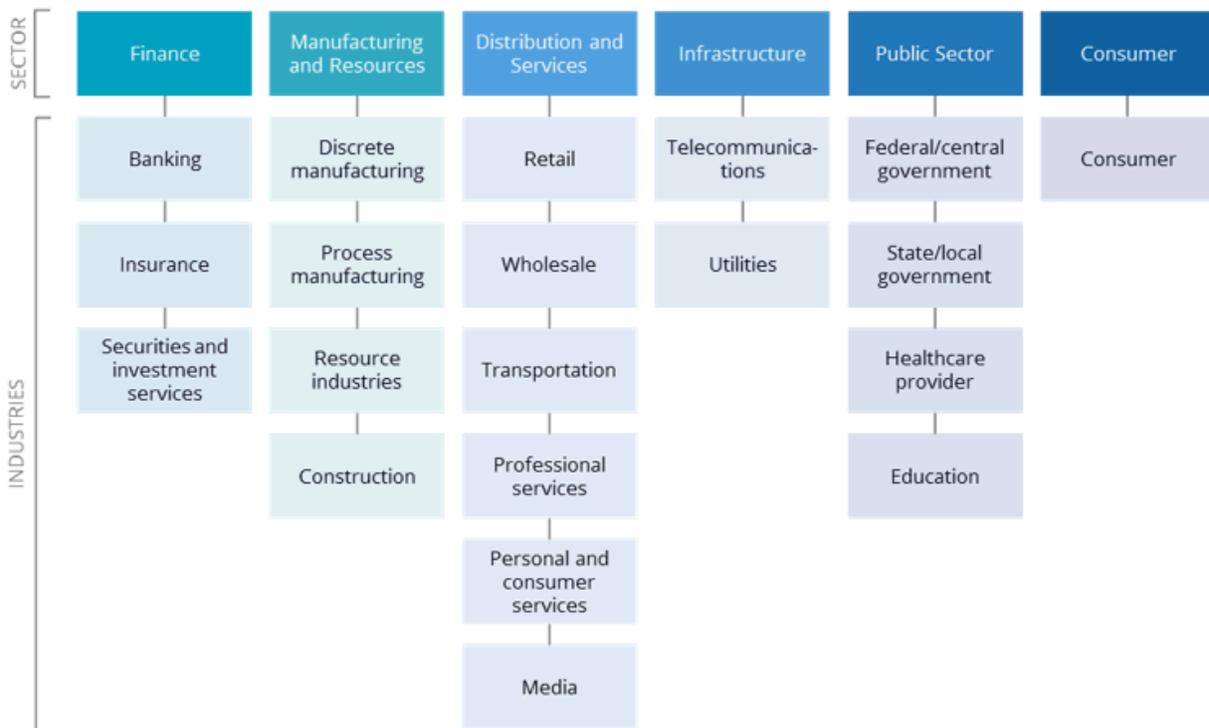
Source: IDC, 2018

INDUSTRY AND COMPANY SIZE TAXONOMY CHANGES FOR 2018

There have been no major changes to the overall industry and company size taxonomy since the 2H16 version, but the taxonomy structure has been reorganized to align with other IDC research including the *Worldwide Black Book* and the latest versions of worldwide tracker products. These changes include the following:

- Telecom services has been added as a new technology group and includes fixed voice, fixed data, mobile voice, and mobile data services.
- Where telecom services are included in a deliverable, a new taxonomy dimension called "spending group" is also now included to differentiate between IT spending and telecom spending.
- Telecom spending includes telecom services, as listed previously, and telecom equipment (telecom equipment is carrier-specific equipment including wireless infrastructure, purchased by telecom service providers for the delivery of public telecom services).
- IT spending includes all other hardware (server/storage, enterprise networks, infrastructure as a service [IaaS], mobile phones, personal computing devices [PCDs], and peripherals), software, and IT services.
- Any technologies that lie outside of the traditional "IT spending" and "telecom spending" taxonomy definitions (e.g., business services) will be included in the "other spending" spending group.
- The hardware technology group is now divided into two separate technology category sections for infrastructure and devices.
- IaaS has been added to the taxonomy and is included in the new infrastructure technology category. Server/storage and network equipment are also now included in infrastructure. Mobile phones, personal computing devices, and peripherals are included in devices.
- Server/storage technology details are now aggregated at the technology level into "'server/storage,'" then divided into high-end enterprise server, midrange enterprise server, volume server, and external storage system at the technology detail level. Internal storage value is included in server market values, so "'server/'storage" is the aggregate of all enterprise server and storage spending.
- The "'personal computing device'" technology replaces the previous traditional PC and tablet technologies and includes desktops, notebooks, and tablets, which are subsequently listed separately in the technology detail field.
- Software taxonomy has been adjusted to align with changes to the IDC Worldwide Software Tracker implemented in the 1H17 version (November 2017).

What Is a Vertical Industry?

A vertical industry is the set of all economic entities that offer goods and/or services designed to meet the specific needs of a group of customers or constituents. It is a well-defined segment as opposed to a broad, generic, and less-specialized market. Because IDC's vertical research is rooted in deep economic and firmographic data, our taxonomy classification process parallels that of economic classification systems, whereby we arrange organizations into groupings based on similar processes, products, services, and other behaviors and characteristics.

IDC's vertical market research is grounded on data of the worldwide economies. Our models and forecasts are based on the highest availability of statistical sources on the economy. Key economic data and inputs include:

- The number of organizations by industry
- The number of employees by industry
- Revenue by industry
- GDP by industry
- Investment climate business surveys

Thus when selecting the vertical industries for the taxonomy, we incorporate data from key reference code systems such as:

- **The SIC:** For the Americas and Asia/Pacific regions
- **The NACE Rev. 2:** For Western Europe, Central Europe, and the Middle East and Africa
- **The ISIC:** For reference in building up internationally comparable statistics on a worldwide basis
- **The JSIC:** For Japan

Economic Entities, Enterprises, and Establishments

An economic entity is a producing unit, organization, or business. In our standard taxonomy and forecasting methodology, economic entities are recognized at the enterprise level (as opposed to the establishment level). For classification purposes, the definition of an enterprise goes beyond the broad colloquial concept of a business or an organization. Rather, an enterprise implies ownership of or control over legal, administrative, and fiduciary arrangements and organizational structures and resources to achieve objectives. Whenever possible, in IDC research, an enterprise has a common IS strategy and associated budget and decision making. The business strategy of the enterprise is reliant upon the various parts of the organization working together. An establishment, on the other hand, can be thought of as a single physical location or local unit where business is conducted. An enterprise may be made up of many establishments or, in the case where an enterprise is a single-location organization, the concept of enterprise and local unit/establishment coincides.

As noted previously, a vertical industry is made up of a group of enterprises that share common production and distribution of goods and services. Although an enterprise may operate in several product or service areas, IDC aggregates vertical industries based on the enterprise's principal activity as determined by the value contributed to the organization relative to other activities. For example, in the United States, this is referred to as the organization's primary SIC code. The NACE system is used in Europe to determine the enterprise's principal activity.

IDC's Sector View and Associated Primary Vertical Markets

The objective of IDC's vertical industry taxonomy is to study and analyze IT adoption, spending, and trends in a worldwide consistent fashion. It is intended to assist organizations with their strategy, marketing, planning, sales, and operations. With this objective in mind, IDC has defined 20 primary vertical markets, which are collectively exhaustive and mutually exclusive. Figure 1, shown previously, lists the IDC industry taxonomy by primary sectors and vertical market industries.

What Is a Sector?

A sector is defined as a fairly large grouping of organizations with similar, general economic activity. It is broader in scope than an industry or vertical. IDC's taxonomy divides economic activities into five sectors, excluding the consumer vertical: financial, distribution and services, infrastructure, manufacturing and resources, and public sector.

These macromarket views are best used when:

- Developing a vertical strategy and determining where your customer base is most developed
- Summarizing data points for an executive presentation
- Comparing synergistic sectors

Table 1 defines and provides company examples for each of IDC's primary vertical markets and sectors. IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size provides both a sector and vertical view.

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
Finance	Banking	Citigroup, Bank of America, Wells Fargo & Co, Bank of New York Mellon Corp, AmeriBank Corp, Santander, American Express	6011, 6019, 6021, 6022, 6029, 6035, 6036, 6061, 6062, 6081, 6082, 6091, 6099, 6111, 6141, 6153, 6159, 6162, 6163	64	62, 63, 64
	Insurance	AIG, UnitedHealth Group, WellPoint Health Networks Inc, Allstate Corp, AFLAC Inc, Marsh & McLennan Companies Inc	6311, 6321, 6324, 6331, 6351, 6361, 6371, 6399, 6411	65	67
	Securities and investment services	Merrill Lynch & Co, Morgan Stanley, Goldman Sachs Group Inc, Simon Property Group Inc, Equity Office Properties Trust	6211, 6221, 6231, 6282, 6289, 6712, 6719, 6722, 6726, 6732, 6733, 6792, 6794, 6798, 6799	66	65, 66
Manufacturing and resources	Discrete manufacturing	Bombardier, Boeing, United Technologies, Ford, General Motors, Polo Ralph Lauren Corp, Intel, AMD, IBM, Apple, Caterpillar	23–25, 31, 34–38, all of 39 excluding 3911, 3914, 3915, 3996 and 3999	14, 15, 16, 25, 26, 27, 28, 29, 30, 31, 32	11 (116-119), 13, 20, 25, 26, 27, 28, 29, 30, 31, 32,

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
	Process manufacturing	Dow Chemical, DuPont, Kaiser Aluminum Co, Alcoa, International Paper Co, Reynolds Group, Nestlé, Tyson Foods, Unilever, P&G Co, PepsiCo, Coca-Cola, Bare Escentuals Inc, BP, ConocoPhillips, Tupperware, ExxonMobil	20–22, 26, 28–30, 32–33, 3911, 3914, 3915, 3996	10, 11, 12, 13, 17, 19, 20, 21, 22, 23, 24	9, 10, 11 (110～115), 12, 14, 16, 17, 18, 19, 21, 23, 24)
	Construction	Toll Brothers Inc, PulteGroup Inc, D.R. Horton Inc, Lennar Corp, Dycom Industries Inc, Mastec Inc	1521, 1522, 1531, 1541, 1542, 1611, 1622, 1623, 1629, 1711, 1721, 1731, 1741, 1742, 1743, 1751, 1752, 1761, 1771, 1781, 1791, 1793, 1794, 1795, 1796, 1799	41, 42, 43	6, 7, 8
	Resource industries	Chiquita Brands, Fresh Del Monte Produce Inc, Schlumberger Limited, Blue Diamond Growers, Arch Coal, Consol Energy Inc, Marathon Oil Corp, Apache Corp, Freeport McMorran Copper & Gold	111, 112, 115, 116, 119, 131, 132, 133, 134, 139, 161, 171, 172, 173, 174, 175, 179, 181, 182, 191, 211, 212, 213, 214, 219, 241, 251, 252, 253, 254, 259, 271, 272, 273, 279, 291, 711, 721, 722, 723, 724, 741, 742, 751, 752, 761, 762, 781, 782, 783, 811, 831, 851, 912, 913, 919, 921, 971, 1011, 1021, 1031, 1041, 1044, 1061, 1081, 1094, 1099, 1221, 1222, 1231, 1241, 1311, 1321, 1381, 1382, 1389, 1411, 1422, 1423, 1429, 1442, 1446, 1455, 1459, 1474, 1475, 1479, 1481, 1499	1, 2, 3, 5, 6, 7, 8, 9	1, 2, 3, 4, 5

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
Distribution and services	Retail	Best Buy, Pathmark, Home Depot, Walmart, Amazon, Target, Whole Food Market, TJX Companies Inc, Nordstrom Inc, CVS Health Corp, Sherwin-Williams Co	5211, 5231, 5251, 5261, 5271, 5311, 5331, 5399, 5411, 5421, 5431, 5441, 5451, 5461, 5499, 5511, 5521, 5531, 5541, 5551, 5561, 5571, 5599, 5611, 5621, 5632, 5641, 5651, 5661, 5699, 5712, 5713, 5714, 5719, 5722, 5731, 5734, 5735, 5736, 5812, 5813, 5912, 5921, 5932, 5941, 5942, 5943, 5944, 5945, 5946, 5947, 5948, 5949, 5961, 5962, 5963, 5983, 5984, 5989, 5992, 5993, 5994, 5995, 5999	45, 47, 56	56, 57, 58, 59, 60, 61, 76, 77
	Wholesale	Tech Data Corp, Anixter International Inc, McKesson Corp, Cardinal Health Inc, SYSCO Corp, Unified Grocers Inc	5012, 5013, 5014, 5015, 5021, 5023, 5031, 5032, 5033, 5039, 5043, 5044, 5045, 5046, 5047, 5048, 5049, 5051, 5052, 5063, 5064, 5065, 5072, 5074, 5075, 5078, 5082, 5083, 5084, 5085, 5087, 5088, 5091, 5092, 5093, 5094, 5099, 5111, 5112, 5113, 5122, 5131, 5136, 5137, 5139, 5141, 5142, 5143, 5144, 5145, 5146, 5147, 5148, 5149, 5153, 5154, 5159, 5162, 5169, 5171, 5172, 5181, 5182, 5191, 5192, 5193, 5194, 5198, 5199	46	50, 51, 52, 53, 54, 55

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
	Professional services	Microsoft, Accenture, Deloitte, Google, Facebook Inc, SAP, Fujitsu Inc, PayPal Holdings Inc	6512, 6513, 6514, 6515, 6517, 6519, 6531, 6541, 6552, 6553, 7311, 7312, 7313, 7319, 7322, 7323, 7331, 7334, 7335, 7336, 7338, 7342, 7349, 7352, 7353, 7359, 7361, 7363, 7371, 7372, 7373, 7374, 7375, 7376, 7377, 7378, 7379, 7381, 7382, 7383, 7384, 7389, 7513, 7514, 7515, 7519, 7521, 7532, 7533, 7534, 7536, 7537, 7538, 7539, 7542, 7549, 7622, 7623, 7629, 7631, 7641, 7692, 7694, 7699, 8111, 8711, 8712, 8713, 8721, 8731, 8732, 8733, 8734, 8741, 8742, 8743, 8744, 8748, 8999	33, 58.2, 62, 63, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78, 80, 81, 82	39, 40, 68, 69, 70, 71, 72, 73, 74, 85, 87, 89, 90, 91, 92, 93, 94, 95, 96, 99
	Personal and consumer services	Marriott International, Wynn Las Vegas LLC, Six Flags Entertainment Corp, AMC Entertainment Holdings Inc, DHX Media Ltd, The American Red Cross, Goodwill Industries, Museum of Modern Art	7011, 7021, 7032, 7033, 7041, 7211, 7212, 7213, 7215, 7216, 7217, 7218, 7219, 7221, 7231, 7241, 7251, 7261, 7291, 7299, 7822, 7829, 7832, 7833, 7841, 7911, 7922, 7929, 7933, 7941, 7948, 7991, 7992, 7993, 7996, 7997, 7999, 8322, 8331, 8412, 8422, 8611, 8621, 8631, 8641, 8651, 8661, 8699	55, 59.13, 59.14, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99	75, 78, 79, 80, 94
	Transportation	Union Pacific Railroad Company, Greyhound Lines Inc, United States Postal Service, FedEx Corp, Werner Enterprises, Royal Caribbean Cruises, American Airlines Group Inc, Delta Airlines Inc, Plains All American Pipeline	4011, 4013, 4111, 4119, 4121, 4131, 4141, 4142, 4151, 4173, 4212, 4213, 4214, 4215, 4221, 4222, 4225, 4226, 4231, 4311, 4412, 4424, 4432, 4449, 4481, 4482, 4489, 4491, 4492, 4493, 4499, 4512, 4513, 4522, 4581, 4612, 4613, 4619, 4724, 4725, 4729, 4731, 4741, 4783, 4785, 4789	49, 50, 51, 52, 53, 79	42, 43, 44, 45, 46, 47, 48, 49, 86

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
	Media	New York Times Co, Time Warner Inc, News Corp, The Walt Disney Company, CBS Corp, Comcast, 21st Century Fox America Inc	2711, 2721, 2731, 2732, 2741, 2752, 2754, 2759, 2761, 2771, 2782, 2789, 2791, 2796, 4832, 4833, 4841, 7812, 7819	18, 58.1, 59.11, 59.12, 59.2, 60	15, 38, 41
Infrastructure	Telecommunications	AT&T Inc, Verizon Communications Inc.	4812, 4813, 4822, 4899	61	37
	Utilities	Commonwealth Edison Co, Waste Management Inc, National Grid, Duke Energy	3999, 4911, 4923, 4924, 4925, 4931, 4932, 4939, 4941, 4952, 4953, 4959, 4961, 4971, 4922	35, 36, 37, 38, 39	33, 34, 35, 36, 88
Public sector	Healthcare provider	Magellan Health Services, Brigham and Women's Hospital, Mayo Clinic, Kindred Healthcare Inc, Quest Diagnostics Inc	8011, 8021, 8031, 8041, 8042, 8043, 8049, 8051, 8052, 8059, 8062, 8063, 8069, 8071, 8072, 8082, 8092, 8093, 8099, 8351, 8361, 8399	86, 87, 88	83, 84
	Federal/central government	Department of Defense, Department of Health and Human Services, Department of Justice	9111, 9121, 9131, 9199, 9211, 9221, 9222, 9223, 9224, 9229, 9311, 9411, 9431, 9441, 9451, 9511, 9512, 9531, 9532, 9611, 9621, 9631, 9641, 9651, 9661, 9711, 9721	part of 84	97
	State/local government	City of New York Police Department, California Department of Transportation, Massachusetts Department of Health and Human Services (including Mass Health insurer)	9111, 9121, 9131, 9199, 9211, 9221, 9222, 9223, 9224, 9229, 9311, 9411, 9431, 9441, 9451, 9511, 9512, 9531, 9532, 9611, 9621, 9631, 9641, 9651, 9661, 9711, 9721	part of 84	98
	Education	University of Notre Dame, Framingham High School, Apollo Education Group Inc, Milton Academy	8211, 8221, 8222, 8231, 8243, 8244, 8249, 8299	85	81, 82

TABLE 1

IDC's Worldwide Sector and Vertical Taxonomy

Sector	Primary Vertical Market	Example Organizations	SIC Codes	NACE Codes	JSIC
NA	Consumer	The consumer segment encompasses all home purchases by and for private households. Home-based businesses, however, are captured in the 1–9 employee segment and are classified in the appropriate primary vertical (typically in professional services).	NA	NA	NA

Source: IDC's Customer Insights and Analysis Group, 2017

IDC's Company Size Taxonomy

Hand in hand with IDC's vertical segmentation definitions is IDC's company size segmentation definitions. Given that IT strategies grow in complexity as an organization grows, a company size view is a valuable companion to a vertical market analysis. As with any type of sizing, segmentation, or market assessment exercise, clearly outlining and defining what is being measured is the key underpinning. From an academic standpoint, a company or an organization is defined as a legal or social entity that engages in economic activities and transactions – such as the purchase of technology goods and services – in its own right.

Although market segmentation by company size seems straightforward, the following factors require careful consideration:

- Classification systems
- Size bands
- Basis of economic analysis

Classification Systems

There are numerous options to consider for company size analysis. Some examples are employee count, revenue, technology spending level, and industry-specific metrics.

Employee Count

Employee count is arguably the most common approach to company size analysis and is determined by the number of employees who work for an organization. The number of employees is generally available information and relates to market potential for many technology products and services.

There are two clear limitations to this approach. One limitation is that size is relative. Organizations in different industries with the same number of employees can vary greatly in size. A wholesale company with 90 employees is considered to be quite large, whereas a manufacturing company with fewer than 100 employees is thought of as small. The other drawback to an employee count methodology is that it fails to take into account the extent to which employees use technology; organizations with the same number of employees may have very different levels of technology intensity. A small hospital with 350 employees reporting to work in three shifts and sharing limited computing resources is not comparable with an engineering firm with 350 employees using high-end workstations.

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size provides a view by employee count.

Company Revenue

The revenue size-band approach classifies enterprises or organization units based on their domestic revenue or assets (for financial services) or the level of total budget (for nonprofit or government-based organizations). The appeal of this approach is the ability to analyze the market opportunity by an organization's ability to purchase technology products and services rather than the organization's need based on the number of employees. However, as with the employee count classification, this approach is limited, especially with regard to the issue of technology intensity. In addition, although revenue information is fairly readily available, it is typically less accurate than employee data.

Technology Spend

A third approach is to classify organizations according to their level of technology spending. In theory, it is an appealing methodology as it addresses the shortfalls of an employee count or a revenue band system. In practice, however, the difficulties with this metric are threefold:

- The data is not readily available.
- It is hard to capture information on IS spending in the entire company, not only inside the IS departments but also across various business units (e.g., marketing).
- Budgets have variability related to extraordinary projects scheduled in a particular fiscal year.

In an attempt to address this problem, IDC's Worldwide Wallet Research has a robust methodology, steeped in financial and economic data and vast primary and secondary research, to estimate account-specific technology spending.

Industry-Specific Measurements

When examining a single vertical, industry-specific unit can provide valuable context for analysis. There are many dimensions that highlight an industry's characteristics better than generic approaches like employee count and revenue. In the healthcare industry, the number of beds is a common metric. In the education industry, student body count is more telling of an institution's size and propensity to spend on technology than the number of employees. The retail industry is often viewed by the number of stores or square footage. Within consumer-facing industries like utilities and insurance, the number of customers served is a regular approach.

Although industry-specific measurements are attractive classification systems for their specificity, they can be challenging to implement. For any vertical, there are numerous industry-specific metrics, making it difficult to select the most meaningful classification. The lack of standardized industry metrics

lessens one's ability to draw comparisons and promotes variability. Furthermore, it can be difficult to find the comprehensive, consistent data needed to develop the analysis.

Defined Size Bands

Size bands are inextricably linked to the chosen classification system. Simply put, the defined size bands must be meaningful in that they are broad enough to analyze yet narrow enough to bring valuable insight. As with selecting the classification system, a key determinant of size bands is the availability of data to conduct the analysis.

Basis of Economic Analysis

As with our vertical taxonomy classification methodology, IDC's studies are based on an enterprise-level unit of analysis for company size. We do not recommend conducting the segmentation by local units or establishments as most strategic IT and purchasing decisions do not occur at that level. Enterprises are assigned to a corresponding size band based on employee count at their country-level headquarters.

IDC's Standard Company Size Segmentation

The objective of IDC's company size taxonomy is to study and analyze IT adoption, spending, and trends in a worldwide consistent fashion. It is intended to assist organizations with their strategy, marketing, planning, sales, and operations. With this objective in mind, IDC has defined the following five standard, mutually exclusive company size bands:

- Small office with 1-9 employees
- Small business with 10-99 employees
- Medium-sized business with 100-499 employees
- Large business with 500-999 employees
- Very large business with 1,000+ employees

Note that for the purposes of our segmentation analysis, companies which are listed in statistical sources as having 0 employees ("zero-employee businesses") are included in the "small office 1-9 employees" company size segment. These may include single-owner entities with no recorded employees.

DEFINITIONS

The segment that follows outlines IDC's IT and business services market taxonomy for each of the technologies included in IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size. To help organize the analysis and data, the markets are grouped into the following hierarchy (see Table 2):

- **Technology group:** This is the highest level of technology segmentation. In IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size, there are five technology groups: hardware, software, business services, IT services, and telecom services.
- **Technology category:** There are 12 technology categories that break out the services and software markets into a bit more detail.
- **Technology:** In this view, there are 35 markets.
- **Technology detail:** This is the most detailed level of technologies and includes 113 markets.

TABLE 2

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Program Coverage

Technology Group	Technology Category	Technology	Technology Detail
Hardware	Infrastructure	Server/storage	▪ High-end enterprise server ▪ Midrange enterprise server ▪ Volume server ▪ External storage system
		Network equipment	▪ Enterprise network ▪ Telecom equipment
		IaaS	▪ IaaS
	Devices	Mobile phone	▪ Smartphone ▪ Feature phone
		Personal computing device	▪ Desktop ▪ Notebook ▪ Tablet
		Peripheral	▪ Hardcopy peripheral ▪ PC monitor
Software	Applications	Collaborative applications	▪ Conferencing applications ▪ Email applications ▪ Enterprise social networks ▪ File synchronization and sharing applications ▪ Team collaborative applications
		Content applications	▪ Authoring and publishing ▪ Cognitive/AI software platforms ▪ Content analytics and search software ▪ eDiscovery applications ▪ Enterprise content management ▪ Enterprise portals ▪ Persuasive content management

TABLE 2

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Program Coverage

Technology Group	Technology Category	Technology	Technology Detail
		Customer relationship management (CRM) applications	- Contact center applications - Customer service applications - Marketing applications - Sales applications
		Engineering applications	- Collaborative product data management applications - Mechanical CAD applications - Mechanical CAE applications - Mechanical CAM applications - Other engineering applications
		Enterprise resource management (ERM) applications	- Enterprise asset management applications - Enterprise performance management applications - Financial applications - Human capital management applications - Order management applications - Payroll accounting applications - Procurement applications - Project and portfolio management (PPM) applications
		Operations and manufacturing applications	- Manufacturing applications - Other back-office applications - Services operations management applications
		Supply chain management (SCM) applications	- Inventory management applications - Logistics applications - Production planning applications
	System infrastructure software	Endpoint management software	- Output management tools - United endpoint management
		Network software	- Network infrastructure software - Network management software

TABLE 2

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Program Coverage

Technology Group	Technology Category	Technology	Technology Detail
		Physical and virtual computing software	▪ Operating systems and subsystems ▪ Other computing software ▪ Software-defined compute software ▪ Virtual client computing
		Security software	▪ Endpoint security software ▪ Identity and access management software ▪ Messaging security software ▪ Network security software ▪ Other security software ▪ Security and vulnerability management software ▪ Web security software
		Storage software	▪ Archiving software ▪ Data protection and recovery software ▪ Software-defined storage controller software ▪ Storage and device management software ▪ Storage infrastructure software ▪ Storage replication software
		System and service management software	▪ IT automation and configuration management (ITACM) software ▪ IT operations management (ITOM) software ▪ IT service management (ITSM) software
	Application development and deployment	Application development software	▪ Business rules management systems ▪ Development languages, environments, and tools ▪ Modeling and architecture tools ▪ Software construction components
		Application platforms	▪ Deployment-centric application platforms ▪ Model-driven application platforms ▪ Transaction processing monitors

TABLE 2

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Program Coverage

Technology Group	Technology Category	Technology	Technology Detail
		Data access, analysis, and delivery	▪ Advanced and predictive analytics software ▪ End-user query, reporting, and analysis ▪ Spatial information management
		Data management software	▪ Data integration and integrity software ▪ Database development and management tools ▪ Dynamic data grid managers ▪ Dynamic data management systems ▪ Non-relational database management systems ▪ Relational database management systems (RDBMS)
		Integration and orchestration middleware	▪ Business-to-business middleware ▪ Event-driven middleware ▪ Integration middleware ▪ Managed file transfer software
		Quality and life-cycle tools	▪ Automated software quality ▪ Software change, configuration, and process management
Business services	Outsourcing	Key horizontal BPO	▪ Key horizontal BPO
	Project oriented	Business consulting	▪ Business consulting
IT services	Outsourcing	Technology outsourcing	▪ Application management ▪ Hosted application management ▪ Hosting infrastructure services ▪ IT outsourcing ▪ Network and endpoint outsourcing services
	Project oriented	Application development	▪ Custom application development
		IT consulting	▪ IT consulting

TABLE 2

IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size Program Coverage

Technology Group	Technology Category	Technology	Technology Detail
		Systems and network implementations	• Network consulting and integration • Systems integration
	Support and training	IT deploy and support	• Hardware deploy and support • Software deploy and support
		IT education and training	• IT education and training
Telecom services	Fixed telecom	Fixed voice/data	• Fixed voice • Fixed data
	Mobile telecom	Mobile voice/data	• Mobile voice • Mobile data

Source: IDC, 2018

The sections that follow provide brief definitions of each technology market presented in IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size. For more detailed descriptions and definitions of each technology market, see the technology-specific taxonomy documents in the Learn More section.

Hardware

Devices

Personal Computing Device

Personal computing devices (PCD) include desktop, notebook, and tablet product categories. In detail:

- **Desktops** are stationary, AC-powered (no batteries) computing devices. They are not designed to be moved frequently or used on the go. Input is typically via a nonintegrated keyboard first; a touch-enabled display may be a secondary input method. This category includes the all-in-one desktop, tower desktop, small desktop, and ultrasmall desktop categories. Desktop workstations are included here.

- **Notebooks** are a portable, battery-powered, computing devices with a nonremovable keyboard. These devices are designed to be moved frequently and used in a mobile environment. Input is typically keyboard and mouse first; a touch-enabled display may be an alternate input method. Designs are generally clamshell, slider, or twister, but other designs are not automatically excluded. This category includes the traditional notebook, ultraslim notebook, convertible notebook, and mini notebook categories. Mobile workstations are included here.

- **Tablets** can be slate or detachable devices:
  - Slate tablets are portable, battery-powered, computing devices that do not have a permanently attached keyboard and use touch as a primary user interface (though this may be supplemented by other input methods such as a pen, mouse, or keyboard). Both types of tablets may use LCD or OLED displays (epaper-based ereaders are not included here). The device must have a color display of 7.0in. or larger and smaller than 16.0in. Slate tablets do not offer an optional first-party keyboard.
  - A detachable tablet meets all the criteria of a slate tablet but is designed and marketed to operate with a first-party keyboard designed specifically for the device.

The following products are specifically excluded from this definition of PCDs:

- eReaders are slate form factor devices targeted specifically for reading.
- Smart displays are TV or display products that incorporate some embedded functions such as internet access. These products are generally marketed by monitor vendors as displays first, with Android as a complementary feature. However, products positioned more like AIO desktop PCs using an Android interface first, like HP's Slate 21, are counted as desktops.
- PC/TV combinations that include a full personal computer are counted as desktops.
- Stick computers enable computing functionality but require other devices (display, keyboard, etc.) to use them. Although they may functionally support productivity apps like desktops and notebooks, tablets, phones, and other devices, stick computers are clearly a separate category.
- Smartphones, phablets, or devices with a display size of less than 7.0in. are not considered PCDs. IDC will reserve the right to classify a device with a screen size of 0.1in. smaller than 7.0in. as a slate or detachable tablet should the device meet analyst expectations.
- Wearables generally provide other functions than PCDs. Like phones and thin clients, wearables are covered separately.
- Application-specific devices are designed from the start for a dedicated function such as point-of-sale (POS) terminals, automated teller machines (ATMs), gambling machines, and voting machines.
- In the case of POS, this would apply to devices specifically designed as POS from vendors such as NCR and MICROS. However, this would not apply to POS solutions that are assembled around a desktop such as by adding a USB-attached cash drawer. Such systems – typically from traditional PC vendors – are still counted as desktops in IDC's PCD Tracker. Systems designed for digital signage also fit under this exclusion.
- Any product, such as a terminal or network computer (NC), that is designed primarily to access information on another computer and that lacks local storage and the ability to operate without being connected to another processor is excluded.
- Board-level products for building embedded systems or upgrading existing desktop or notebook systems are excluded. Raspberry Pi and similar hobby computing platforms fall under this category.
- Devices for embedded applications are excluded.
- Upgrades to existing systems (e.g., desktop or notebook computers) are excluded.
- Single-user RISC-based workstations (e.g., models from Sun Microsystems) are excluded.

Mobile Phone

Smartphones contain a high-level operating system including but not limited to Android, iOS, Tizen, Windows Phone, or other HTML-based platforms. Third-party native applications (not web apps) must be able to be installed to qualify as a high-level OS. IDC also requires these devices to have a screen size of less than 7.0in. as well as out-of-the-box cellular voice telephony with an in-built mic/speaker, capable of connecting to a cellular network for voice communication through a service provider plan.

To be classified as a feature phone in IDC's taxonomy, the device must run a proprietary or real-time operating system (RTOS). An RTOS that powers a feature phone is typically tightly controlled by the manufacturer of the mobile phone. Software developer kits, for example, unlike smartphone/high-level operating systems (OSs), aren't widely available for all developers. If the feature phone runs third-party software, it does so with the help of interfaces such as BREW or Java ME. Feature phones also typically have less processing and memory power than smartphones. IDC's feature phone category also includes basic or "send and end" phones, which are designed to perform phone calls, SMS, and nothing more.

Peripheral

PC monitors include all (cathode-ray tube [CRT] and liquid crystal display [LCD]) displays designed for use with personal computers. The category excludes televisions as well as digital signage (e.g., very large format screens typically used in public spaces to display ads, images, and sports scores).

IDC defines hardcopy peripherals as the group of hardware technologies that connect to a computer, digital camera, camera phone, or memory card to capture, print, or view content. IDC categorizes hardcopy peripherals as printers, multifunction peripherals (MFPs), and single-function digital copiers.

Infrastructure

Server/Storage

IDC defines a server system as a multiuser computing device that accesses and delivers services via a network. The server and the applications that run on it are typically shared by multiple users. Unlike a client device, a server does not usually have a user interface that is intended for human-machine interaction. A typical server system entails one or more processors, a motherboard, memory, internal disk or flash storage, a bundled operating system, power supply units, and network interfaces.

IDC's server taxonomy segments the server market into three server classes:

- **Volume server.** Volume server markets consist of all systems with an average selling value below $25,000.
- **Midrange enterprise server.** Midrange enterprise server markets consist of all systems with an average selling value of $25,000-249,999.
- **High-end enterprise server.** High-end enterprise server markets consist of all systems with an average selling value of $250,000+.

IDC defines an enterprise storage system (ESS) as a set of storage elements that provide persistent data storage resources including power supplies, cooling, system enclosures, storage controllers, system cabling and external connections, and storage media in the form of HDDs and/or flash. Simply stated, enterprise storage systems are used to support the processing, management, and storage of digital data.

An enterprise storage system may be located outside of or within an application server. Internal storage is counted as part of server system values. External storage encompasses all enterprise storage systems outside of an application server enclosure. An external storage system could be further segmented into its level of redundancy or external RAID and external JBOD.

Network Equipment

Enterprise network refers to hardware purchased by enterprise customers for the implementation of wired and wireless computer networks, which may be utilized for the transfer of data and voice traffic.

The following products are currently included in this definition: router, switch, ADC, WAN optimization, IP telephony, enterprise videoconferencing, and WLAN

An Ethernet switch is a device that analyzes incoming traffic (data and voice) to determine its destination address. IDC includes in its definition of routers all products that can provide the networking capability of routers (e.g., standalone and stackable units, add-in cards, and server-based software).

Enterprise-class WLAN access devices are designed for use in multi-access point systems or for standalone deployments and typically have a rich and upgradeable feature set. There are two types of enterprise-class access point (AP) devices: independent (traditional) and dependent. Deployments are in buildings or outdoor. Consumer-class WLAN devices are not included in the enterprise network definition.

Telecom equipment refers to hardware purchased by telecommunications service providers for the implementation of wired and wireless networks, which may be utilized for the transfer of voice and data traffic. Access to this network capacity is typically sold to end users (commercial and consumer customers) in the form of network services. Market sizing for telecom equipment refers only to the equipment sold directly to network service providers.

Telecom equipment includes service provider router, service provider switch, ADC, WAN optimization, and wireless infrastructure.

Wireless infrastructure includes 2G/3G/4G mobile radio access and mobile packet core; it excludes microwave and other mobile backhaul transport-related revenue.

IaaS

IDC defines cloud services more formally through a checklist of key attributes that an offering must manifest to end users of the service. To qualify as a "cloud service," as defined by IDC, an offering must support these six attributes:

- Shared, standard service
- Solution packaged
- Self-service
- Elastic resource scaling
- Elastic, use-based pricing
- Published service interface/API

From a technology perspective, we segment the public cloud services market into three product categories: IaaS, PaaS, and SaaS. In the Worldwide Semiannual IT Spending Guide by Industry and Company Size, SaaS and PaaS are already accounted for within the software market value.

Infrastructure as a service (IaaS) represents net-new, additional IT spending and has thus been added as a new, discrete category from January 2018.

IaaS refers to the provision of basic storage, networks, and servers as a service, as defined by the qualification criteria listed previously for a public cloud services offering.

Software

IDC's software research programs maintain a centralized database that includes worldwide total commercial software revenue for over 1,000 software vendors. We do not contend that this is an exhaustive list of software providers; in fact, we believe there are more than 10,000 such suppliers. However, our database is designed to support very precise forecasting, and the suppliers in the database represent most of the software market's revenue overall and a majority of the revenue in each of the various segmentations it supports. The revenue is allocated to functional market segments, geographic areas, revenue types, industries, channels, and operating environments. The functional software markets defined by the taxonomy represent a collectively exhaustive and mutually exclusive view of the worldwide software marketplace.

Under the IDC software taxonomy, our data pertains to what we call total commercial software spending. This is made up of vendor revenue, plus channel margin, and represents end-user spending on commercial software. The revenue component includes three types: license revenue, maintenance revenue, and subscription/other revenue.

IDC uses the term *commercial software* to distinguish commercially available software from custom software. Commercial software is programs or codesets of any type commercially available through sale, lease, or rental, or as a service. Commercial software revenue typically includes fees for initial and continued right-to-use commercial software licenses. These fees may include, as part of the license contract, access to product support and/or other services that are inseparable from the right-to-use license fee structure, or this support may be priced separately. Upgrades may be included in the continuing right of use or may be priced separately. All of the aforementioned revenue structures are counted by IDC as commercial software revenue.

Commercial software revenue excludes service revenue derived from training, consulting, and systems integration (SI) that is separate (or unbundled) from the right-to-use license but does include the implicit value of software included in a service that offers software functionality by a different pricing scheme (as described in the following paragraph in more detail).

Increasingly, commercial software is also being marketed and deployed on a subscription and transaction basis as well as via other arrangements (e.g., for "free" with the commercial software's "owner" taking a percentage of the revenue enabled by the software as implicit "product" revenue), some of which do not involve a license. Software has also long been available for lease or rent, typically on mainframes. Furthermore, we must not be limited by accounting directives (such as those released by AICPA and FASB) because this would neglect to count large segments of software markets in a way that accurately reflects market dynamics and future opportunity.

The definition of commercial software is subject to interpretation, and the application and usage of software continues to grow as the number and types of devices that run software expand. The markets defined in this document are intended to capture enterprise software that is deployed on computational servers and clients. The following paragraph explains the meaning – for the purposes of this software taxonomy – of "enterprise" and deployed on "computational servers and clients."

Applications

Commercial application software includes commercial, industrial, and technical programs and codesets designed to automate specific sets of business processes in an industry or business function and make groups or individuals in organizations more productive or support education or data processing in personal activity. The applications primary market includes the collaboration, content, enterprise resource management, supply chain management, operations and manufacturing, engineering, and CRM applications secondary markets.

IDC has removed the "consumer applications" secondary market and the associated consumer software functional market from IDC's commercial software database and the software taxonomy. Given the trend in IT to consumerization in the enterprise, IDC has realigned all markets to include the associated software used by consumers in those markets, thereby eliminating the need for a separate consumer applications market. Certain portions of the consumer software market have been reclassified into other existing functional software categories, while other portions have been eliminated from our accounting.

Collaborative Applications

Collaborative applications enable groups of people to work together by sharing information and processes. These include conferencing applications, email applications, enterprise social networks, team collaborative applications and file synchronization and sharing applications.

Content Applications

Content applications include enterprise content management, persuasive content management, authoring and publishing, cognitive/AI software platforms, content analytics and search, ediscovery, and enterprise portals.

Enterprise Resource Management Applications

Enterprise resource management applications are designed to automate and optimize business processes related to resources required to meet business or organizational objectives but are not customer or prospect facing or specialized to various types of engineering. The resources automated include people, finances, capital, materials, suppliers, projects, contracts, orders, and facilities. The resulting applications forecast, track, route, analyze, and report on these resources.

Included in ERM are financial applications, human capital management applications, payroll accounting, procurement applications, order management applications, enterprise performance management applications, project and portfolio management applications, and enterprise asset management applications.

Supply Chain Management Applications

Supply chain management applications automate supply- and demand-side business processes that bring a product or a service to market, including multisite organizations involved in a complex supply chain process, including raw materials suppliers, contract manufacturers, 3PL and 4PL providers, and individual transportation and warehousing organizations. This market includes logistics applications, production planning applications, and inventory management applications.

Operations and Manufacturing Applications

Operations and manufacturing applications are enterprise applications that automate and optimize processes related to the planning and execution of services operations and manufacturing activities as well as other back-office activities. The resources automated include people, capital, materials, and facilities. The applications track, route, analyze, and report on these resources. The market includes software that is specific to services, manufacturing, and other industries. Included in this market are services operations management applications, manufacturing applications, and other back-office applications.

Engineering Applications

Engineering applications automate all of the business processes and data management activities specific to ideas management, concept planning, and design and the handoff of a design to execution (manufacturing, construction, or other). The markets include mechanical computer-aided design (MCAD), CAM, computer-aided engineering (CAE), collaborative product data management, and other engineering applications, which include those for electronic design automation (EDA) and architecture/engineering/construction or building infrastructure information management (BIIM).

Customer Relationship Management Applications

CRM applications automate the customer-facing business processes within an organization irrespective of industry specificity (i.e., sales, marketing, customer service, and contact center). Collectively, these applications serve to manage the entire life cycle of a customer — including the process of brand building, conversion of a prospect to a customer, and the servicing of a customer — and help an organization build and maintain successful relationships. Interactions in support of this process can occur through multiple channels of communication. Channels of communication include but are not limited to email, phone, social, and on a website. This market includes sales applications, marketing applications, customer service applications, and contact center applications.

Application Development and Deployment

Data Management Software

A database management system (DBMS) is a software entity that manages a database in such a way that it may be queried and randomly updated.

The relational database management system market includes multiuser DBMSs that are primarily organized according to the relational paradigm and that use SQL, or a protocol like SQL (such as ODBC or JDBC), as the foundational language for data definition and access. A relational DBMS includes a schema that defines the ways that data is accepted and returned in terms of tables having columns, with rows uniquely identified by a primary key for each table, and with columns that are used to relate rows in different tables to each other through a value reference called a foreign key. Also included in this market are RDBMSs that have been extended to support embedded tables or other nonrelational enhancements or include extended attribute types (such as graphical, geospatial, and audio), object-oriented formalisms (such as data encapsulation), or direct support for XML data. It also includes NewSQL DBMSs that may feature late schema binding, elastic scalability, and dynamic schema change.

Included in this market are relational database management systems, nonrelational database management systems, dynamic data management systems, database development and management tools, dynamic data grid managers, and data integration and integrity software.

Application Development Software

The application development software markets include software, tools, and development environments used by developers, business analysts, and other professionals to create both web-based and traditional applications. Business rules management systems, development languages, environments and tools, modeling, and architecture tools and software construction components are included here.

Quality and Life-Cycle Tools

Quality and life-cycle tools support the process of software development and deployment. These include automated software quality tools, in addition to software change/configuration and process management tools.

Application Platforms

The application platform secondary market includes technologies that present a cohesive application execution environment for applications built on a server or back-end component. Application platforms are back-end server middleware that execute application logic; mediate access to data, content sources, and web services; coordinate authentication, manage sessions, and provide quality of service (QoS) to offer scalability, performance, reliability, and availability to applications executed and managed by the platform.

Applications built on modern application server middleware are used over TCP/IP networks and are built using standard frameworks such as Java Enterprise Edition (JEE),.NET, and Spring. Older legacy application server middleware is deployed on mainframes.

Application platforms were formerly called application server middleware. In this change, we are calling out three types of application platforms:

- Deployment-centric application platforms (DCAPs)
- Model-driven application platforms
- Transaction processing monitors (TPMs)

Integration and Orchestration Middleware

The integration and orchestration middleware markets include tools used by developers and business analysts to integrate applications, exchange business transactions between enterprises, transfer files inside and outside organizations, publish and process events, and monitor the business and process performance of these applications and automated processes.

This middleware is deployed on-premise as software implemented on servers, in appliances, and as public and hybrid cloud offerings.

In the IDC taxonomy, there are four specific types of integration and orchestration middleware, along with an "other" category that includes legacy software and integration-related middleware not yet large enough to be categorized in a standalone market:

- Business-to-business middleware
- Integration middleware
- Event-driven middleware
- Managed file transfer software

Data Access, Analysis, and Delivery Software

Data access, analysis, and delivery products are end-user-oriented tools for ad hoc data access, analysis, and reporting as well as production reporting. Products in this category are most commonly used by information consumers or power users rather than by professional programmers. Included here are advanced and predictive analytics software, end-user query, reporting and analysis, and spatial information management.

System Infrastructure Software

System infrastructure software includes software and SaaS solutions that provide both the basic foundational layers of software that enable bare metal infrastructure hardware resources to host higher-level application development and deployment software and application software and the virtualization and management software used to configure, control, automate, and share use of those resources across heterogeneous applications and user groups. System infrastructure software includes five groups of infrastructure software products: system management software, network software, security software, storage software, and system software.

Endpoint Management Software

The endpoint management secondary market encompasses software and SaaS solutions used to automate the operation, control, administration, and configuration of endpoint and output management devices including mobile phones, tablets, IoT devices, traditional PCs and laptops, and print devices. It includes output management tools and unified endpoint management.

System and Service Management Software

System and service management software and SaaS services are used to manage, orchestrate, and optimize the use of server-side computing resources including bare metal and virtual servers as well as public cloud IaaS compute services to the extent that management services are priced separately from the core compute charges. This market does not include endpoint management, storage management, or network management software. It includes IT operations management, IT automation and configuration management, IT service management, output management tools, and unified endpoint management.

Network Software

The network software market includes a broad set of networking and communications technologies that are deployed across enterprise, cloud provider, and communication service provider (CSP) domains. These encompass the products and technologies that are primarily deployed to build and support local area or wide area networks for established and emerging applications including voice and video, across enterprise/private and public, and fixed and mobile networks. Network software is a secondary market that includes two functional markets:

- Network infrastructure software (NIS)
- Network management software

Security Software

The security software market includes a wide range of technologies used to improve the security of computers, information systems, internet communications, networks, and transactions. It is used for confidentiality, integrity, privacy, and assurance. Through the use of security applications, organizations can provide security management, access control, authentication, malware protection,

encryption, data loss prevention (DLP), intrusion detection and prevention, vulnerability assessment, and perimeter defense. All these tools are designed to improve the security of an organization's networking infrastructure and help advance value-added services and capabilities. Security software includes traditional security software as well as security software-as-a-service offerings. The market covers both corporate and consumer security software.

Security software includes endpoint security software, identity and access management software, messaging security software, network security software, security and vulnerability management, and other security software.

Storage Software

Storage software manages, stores, and/or ensures the accessibility, availability, and performance of information stored on physical storage media ranging from memory-based devices to hard drive-based devices to magnetic-based devices. This category does not include operating systems or subsystems. This category includes vendor revenue for the delivery of software functionality that is offered in the form of perpetual licensing, subscription-based licensing, and public cloud services/SaaS. However, IDC tracks only storage software revenue associated with purchasable products or services that have a related SKU or license. IDC makes no attempt to derive or estimate any financial value associated with storage systems features that are included at no cost, or bundled with a storage system sale, without a SKU or software license that is clearly attributable to the software. Since some suppliers within the storage supplier community bundle storage software with a system, the attribution of revenue for some storage software offerings differs. Differences arise when one vendor charges for a software feature and another vendor includes it with a system sale at no cost. Some storage systems suppliers, for example, charge for thin provisioning, while others bundle thin provisioning with the storage system at no cost. This gives the first vendor a revenue attribution advantage within IDC's storage software numbers but may also put that vendor at a competitive disadvantage if the broad market trend is toward bundling.

Physical and Virtual Computing Software

The physical and virtual computing software (renamed from system software) secondary market forms the foundation layer for software products that collectively operate the hardware on which business applications are built. It includes operating systems and subsystems, software-defined compute, virtual client computing, and other computing software.

Business Services

IDC's services market research covers services provided to various buyer segments by external companies for planning, building, supporting, and managing systems and processes. IT services primarily target information systems and technology-enabled processes. Business services primarily target business processes that may or may not incorporate any technology.

Outsourcing

Business Process Outsourcing

Business process outsourcing involves the transfer of management and execution of one or more complete business activities, business processes, or entire business functions by a customer to an external (third-party) services provider or an outsourcer.

The BPO vendor is part of the decision-making structure surrounding the outsourced process or functional area, and performance metrics are primarily tied to customer service and strategic business value. Strategic business value is recognized through such results as increased productivity, new business opportunities, new revenue generation, cost reduction, business transformation, and the improvement of shareholders' value. BPO contracts may involve the transfer of fixed assets and personnel from the customer to the service provider. BPO may also involve the use of a provider's own technology environment (or platform) from which the business process services are provisioned. Contract terms for business outsourcing engagements may range anywhere from one year to more than 10 years. A BPO engagement can include an entire corporate function (such as HR, procurement, or logistics) or discrete segments/activities within business functions (such as benefits administration, strategic sourcing, or warehousing).

Project Oriented

Business Consulting

Business consulting involves advisory and implementation services related to management issues. It involves defining an organization's strategy and goals and designing and implementing the structures and processes that help the organization reach its goals.

IT Services

Project Oriented

IT Consulting

IT consulting is a professional services activity around information technology. It is the delivery of advice to customers aimed at managing their IT organization and at improving an organization's IT performance, infrastructure including IT security, and related processes.

Systems and Network Implementations

Systems Integration

IDC defines systems integration as a process that includes the planning, design, implementation, and project management of a technical solution that addresses an organization's specific technical or business needs. When SI deals involve contracting for custom application development (CAD) related to the systems integration, then those activities are included in the definition of SI.

SI projects typically involve different platforms and technologies. The solution may include hardware, software, and services and is consumed on-premise, on demand, or in a cloud-based environment. An SI project is formalized by a contract that is constructed around solution specifications and often demands certain levels of performance against technical or business goals. The end result of an SI project is the delivery of a system that meets a stated objective and fulfils solution specifications.

Network Consulting and Integration

Network consulting and integration services are defined as those activities associated with planning, designing, and building local and wide area data networks (commonly known as LANs and WANs), including multiservice, converged wireless, and wireline networks that allow voice, video, and data applications (such as VoIP and unified messaging) to be propagated across a single, common infrastructure.

Application Development

Custom Application Development

Custom application development services focus on delivering standalone, custom codesets to meet a client's business needs. CAD services can span the entire application development life cycle, including requirements gathering and design, solution build, testing and QA, and solution acceptance. CAD services include coding for custom-developed applications as well as enhancements and modifications to custom legacy applications. CAD services also include third-party development and support (e.g., follow-on patches or enhancements) of custom applications that are either designed or migrated to cloud-based platforms such as Windows Azure or Force.com. Because of the complexity and evolving maturity of platform-as-a-service (PaaS) platforms and the ongoing need to integrate with internal back-end systems, discrete CAD or SI services are being delivered to enterprises to support their PaaS initiatives, which can include coding, construction, and integration support as well as process modelling and system architectural design. IDC notes that CAD contracts can include requirements for patches that are not considered part of a daily maintenance plan. Customization of an existing custom application is also included within CAD (customization is defined as implementing new features not available in the custom software application). CAD services are delivered as part of a project with a defined beginning and end.

Outsourcing

Technology Outsourcing

Application Management

Application management (AM) services are designed to provide for the day-to-day operations, support, and maintenance of enterprise applications. AM services contain many discrete components, including but not limited to end-user support, proactive and reactive application maintenance, proactive application enhancements, and remote/onsite application monitoring whether at the customer's or vendor's premise. SLAs with penalties form part of an AM contract, supporting customer requirements for application uptime and performance. Various project-based activities can also occur within an AM contract, including but not limited to application development, package customization, implementation and integration, portfolio optimization, and legacy modernization. AM engagements sometimes, but not always, involve the transfer of employees from the customer to the service provider. The main value proposition of AM services is that they free customer IT budget and staff from the usually high cost of managing enterprise applications and allow customers to benefit from the generally higher-quality levels and application management expertise offered by AM vendors.

In scenarios where maintenance activities are most of the work occurring in an AM engagement, IDC distinguishes the contracts as AM when the vendor has SLA-based ownership over the overall health of the customer applications. SLAs with associated penalties can be tied to application availability and specific performance criteria agreed upon between vendor and customer. Depending on the complexity of application portfolio, SLA commitments may be customized.

Hosted Application Management

Hosted AM comprises services where a customer's packaged applications are hosted and managed out of a vendor-managed datacenter and includes packaged applications hosted either in a customer-dedicated environment or a shared infrastructure environment. There are major differences between hosted AM, which is a standardized service, and traditional AM, which is a customized outsourcing engagement.

IT Outsourcing

IT outsourcing services involve a long-term, contractual arrangement in which a service provider takes ownership of and responsibility for managing all or part of a client's IT infrastructure and operations based on a service-level agreement. Services are provided in a one-to-one model. At the core of an IT outsourcing contract is taking over management of day-to-day operations at a datacenter and its systems infrastructure (either mainframe based or through a "server farm") and usually also includes two or more of the following services:

- Desktop management
- Local and wide area network operations management
- Help desk support
- Application management
- Hosted application management
- Disaster recovery services
- Hosting services

IT outsourcing contracts can also include related consulting and systems integration activities. Along with activities performed by the outsourcer's employees, an IT outsourcing contract can include (though does not always include) ongoing capital spending for new equipment and may involve the transfer of assets and people from the client to the service provider.

Network and Endpoint Outsourcing Services

Network and endpoint outsourcing services (NEOS) involve the set of activities associated with outsourcing the support and management of one or more elements of the client/server and network communications infrastructure of an organization.

Hosting Infrastructure Services

Hosting infrastructure services (HIS) include the management of servers, networking, and other infrastructure solutions in a third-party service provider datacenter. Hosting infrastructure services encompass activities related to the provisioning, management, and maintenance of the infrastructure that supports businesses' applications, which include activities around application development and deployment. The specific capabilities delivered under this umbrella typically include support for associated application infrastructure platforms (e.g., middleware, databases, and application servers), comprehensive infrastructure management, and systems-level (as opposed to server-level) administration in support of these application environments. Software-centric activities (i.e., middleware/operating system/database) are often performed by service providers as part of hosting infrastructure services engagements. Hosting infrastructure services also include any hosting services delivered on virtualized infrastructure (commonly referred to as "private cloud"), in addition to services supported on traditional dedicated physical infrastructure.

HIS engagements involve discrete, standalone offerings that are often function or application specific in nature. Thus HIS can be distinguished from IS outsourcing by the scope of the service, the nature of the service-level agreements, the customers' responsibilities and involvement in service delivery, and the degree of service risk and operational control that is transferred to the service provider.

Support and Training

Hardware Deploy and Support

This market captures hardware deployment services and support services. Hardware comprises all devices and infrastructure captured in the *Worldwide Black Book* (including servers, storage, enterprise network, telecom equipment, client devices, and peripherals).

Deployment Services

Deployment services consist of the installation and basic configuration of hardware. The configuration can occur either at the customer's facility or the vendor's facility. Examples of the configuration at the vendor's facility are HPE's Factory Express offering and Sun's Factory Integration offering.

Decommissioning Services

Decommissioning services includes end-of-life services for IT hardware. The two main services that are included in decommissioning services are data wiping service and device removal from network service.

Support Services

Support services comprises telephone support, remote diagnostics, electronic support, onsite support, extended warranty, predictive/preventive maintenance, parts repair, and inventory/asset management services. IT help desk services dedicated to supporting a customer's application are considered support services. Hardware support services can be provided by either the hardware vendor or a third party and are either attached to the hardware or included in a site agreement.

Managed Support Services

Managed support services refer to high-end or mission-critical support services. Under the terms of a managed support services offering, the provider is responsible for proactively alerting customers about events or situations that are occurring in their environment or on discrete technology assets. Under the terms of a managed support agreement, the provider's legal liability is limited to providing an alert to the customer. After the alert has been sent, the provider may have additional responsibilities under the terms of a traditional support agreement. For example, the provider may be bound by response or resolution times as described in a support agreement.

Software Deploy and Support

Software deploy and support services are activities, expertise, and systems all aimed at providing the customer with proper installation and configuration of commercially available packaged software delivered either on-premises or "as a service." It also includes appropriate ongoing support and access to resources.

Deployment Services

Deployment services consist of the basic installation of packaged software or upgrades, including standard setup and configuration. Configuration is limited to options and features available in the software package. Deployment services do not include custom development or integration with other packages and legacy systems at the customer site.

Support Services

Typical activities associated with software support services are as follows:

- Telephone support
- Remote diagnostics and repair
- Electronic support
- Support-related software maintenance
- Onsite software support
- Predictive and preventive monitoring and notification

Note: Support-related maintenance is when a software vendor provides, generally online or by telephone, remedial assistance – which may include a software patch or maintenance release – for software end users.

Telecom Services

Market sizing and forecasts for telecom services cover the market for telecommunications connectivity services including the provision of landline and wireless services. These include basic networking telephony services and some managed services such as IP VPN but exclude a significant amount of managed services and IT services including systems integration, professional services, and cloud services, which are captured elsewhere in the *Black Book* (IT services and cloud services). Historical data is based on several sources including public data such as financial releases, regulatory data, and interviews by IDC analysts with key telecom service providers in each region. Further:

- **Fixed (landline) services** include the provision of local and long distance, legacy, and IP-based services. This includes the provision of voice and data services including legacy private line, packet networking, and IP data networking services. The data networking category includes broadband and fiber-based services.

- **Fixed data** services include services that provide access to the global IP network, or internet, for web browsing and communications applications. It includes revenue for connectivity only, from dial-up, broadband (DSL, cable, etc.), and fixed wireless (WiFi and WiMAX) connections purchased from an ISP network provider.

- **Mobile services** include the provision of mobile voice and data services. WiFi and fixed wireless services are also included. The data includes some managed networked services such as IP VPN but excludes cloud and hosted as well as IT and professional services.

- **Mobile data** includes packet data services for IP mobile devices, including handheld computers/PDAs, smartphones, and integrated devices running on 2G, 2.5G (GSM/GPRS and 1xRTT), 3G HSPA/HSPA+, and 4G LTE networks.

LEARN MORE

Related Research

- *IDC's Worldwide Semiannual Public Cloud Services Spending Guide Taxonomy, 2018* (IDC #US41137917, December 2017)
- *IDC's Worldwide Software Taxonomy, 2017* (IDC #US42961816, August 2017)
- *IDC's Worldwide Services Taxonomy, 2017* (IDC #US42356617, March 2017)

- *IDC's Worldwide Mobile Phone Tracker Taxonomy, 2017* (IDC #US42292117, February 2017)

Synopsis

This IDC study provides a detailed description of IDC's worldwide vertical industry and company size methodology and taxonomy. It should be used as a companion piece for IDC's Worldwide Semiannual IT Spending Guide by Industry and Company Size and all of IDC's worldwide vertical research. Technology suppliers may utilize this approach and structure to help them build an industry-focused organization.

"IDC's worldwide industry and company size taxonomy presents a comprehensive view of the marketplace," said Stephen Minton, vice president, IDC's Customer Insights and Analysis group. "It is an invaluable resource to help vendors define and standardize their industry and company size definitions."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com