ICT Market Report 2014/15

Definitions & Methodology

EITO

Contents

Definitions & Methodology EITO 2014

1. Data Sources and methodology

The EITO research partners for the 2014 report follow research methodologies that are optimized according to the markets under analysis. These methodologies always include both primary research activities (interviews with vendors and end-users, distribution channel monitoring) and secondary research (publications of companies, regulatory authorities, international organizations and industry associations).

1.1. Geographic coverage

EU26: refers to the 28 member states of the European Union with the exception of Malta and Cyprus.

Western Europe includes the 15 Western European EU countries as well as Norway and Switzerland.

Central and Eastern Europe includes the 11 Central and Eastern European EU countries as well as Macedonia and Russia.

Europe refers to the 26 member states of the European Union (excluding Malta and Cyprus) plus Switzerland, Norway and the eleven Central and Eastern European EU countries.

In addition EITO offers data for the worldwide and major international ICT markets including Brazil, China, India, Japan, Turkey and the USA.

1.2. Market values (revenues)

Market values reflect revenues paid by the final customer to primary vendors and service providers either directly or through distribution channels. Thus market revenues reflect end-user spending in a particular country, excluding VAT. All market values are given in Euro. For all non-Euro zone countries market data were converted from local currencies to Euros using the yearly average exchange rates of local currencies to the Euro for 2013 as provided by Oanda.com (see section 1.5).

1.3. Unit shipments

Unit shipments are the unit measure of hardware product sales by vendors or by distribution channels to end users.

1.4. Market segmentation (revenue data)

The ICT Market Report 2014 includes market data for three major segments: IT and telecommunications. The IT market is the sum of IT equipment, software, and IT services. The telecom market is the sum of telecom equipment and services. Note that data availability varies by country (for a 1-pager presenting the included data / analyses see here)

IT market	Sub-segments

IT equipment	Servers
	Storage
	Workstations
	PCs
	   Portable PCs
	     Netbooks
	     Consumer Portable PCs
	     Business Portable PCs
	   Desktop PCs
	     Consumer Desktop PCs
	     Business Desktop PCs
	Media Tablets
	Multifunction printers
	Other IT equipment

Software	System Infrastructure Software Application D&D Applications
IT & business services	Projects Outsourcing (excl. BPO) Support & Deploy BPO Services (incl. business consulting)
Telecom market	
Telecommunications equipment	Mobile phones Smartphones Fixed IP phones Ethernet (LAN) switches IP PBX Voice switching equipment WAN equipment (routers, ATM switches, etc.) WLAN equipment Wireline access infrastructure Mobile infrastructure Transmission equipment Other Telco equipment
Telecommunications services	Fixed voice telephony Business data services Internet access and services Mobile voice telephony Mobile data services

1.5. Exchange rates

For all non-Euro zone countries (EU member countries not participating in the European Monetary Union and countries outside of the European Union), historical and forecast market data were converted from local currencies to Euros using the yearly average exchange rates of local currencies to the Euro for 2013 as provided by Oanda.com.

Euro exchange rates 2013 (Units per Euro)	
Bulgaria	1.96
Croatia	7.59
Czech Republic	25.99
Denmark	7.46
Hungary	297.19
Lithuania	3.46
Macedonia	62.27
Norway	7.81
Poland	4.20
Romania	4.42
Sweden	8.66
Switzerland	1.23
UK	0.85
Brazil	2.87
China	8.23
India	77.88
Japan	129.66
Turkey	2.53
Russia	42.36
USA	1.33

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2.   Information Technology

2.1. IT equipment

IT equipment is defined as technological hardware used in the processing of information in the form of data (input, process, output, communication, and storage). It includes computer systems (client and server devices), system peripherals (printers and MFPs), media tablets, storage hardware and other hardware.

2.1.1. Computer Systems

Computer systems are defined as working computers, including any software or peripheral devices that are necessary to make the computer function. Every computer system, for example, also includes an operating system (the value of which is included in the value of the computer system). The computer system is a functional unit that may consist of one or more computers and is designed for either single-user access (PCs and workstations) or multiuser access (servers). A computer system uses common storage for all or part of a program and for all or part of the data necessary for executing the program. It executes programs and performs data manipulation.

Additional storage, peripherals, connectivity devices, and software may be added to a computer system to increase its functionality, but these are not considered as components of the original computer system. In this study, those categories are tracked separately.

2.1.2. Personal Computers

A personal computer is a general purpose, single user machine that is microprocessor-based, capable of supporting attached peripherals and can be programmed in a high-level language.

Specifically excluded from this definition of PCs are the following:

- Smart handheld devices such as iPads, PDAs, high-end organizers/PC companions, personal companions, pen tablets, pen notepads, keypad handhelds, and smart phones.

- Application-specific devices that are designed from the start for a dedicated function, such as point-of-sale (POS) terminals, automated teller machines (ATMs), and voting machines.

- 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.

- Board-level products for building embedded systems or upgrading existing PCs.

- Devices for embedded applications.

- Upgrades to existing PCs.

- Single-user RISC-based workstations.

- Systems marketed as "personal workstations" are counted as PCs as long as they have Intel-type processors and are designed primarily to run a PC OS, including Windows NT.

- PC/TV combinations that include a full personal computer are counted as desktop PCs.

For the purposes of this study the PC market is represented in terms of annual end-user spending, including channel margin. This is otherwise referred to as "value of shipments" and is calculated as follows.

Average Sales Value

An average sales value (ASV) is the average end-user (street) price paid for a typically configured system with storage, memory, keyboard and video display. This is often referred to as variations of average system/sales/street value/price (ASV/ASP).

Unit Shipments

Unit shipments constitute a measure of the number of PCs shipped by a vendor to all distribution channels or directly to end users. Units are counted as they leave the vendor and are not double counted in the case of OEM relationships in which systems are shipped twice.

End-User Spending/Value of Shipments

This term is the sum of unit shipments multiplied by the ASV. Because this figure includes distribution margins and monitors (and does not include discounting for bulk purchases), the number will typically be higher than PC-related sales/revenue figures reported by companies.

2.1.3. Servers

A server is a computer or device on a network that manages network resources. For example, a file server is a computer device dedicated to storing files. Any user on the network can store files on the server. A print server is a computer that manages one or more printers, and a network server is a computer that manages network traffic. A database server is a computer system that processes database queries.

Servers are currently represented in the following major categories:

- High-End Enterprise Server: A high-end enterprise server is any server priced at $250,000 or more.

- Midrange Enterprise Server: Midrange enterprise servers are servers that are above volume servers and below high-end enterprise servers. This definition is based strictly on the price of the server, which must be between $25,000 and $249,999, inclusive. No other usage connotations are implied.

- Volume Server: This is the term for servers priced less than $25,000. It includes multiuser PC servers, which are thus excluded from the PC market total.

2.1.4. Traditional Workstations

Traditional workstations include all workstations on which UNIX is the primary operating system. The operating systems is usually bundled by the hardware manufacturer, with an emphasis on technical, graphics application segments and higher levels of functionality in many areas (graphics performance, floating point, memory, maximum disc storage, etc.)

2.1.5. Media Tablets

Media tablets are electronic devices primarily designed and marketed to enable the creation of and access to a wide range of digital content and services including media and communications. They are more portable and leverage lighter-weight hardware than portable PCs. In detail:

- Formfactor: Media tablets are slate tablet form factor devices with color displays larger than 5in. and less than 14in.

- OS: Media tablets run lightweight operating systems such as Apple's iOS and Google's Android OS. This distinguishes them from tablet PCs, which run full PC operating systems (e.g. Windows 7, XP).

- Connectivity: Media tablets can include Wi-Fi or 3G/4G or both.

- Processor: Media tablets can be based on either ARM or x86 processors.

- Applications: Media tablets support a broad range of applications, which differentiate them from single purpose–focused devices such as e-readers. Although media tablets will primarily be marketed as multifunction content consumption devices, and OEM and third-party applications will be available to support video, music, games, and digital books, productivity applications will also be available to support consumer and enterprise users.

2.1.6. Multifunction Peripherals (MFP)

An MFP is a device that incorporates at least two of the following document functions: copy, fax, print, and scan. One of these two functions must be the print function. The various function combinations for an MFP

are: Print/Copy, Print/Scan, Print/Fax, Print/Scan/Fax, Print/Copy/Fax, Print/Copy/Scan, and Print/Copy/Scan/Fax.

MFPs can be either directly connected to a computer workstation or indirectly connected via a network.

Inkjet MFPs use either a continuous, controlled flow of ink or a staccato ejection of ink, often referred to as "drop on demand." Ink is typically ejected through a multi-nozzled head. Laser MFPs form the image of an entire page on an intermediate medium (usually a photosensitive drum) before transferring it to paper.

2.1.7. Storage

Storage is the part of a computer system, or connected system or peripheral device, which stores information for subsequent user or retrieval. It can take the form of storage, which is an integral component of functional computer systems, or additional systems and devices.

Only additional storage hardware in the categories of disk systems and tape automation are included in this study. Moreover, the storage total in this study is related only to this hardware and does not include spending on storage software (captured in system infrastructure software) or storage services (captured in IT services).

Disk Storage Systems

A disk storage system is defined as a set of storage elements, including controllers, cables, and (in some instances) a host bus adapter, associated with three or more disk drives. A system may be located outside of or within a server cabinet. Thus, nearly all storage within large-, medium-, and small-scale servers are considered to be storage systems.

Tape Automation

Tape automation or tape libraries are defined as a mechanical subsystem in which one or more tape drives and more than two tape cartridges are integrated together in a rack configuration or free-standing floor unit. Furthermore, the tape libraries have the ability to move tape cartridges, without human intervention, from one drive to another. This is typically done with robotic arms or actuators that reside inside the tape library unit. Tape automation and libraries are categorized in two ways: by tape drive technology and by size of library. Tape automation and library products reported by segment, like drives, are based on tape drive technology. Furthermore, tape automation and library products are reported by the maximum number of tape cartridges that can be integrated in one system. The tape automation segments are based on the same tape drive technology groupings as tape drives. The three tape

automation segments include the low end table automation market, the midrange tape automation market and the enterprise tape automation market.

2.1.8. Other Hardware

The market sizing for other hardware presented in the EITO summary market tables is a combination of PC components, system replacement components, monitors, e-readers, and other add-ons.

- PC components

- System replacement components

- Monitors

- e-readers

- Other add-ons**:** Other add-ons are a modeled estimate of residual system value not captured in the initial sales value of PC and server computer systems. This includes components that are essential to the operation of PC and server systems but not sold as part of the assembled computer system (initial system value). This estimate is created through a review of system value growth trends across all regions and in consultation with research conducted globally and locally into those component add-on markets for which published research is available.

2.2. Software

Software is a set of instructions that cause a computer to perform one or more tasks. The set of instructions is often called a program or, if the set is particularly large and complex, a system. Computers cannot do any useful work without instructions from software; thus, a combination of software and hardware (the computer) is necessary to do any computerized work. Total packaged software revenue is defined as license revenue plus maintenance revenue plus subscription and other software revenue. It is primarily the total packaged software revenue that is further allocated to markets, geographic areas, and operating environments. In addition to total packaged software revenue, information is collected on software license revenue, software maintenance revenue, subscription and other software-related revenue, and total company revenue.

As the aim is to track total end-user IT spending when sizing IT markets, a further uplift to total packaged software revenue is then applied. This is done by applying average channel margins across each primary software market. These channel uplift ratios are reviewed annually by software market analysts and updated where necessary to take into account any increases or reductions in average channel uplift margins.

The term packaged software is used to distinguish commercially available software from custom software, not to imply that the software must be shrink-wrapped or otherwise provided via physical media. Packaged software is programs or code sets of any type commercially available through sale, lease, or rental, or as a service. Packaged software revenue typically includes fees for initial and continued right-touse packaged 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. The entire above are counted as packaged software revenue.

Packaged software revenue excludes service revenue derived from training, consulting, and systems integration that is separate (or unbundled) from the right-touse license but does include the implicit value of software included in a service that offers software functionality by a different pricing scheme.

Total packaged software spending can be segmented into three primary markets of system infrastructure, application development and deployment, and applications. The three primary markets together make up the worldwide software market. These primary markets are further divided into 19 secondary and 81 functional markets

2.2.1. System Infrastructure Software

System infrastructure software is divided into four categories: system and network management software, security software, storage software, and system software.

System and Network Management

System and network management software is used to manage all the computing resources for the end user, small business, workgroup, or enterprise, including systems, applications, and the network infrastructure. This market does not include storage management and other storage software. System and network management software breaks down into the following categories: event management, workload scheduling and automation, output management, performance management, change and configuration management, problem management, and network management.

Security

The security 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, 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 (SaaS) offerings. The market covers both corporate and consumer security software.

Storage Software

Storage software manages and assures the accessibility, availability, and performance of information stored on physical storage media. This category does not include operating systems or subsystems. The storage software secondary market is broken down into eight functional software markets: data protection and recovery, storage replication, archiving, file system, storage management, storage infrastructure, storage device management, and "other" storage software.

System software

System software is the foundation of software products that collectively operate the hardware on which business applications are built. The system software market breaks down into the following categories: operating systems and subsystems, availability and clustering, application and user session virtualization, virtual machine software, and "other" system software.

2.2.2. Application Development and Deployment

The application development and deployment market consists of the following: structured data management software, application development software, quality and life-cycle tools, application server middleware, integration and process automation middleware, "other" application development and deployment, and data access and delivery software.

Structured Data Management Software

Information and data management software includes products that manage a common set of defined data that is kept in one or more databases (structures of managed data shared by multiple application programs) and is driven by data definitions and rules, whether this involves single databases accessed directly by applications or distributed databases accessed by multiple applications in multiple locations. The distinguishing characteristic of all information and data management software products is that they use definitions of data structure and behavior along with rules governing their integrity, validity, security and, in some cases, alternative formats to manage the storage, movement, and manipulation of data kept in databases. The user community for structured data management software typically includes database administrators, data modeling analysts, data administrators, and developers of database-intensive applications.

Application Development

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. Development languages, environments, and tools; business rules engines; model-driven development software; and Web site design and development tools are included. Application development software also encompasses markets pertaining to component-based development.

Quality and Life-cycle Tools

Quality and life-cycle tools support the process of software development and deployment. This category includes automated software quality tools and software configuration management tools.

Application Server Middleware

Application server middleware is the foundation of modern applications, whether custom developed or packaged. It is also the foundation for many types of software infrastructure, such as portals, content management systems, or enterprise service buses (ESBs). This middleware executes application logic, mediates access to data sources, and provides quality of service (QoS) to offer scalability, performance, reliability, and security to applications. 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. This

class of middleware also offers ancillary capabilities associated with tooling for Web application configuration and synchronizing content for Web applications.

Integration and Process Automation Middleware

The integration and process automation middleware markets include tools used by developers, business analysts, and administrators to automate processes, create and deploy process-centric applications, integrate applications, exchange data between enterprises, 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 hosted offerings fitting into the software-as-a-service model.

"Other" Development and Deployment Software

"Other" development and deployment software is made up of software tools, utilities, and development environments used by developers, business analysts, and other professionals to support the creation, maintenance, and optimization of applications, information resources, and systems.

Data access, Analysis, and Delivery

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. Examples include query, reporting, multidimensional analysis, and data mining and statistics tools.

2.2.3. Applications

Packaged application software includes consumer, commercial, industrial, and technical programs and code sets designed to automate specific sets of business processes in an industry or business function, to make groups or individuals in organizations more productive, or to support entertainment, education, or data processing in personal activity. The packaged application market includes the consumer, collaboration, content, and enterprise applications subsegments; the enterprise applications market, in turn, is made up of the enterprise resource management, supply chain management, operations and manufacturing, engineering, and CRM applications markets.

2.3. IT and Business Services

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 (including business consulting and BPO) primarily target business processes that may or may not incorporate any technology.

IT services is defined as the provision of labor-based services, which assist individuals and organizations in the implementation, management, and operation of computer systems, peripherals, storage, network equipment, and software. Organizations providing IT services typically deliver some or all of a variety of services ranging from support to complete IT operations management and outsourcing.

2.3.1. Projects

Project-based services include IT consulting, systems integration and applications development.

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.

IT consulting includes two main areas:

- IT strategy consulting assists an organization with designing an IT vision and goals for the entire organization, then aligning resources accordingly. This includes IT strategic planning (including human resources, facilities, and financial planning), IT needs assessment, IT operations assessment, development of enterprise architectures, IT road map design, IT governance (including definition of IT processes), and IT strategies related to systems, enterprise applications, capacity planning, maintenance planning, and infrastructure.

- IT operations' consulting assists an organization with optimizing its IT infrastructure and architecture, and its use of specific technologies. This includes infrastructure management; IT road map implementation; IT supplier analysis and hardware, software, and services procurement; vendor relationship management; IT infrastructure performance and performance engineering; IT process improvement; IT benchmarking; and IT change management.

Systems Integration

Systems integration can be defined 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 fulfills solution specifications.

SI projects can include implementation or integration of any categories of software, including the following (consumed on-premise or as software as a service [SaaS]):

- Enterprise resource management applications include applications for financial accounting, human capital management, payroll accounting, procurement order management, financial performance and strategy management, project and portfolio management (PPM), and enterprise asset management.

- Supply chain management applications include applications for logistics, production planning, and inventory management.

- Customer relationship management applications include applications for sales, marketing, customer service, and contact centers.

- Other applications include the following:

- Collaborative applications such as email, instant communications, team collaboration, conferencing, and enterprise social software

- Content applications such as content management, authoring and publishing software, search and discovery, and enterprise portals

- Operations and manufacturing applications (OMA) such as services operations management and related back-office functions □ Engineering applications such as mechanical computer-aided drawing (CAD), computer-aided engineering (CAE), computer-aided manufacturing (CAM), collaborative product data management, and other engineering functions

Network Consulting and Integration Services

Network consulting and integration services (NCIS) 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. Specifically, the NCIS market includes services provided to telecommunications network

access and transport providers for the planning and building of the public integrated voice, data, and video network infrastructures. These services will be presented as a separate line item within the NCIS market size and forecast.

Custom Application Development

Custom application development services focus on delivering standalone, custom code sets 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. Due to 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 modeling 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. Although application development activities can be included in larger systems integration projects, services are classified as CAD if the final deliverable to a client is a custom-designed application.

2.3.2. Outsourcing (excl. BPO)

IS Outsourcing

IS 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 IS infrastructure and operations based on a service-level agreement. Services are provided in a one-to-one model. At the core of an IS 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 (LAN and WAN) operations management

- Help desk support

- Application management

- Hosted application management

- Disaster recovery services

- Hosting services

IS outsourcing contracts can also include related consulting and systems integration activities. Along with activities performed by the outsourcer's employees, an IS 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 Desktop Outsourcing Services

Network and desktop outsourcing services (NDOS) 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.

NDOS may be further segmented into network management services and desktop management services. The term desktop is used interchangeably with office client/server environment (i.e., desktops, servers for print/file/messaging, storage, and peripherals, including other desktop-like devices such as laptops, mobile devices, smartphones, and PDAs); therefore, NDOS = network management services +desktop management services:

Network management services

Network management services are the activities, skills, facilities, and network infrastructure captured within a contract associated with outsourcing the operations of a specific segment or an entire network communication system of a company. The scope of work includes the installation and management of network tools that automatically monitor active nodes, traffic, revision management, and security. The service supplier also assists with fault isolation and resolution and enables the business to optimize the efficiency of the network and avoid any downtime. As part of the network management contract, the service supplier installs and configures the network management system and manages user moves, adds, or changes on the network, network software, and hardware upgrades.

Desktop management services

A desktop management contract might include needs assessment, asset management, systems management, procurement and deployment, onsite hardware maintenance, and onsite software support services for office client/server environments. As with the IS outsourcing category, desktop management services are to be viewed from a contract perspective. Desktop management captures only those contracts for which several desktop services are outsourced to the same supplier.

Application Management

Application management services are designed to provide for the day-to-day operations, support, and maintenance of enterprise applications. AM services contain a number of 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 the majority of the work occurring in an AM engagement, the contracts are considered to be AM when the vendor has SLA-based ownership over the overall health of the customer application(s). 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 or in a shared infrastructure environment.

Hosting Infrastructure Services

Hosting infrastructure services 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' Web sites and Web-enabled applications. The specific capabilities delivered under this umbrella are typically delivered as part of larger hosting infrastructure deployments and include support for associated application infrastructure platforms (e.g. ecommerce packages, databases, and application servers), comprehensive Internet infrastructure management, and systems-level (as opposed to server level) administration in support of large-scale Web sites and Web applications. Software-centric activities (i.e., middleware/operating system/database) are often performed by service providers as part of infrastructure-oriented hosting infrastructure services engagement. Generally, the starting point is infrastructure management, and management of infrastructure-related software is often part of the engagement.

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. Hosting infrastructure services provided on utility or virtualized infrastructure are not necessarily "cloud services," given that the delivery and consumption models may or may not conform to all of the cloud services attributes.

Hosting infrastructure services also includes services above and beyond basic unmanaged hosting functionality (i.e., equipment rental and colocation). These include integrated managed services for functions such as storage, backup/recovery, and security, as well as broader service management functions such as monitoring and help desk.

2.3.3. Support and Deploy

Hardware Deploy and Support

This market captures hardware deployment services and support services.

Deployment Services

Deployment services consist of the installation and basic configuration of hardware. The configuration can occur either at the customer's facility or at the vendor's facility. Examples of the configuration at the vendor's facility are HP'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 covers the destruction of data from hardware devices, such as storage systems, servers, and client devices. This data destruction can be performed either at the customer's facility or at the vendor's facility. Generally for this type of service, the vendor provides some level of certification that the data has been destroyed in accordance with established procedures (e.g. U.S. Department of Defense procedures for destroying classified data).

▪ Device removal from network service covers removing the device from the corporate network and reconfiguring the network based on the change. It also covers updating any corporate asset management system to reflect the removal.

This service does not cover physical removal, or similar services, of the device from a facility.

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 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 the customer 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. It also includes appropriate ongoing support and access to resources.

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.

Typical activities associated with software support services are as follows:

- Telephone support

- Remote diagnostics and repair

- Electronic support

- Support-related software maintenance (see note that follows)

- Onsite software support

- Predictive and preventive maintenance

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.

IT Education and Training

IT education and training services include the content processes or structures that support employee, client, or supply chain development to meet identified business requirements related to developing, administrating, or using information technology.

2.3.4. 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. Business consulting includes eight main areas:

- Strategy consulting

- Operational improvement consulting

- Finance and accounting (F&A) consulting

- Governance, risk, and compliance (GRC) consulting

- Internal audit consulting

- Change and organization consulting

- Change management

- Organizational consulting

2.3.5. Business Process Outsourcing (BPO)

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 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 is provisioned. Contract terms for business outsourcing engagements may range anywhere from 1 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). Business process outsourcing services focus on business processes across functional areas and service segments. As defined by IDC, the business process outsourcing services market is segmented into the following three basic market categories: key horizontal business process outsourcing services, "other" horizontal business process outsourcing services, and vertical business process outsourcing services.

3. Telecommunications market

3.1. Telecommunications equipment

3.1.1. Mobile phones

To be classified as a feature phone in IDC's taxonomy, the device must run a proprietary operating system or a real-time operating system (RTOS). Mobile phones can be defined as much by what they're not able to do — namely the ability to run third-party applications written in native code like smartphones such as the iPhone, BlackBerry, or Symbian devices do — as what's in them. (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 aren't widely available for all developers.) If the mobile phone runs third-party software, it does so with the help of interfaces such as BREW or Java ME. Mobile phones also typically have less processing and memory power than smartphones. Screen sizes are usually smaller than those of smartphones. Manufacturers of late have expanded the feature phone form factors to include QWERTY keyboards and touchscreens to help keep the phone type relevant to users. IDC's mobile phone category also includes basic, or "send and end," phones, which are designed to perform phone calls, nothing more.

3.1.2. Smart phones

These mobile devices, which IDC has called converged mobile devices in the past, contain a high-level operating system such as Android, BlackBerry OS, WebOS, iOS, Windows Phone 7, and Symbian in addition to telephony capabilities. Smartphones run operating system software that provides a standardized interface and platform for application developers, meaning new applications can be written for them freely. Properly functioning smartphones are also always connected to the Web once enabled, which differentiates them from their feature phone brethren. They also generally have larger screen sizes than feature phones. Smartphones can have a touchscreen and/or a QWERTY keyboard, but neither is a "must-have" for entry into the category. The devices must also offer the full extent of their application processing capability to the user, regardless of network availability. Mobile phones and media tablets are different in at least the two following ways:

- Devices with screens that are 5in. and smaller are counted as mobile phones. Tablet form factors that have color displays larger than 5in. are tallied as tablets.

- Media tablets may support cellular voice connectivity as a secondary feature. All mobile phones, however, must run on/access a cellular network to be categorized as such. Non-telephony-enabled devices such as an iPod touch or Microsoft's Zune are considered personal media players or other types of consumer electronics and aren't counted in the mobile phone tracker. These devices may

connect to a cellular network (e.g. connect via Wi-Fi___33 and side-loaded applications such as Skype for voice) but aren't designed for voice communications and are therefore not counted as mobile phones.

3.1.3. IP Phones

An IP telephone is a client or endpoint that transports voice over a data network, using data packets, in the following forms:

- Physical telephone (hardphone): This works either as a fixed desk phone or as a wireless phone. A software license may be necessary to turn this device on; however, because that connection is a function of the PBX itself, IDC includes the license in its IP PBX numbers.

- Software client (softphone): This may sit on a PC or laptop or a handheld device. This does not include the software license associated with turning on the hardphone device.

IDC includes both WLAN IP phones and conference IP phones in our numbers for IP phones. IDC does not include IP DECT in the numbers for IP phones.

3.1.4. Ethernet (LAN) Switches

An Ethernet switch is a device that analyzes incoming traffic (data and voice) to determine its destination address. The address is used to establish a transmission path through a switching matrix to get the traffic to the appropriate outgoing physical communications port/link. IDC classifies Ethernet switches by layer (2, 3, and 4–7), form factor (fixed managed, fixed unmanaged, and modular), and speed (100Mb, 1,000Mb, and 10GbE). Note: IDC has started tracking 40GbE market in 2013.

3.1.5. IP PBX System

IP PBX is a business telephone system used for voice communications that is capable of connecting calls using packet technology. The term PBX is traditionally used to refer to enterprise telephone systems with more than 10 user stations, while very small switched telephone systems with 10 or fewer users were labeled key systems. However, IDC makes no distinction between the two categories within the IP PBX realm and includes both of them equally. There are two subcategories of IP PBXs, which in IDC's taxonomy are distinguished by functionality and not by form factor:

- Pure IP PBX: A pure IP PBX directly connects only IP telephones and clients on the LAN side. To connect analog/digital phones or clients, an enterprise voice gateway is required.

- Hybrid IP PBX: Hybrid IP PBXs include all PBXs that can directly connect IP and analog/digital phones and clients without the need for a media gateway.

IP PBX Line/Seat

IDC uses this term to refer to a license to connect an IP endpoint on the LAN side of an IP PBX. An IP line usually includes port access and a software license. Although there are no lines in IP telephony, IDC will use the term as a synonym for one licensed IP endpoint available on a system.

IDC is cautious about the number of IP telephony lines/seats as reported by the vendors due to the discrepancy among them about what constitutes a "new" line/seat shipped versus a "migrated" line/seat. In certain cases, vendors report only net-new line/seat shipments, while other vendors include net-new and migrated lines in overall lines/seats shipments for that quarter or year.

To measure the growth of the IP telephony market, IDC counts both new and migrated IP telephony lines/seats shipped for end users. However, IDC excludes IP trunking lines because these lines are used to connect systems to systems, or to the WAN, and not to connect an IP endpoint to an IP PBX. For estimated revenue figures,

IDC counts the incremental license fee to activate the new IP line. IDC also counts as IP PBX systems software-based call control platforms that fit the definition above, whether launched on standalone or virtualized servers. We do not include, however, carrier IP voice switches.

3.1.6. Voice switching equipment (VoIP infrastructure)

Sometimes referred to as the control segment, Voice-over-IP Infrastructure includes soft switch, media gateway, application servers, session border controllers, and TDM switch.

3.1.7. WAN equipment (Routers etc.)

To be counted as a router, a product must be capable of routing the direction of packets using a defined Layer 3 IP packet header. In addition, it may route on the basis of a multiprotocol label switching (MPLS) header, which is not a Layer 3 packet but uses routing algorithms similar to Layer 3. A number of LAN switches also direct packets by using Layer 3 information. Therefore, we make this distinction: Routers differ from Layer 3 switches in being primarily oriented to the edge of enterprise LANs, where they interface with WANs, or to service provider access and backbone functions. In short, routers are primarily WAN oriented; Layer 3 LAN switches are primarily oriented to use within a defined LAN.

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). When the routing function is enabled by add-on hardware within a multipurpose networking device (such as a hub, switch, or server), only the router related portion of that multipurpose device is included in the IDC router figures. Except for wireless routers and other products that are clearly sold as routers, IDC takes only a portion of product revenue in most converged products with routing functionality. IDC includes software-based routers (meaning based in a PC or server) in the definition of a router, but we require that a software product do routing as its primary function to be counted as a router. Thus, operating systems that include the routing function are not considered routers.

IDC tracks the total market size for service provider, enterprise, and consumer routers.

3.1.8. WLAN equipment

Enterprise
Enterprise-grade access devices are WLAN access devices designed for use in multi–access point (AP) systems or for hotspot deployments and typically have a rich and upgradeable feature set. There are three types of enterprise-class access devices: independent, dependent, and mesh. Deployments are in-building or outdoor.

Retail
Retail-grade access devices are products designed for SOHO and consumer (residential) deployments. Access points and routers with WLAN functionality that sell for under $200 are typically included in this category. Excluded are Hotspots Mesh networks. Mesh access points, or nodes, do not require an immediate connection to the wired network. They use routing protocols to establish communications with other nearby access points and, in this way, can blanket a large area with coverage with minimum investment in expensive cabling for wired-side infrastructure.

3.1.9. Wireline access infrastructure

The access infrastructure market today is made up of multiple elements that can be categorized into five groups. These groups can be combined to provide multiple access topologies. They are digital loop carrier (DLC), digital subscriber line access multiplexer (DSLAM), cable modem termination system (CMTS), fiber, and Ethernet access devices (EADs).

Digital Loop Carrier

Digital loop carrier is equipment that bundles a number of individual phone line signals into a single multiplexed digital signal for local traffic between a telephone company's central office (CO) and a business complex or other outlying service area. Typically, up to 24 analog voice calls are combined into a single signal and transmitted over a single copper T1 or E1 line, an optical fiber cable, or a wireless connection. In a home, business, or other installation using digital loop carrier, the analog phone lines of individual users are connected to a local DLC box, which then converts the analog signals into digital and combines (multiplexes) them into one signal that it sends to the phone company's central office on the single line. At the central office, the combined signal is separated back into the original signals.

Digital Subscriber Line Access Multiplexer

A digital subscriber line access multiplexer is a network device at the central office for DSL services (ADSL, HDSL, IDSL, G.shdsl, and VDSL) that intermix voice traffic and DSL traffic onto a customer's DSL line. It also separates incoming phone and data signals and directs them onto the appropriate carrier's network. Customers connect to the DSLAM through DSL modems or DSL routers, which are connected to the public switched telephone network (PSTN) via typical telephone lines. Each DSLAM has multiple aggregation cards, and each card can have multiple ports to which the customer's lines are connected. Typically, a single DSLAM aggregation card has 24 ports, but this number can vary with each manufacturer. A traditional DSLAM uses asynchronous transfer mode (ATM) technology to connect to upstream routers/switches. These devices then extract the IP traffic and pass it on to an IP network. IP DSLAMs extract the IP traffic at the DSLAM itself. Thus it is all IP from there. The advantage of IP DSLAM over a traditional ATM DSLAM is in terms of lower capex/opex and a richer set of features and functionality.

Cable Modem Terminating Equipment

This is equipment located at the cable operator's headend that terminates the cable modem connection. This equipment includes Data Over Cable Service Interface Specification (DOCSIS)–compliant cable modem termination systems (CMTSs). DOCSIS is an international standard developed by CableLabs that defines the communications and operation support interface requirements for a data-over-cable system. It permits the addition of high-speed data transfer to an existing cable TV system that is used to provide high-speed data services, such as Internet or VoIP, to cable subscribers.

Fiber Access Equipment

IDC includes two main equipment types in its definition of fiber access equipment:
Point-to-point optical Ethernet access equipment and point-to-multipoint, or passive optical network (PON), optical access equipment. For PON equipment, IDC includes the central office–based optical line terminal (OLT) and customer premises equipment (CPE)–based optical network terminal (ONT)

equipment. Passive splitters are excluded. For the point-to-point optical Ethernet equipment, IDC includes the CO based equipment as well as the optically attached CPE, which usually resides in a building basement. CPE that is copper based is excluded. Metro Ethernet equipment that is not part of the access network is also excluded.

Ethernet Access Devices

Ethernet access devices are a last-mile technology providing demarcation between the carriers' network (WAN) and a customer's network (LAN). Traditionally, Ethernet technology has been used in enterprise LAN or carrier transport network applications. EADs provide a bridge between these two networks and enable the provisioning of Ethernet services from the service provider core all the way to the customer premises. In the past, when deploying a best-effort Ethernet solution, a carrier was not able to test or diagnose the entire link or ensure a service-level agreement (SLA) end to end. EADs can provide in-service monitoring of flow statistics, allowing measuring and tracking of end-to-end service-level agreement parameters such as latency, jitter, packet loss, and availability. EAD ports also allow test and measurement devices to be connected for in-service in nonintrusive network troubleshooting. The EAD, by creating a clear demarcation point between the carrier and customer, allows the carrier to effectively isolate the customer's network when testing and monitoring the end-to-end link, thus eliminating errors due to end customer activity.

3.1.10. Mobile infrastructure

The mobile infrastructure is subdivided into three segments: the radio access network, the backhaul network, and the core network. Network services, relating to network deployment and optimization, compose the final segment of mobile infrastructure:

Radio access network

Radio access is one way of designing a "local loop" that connects an individual subscriber to the telecommunications network and to the local exchange using wireless radio technology. The radio access network is the segment of the telecom network that handles subscriber access to the network using radio technology. Typically, it consists of antennas, towers, and radio basestation systems. A basestation system, in turn, typically consists of basestations (or, more appropriately, base transceiver stations [BTSs]) and basestation controllers (BSCs). In the case of the architecture for 3GUMTS/wideband code division multiple access (WCDMA) networks, the basestation is termed Node B (there is no Node A), and the radio network controller subsumes many of the functionalities of the traditional BSCs of second-generation Global System for Mobile Communications networks. In this program, only BTSs, BSCs, and packet control units (PCUs) are counted in the RAN segment.

Backhaul network

In order to connect from the radio to the core network, operators rely on a "backhaul" connection to transport voice and data traffic from, for example, a cellular tower. Traditionally, backhaul networks have been circuit switched and based on traditional voice-driven T1 solutions. However, the increase in data traffic with the advent of smartphones and faster networks has driven the requirement to move to next-generation IP that can support high levels of quality of service, timing synchronization, low packet loss, and high availability. There are several options for backhauling traffic, including copper (T1/E1/DS3/E3), fiber Ethernet, and microwave. In addition, there are a number of hybrid solutions provided by vendors that allow for a smooth transition from legacy to IP/Ethernet-based backhaul networks.

Core network

Any mobile network system must accommodate connections — beyond the radio access network — to different subnetworks that together constitute the telecommunications network, for instance, the traditional public switched telephone network, existing second-generation mobile voice networks, emerging mobile networks equipped with data-handling capabilities, the Internet, and corporate intranets/extranets. The segment of the telecom network between the backhaul/transport network and these subnetworks comprises the core network. In LTE deployments, the core architecture is system architecture evolution (SAE), more commonly referred to as evolved packet core (EPC).

3.1.11. Transmission equipment

Also known as Transport, include long-haul DWDM, metro WDM, optical cross-connects, multiservice provisioning platforms, packet optical transport platforms, and SONET/SDH systems.

Long-Haul DWDM Systems

Long-haul systems consist of DWDM end terminals, optical amplifiers, and regenerators. Distances between end terminals range from 300km to 1,000km, on average. Distances between amplifier nodes range from 20km to over 100km.

Metropolitan WDM Systems

A key metric used in defining metropolitan WDM equipment is the span between terminals. Metropolitan WDM equipment primarily sends transmissions between terminals at distances less than 100km.

Optical Cross-Connect

An optical cross-connect device accepts only optical interfaces at its access and egress points, with no provisions for electrical interfaces. Optical interfaces are high capacity, at OC-48 or above, and correspond to the line speeds of DWDM. Incoming and outgoing signals are optical, but conversion to the electrical domain often occurs within the switching fabric.

Multiservice Provisioning Platform

A multiservice provisioning platform (MSPP) is a network element designed to replace legacy SONET ADMs in metropolitan applications. An MSPP contains the functionality of a SONET ADM while adding non-TDM service interfaces, switching fabrics, and transport technology in a single chassis. An MSPP combines the functionality of multiple networking elements in any combination, including SONET ADM and Ethernet switching, while being able to terminate other legacy protocols as well.

Packet Optical Transport Platform

A POTP is a network element designed to enable service providers to migrate networks from TDM to packet-centric services. The POTP supports DWDM, ROADM, packet, and TDM aggregation in one network element. The network element has the capability to deploy both TDM and packet switch fabrics that support connection oriented packet and TDM packet services. Any service entering the network element can have access to the switch fabric. The network element provides service priority, traffic queuing, shaping, policing, and aggregation functionality with a high QoS.

SONET/SDH Add/Drop Multiplexer

SONET/SDH add/drop multiplexer (S/ADM) is a network element designed to combine and transport Synchronous Optical Network protocol time-division multiplexing signals. This network element includes DS1 and E1 to OC-192/STM-64 signal rates. The network element is capable of delivering combined or clear channel service signals for private line services. In addition, a subcategory of S/ADM is the SXC, which is a SONET/SDH cross-connect cable of switching signals at STS-1 or higher rates. S/ADM network elements typically have a network element management system (EMS) for operations, administration, and provisioning.

3.1.12. Other Telco Equipment

This segment includes the following products: IP Multimedia Subsystems (IMS), IPTV equipment, multimedia servers and other production network computing systems, datacenter equipment (outside of switching and routing) - includes Fiber Channel (FC), WAN app optimization and Infiniband. Also included are legacy systems (traditional PBX, Intelligent Networks etc.) and customer experience management systems.

3.1.13. Wireline capex spending

Capital expenditures of wireline (fixed) operators (excluding cable operators) and wireline division of integrated operators during calendar year

3.1.14. Mobile capex spending

Capital expenditures of mobile operators and mobile division of integrated operators during calendar year

3.2. Carrier Services

3.2.1. Fixed voice telephony

Retail revenues from traditional TDM fixed-line networks and services:

- installation and rental fees from PSTN and ISDN connections

- calls (local calls, long-distance calls, international calls, fixed-to-mobile calls and special rate calls)

Retail revenues from fixed IP telephony services:

- revenues from IP Voice over broadband calls (excludes broadband costs)

- revenues from IP Centrex services

- revenues from Dedicated Hosted IP Voice services (Hosted IP-BPX services)

- revenues from SIP Trunking services (An IP access trunk connects a TDM/IP PBX platform in a site to the enterprise data network and to the public voice network using a single SIP connection.

This segment includes only retail revenues (no interconnection or wholesale revenues).

3.2.2. Business data services

Dedicated data transmission networks revenues based:

- Carrier Ethernet Services – this falls into two categories:
  - o E-Line - Total Ethernet spending on E-Line connections, i.e. spending for all point-to-point Ethernet Virtual Connection (EVC) between two UNIs
  - o E-LAN - Total Ethernet spending on E-LAN connections, i.e. spending for all sites UNIs connected to a multipoint EVC.

- IP-VPN Services - Spending on Managed IP-VPN services which includes costs of underlying broadband and dedicated connections but which does not include Dial line rental and usage charges – this category has three sub-categories:
  - o Network-based, provider managed CPE - Spending on managed IP-VPNs where the service provider operates the IP-VPN centrally and manages on-site CPE equipment
  - o Network-based, customer managed CPE - Spending on managed IP-VPNs where the service provider operates the IP-VPN centrally and on-site CPE equipment is managed by the customer
  - o CPE-based - Spending on managed IP-VPNs where the service provider on-site CPE equipment which provides the main IP-VPN functions

- Digital Leased Lines - This represents leased line rental charges and excludes spending on CPE equipment with the exception of the CSU/DSU line terminators

- Other Data services - Spending on dedicated connections into a Frame Relay or ATM service cloud, over which PVCs and SVCs can be configured.

This segment does not include inter-operator sales of leased lines.

3.2.3. Internet access and services

Retail revenues from internet access services which include the following:

- narrowband Internet access subscriptions based on dial up services over the PSTN or ISDN (does not include any revenues associated with traffic)
- Broadband Internet access services delivered over xDSL, Cable, Fiber and other fixed broadband technologies (includes both broadband and Internet subscriptions)
- Dedicated Internet access services - direct Internet access connection made over a dedicated leased line between user and ISP that provides uncontended and symmetrical bandwidth. Includes connections based on traditional TDM leased lines, Ethernet over Fiber and Ethernet over Copper. Includes cost of Internet subscription and underlying access circuit. Includes connection charges and monthly fees.

This segment includes only retail revenues and excludes wholesale. Equipment costs are excluded unless equipment is provided as part of the service arrangement (e.g. cable modem).

3.2.4. Mobile voice telephony

Mobile Voice spending includes all revenue obtained from voice calls and contract fees. Note that this can also include voice VAS such as voicemail. Not included are revenues associated with interconnection termination of inbound calls.

3.2.5. Mobile data services

Retail revenues from data services on wireless communication networks as billed by the mobile service operator. Data service revenues fall into the following categories:

- Mobile Data - Data traffic revenues include all revenue obtained by the operator from the carriage of traffic on the mobile data network
- SMS - SMS revenues include all revenue obtained from the carriage and delivery of SMS messages
- MMS - MMS revenues include all revenue obtained from the carriage and delivery of MMS messages
- Other - Revenues generated by other services not included under voice, data, SMS or MMS

Interconnection revenues are not included in this segment.

3.2.6. Mobile Broadband subscribers

A mobile connection used for the transmission of data over the cellular network – this excludes use of messaging. Such a data connection would be carried out using a mobile device such as a smartphone or portable computer. As almost all mobile subscriptions are capable of data communications only active data users are counted here – active meaning used at least once per month.

3.2.7. ADSL subscribers

This category includes all variants of DSL - DSL can be deployed from the local exchange, street cabinet or basement. Technologies included are ADSL, S(H)DSL, VDSL and all of their variants, such as ADSL2+ and VDSL2

3.2.8. Cable subscribers

A direct Internet connection using a cable modem, whether a standalone device or included within a set-top box, to send and receive data over a hybrid fiber coax (HFC) network.

3.2.9. FTTx subscribers

A direct, fiber based Internet connection, provided that fiber extends at least to the basement and the final connection is fiber or a standard Ethernet LAN connection without the use of additional technology such as DSL or a cable modem. Includes connections based on PON as well as P2P ethernet. Excluded are dedicated Internet access connections based (Ethernet or traditional leased lines) that provide uncontended and symmetrical bandwidth. These connections are included in the dedicated Internet access segment.

3.2.10. 2G subscribers

A connection capable of using GSM network services only. GPRS connections are included in this number, but WCDMA connections are not

3.2.11. 3G subscribers

A connection capable of using WCDMA network services. Such connections are also capable of using GSM network services, but they are not counted in the "GSM connections" category.

3.2.12. VoIP subscriber

IP voice services refer to any voice service that is based on and carried over an Internet Protocol (IP) network. This type of transmission describes voice traffic sent over a public managed IP network or the Internet that is designed to complement or compete with public switched telephone network (PSTN) traffic.