TBM Taxonomy

Version 3.0

November 2, 2018

This paper provides a detailed description of the Technology Business Management (TBM) taxonomy. It is designed to be shared with the TBM Council Standards Committee for the purpose of gathering feedback and communicating changes and updates. The document is also made available via the TBM Council's community web site, TBM Connect (www.TBMConnect.org), for all members to read and use the information. For more information on the Standards Committee, see last page of this document or refer to the TBM Council Standards Committee Charter, also available on TBM Connect.

Revision History

Editor/Author	Date	Reason For Changes	Version
TBMC Standards Committee	10/31/2016	Final revision for TBMC endorsement	V2.0
TBMC Standards Committee	03/18/2018	Final revision for TBMC endorsement	V2.1
TBMC Standards Committee	11/02/2018	Final revision for TBMC endorsement	V3.0
TBMC Standards Committee	04/19/2019	Added missing High Performance Computing	V3.0.1
TBMC Standards Committee	07/18/2019	Added missing "Foundation Platform," "Order Management" and "Facility & Equipment Maintenance & Repair" definitions.	V3.0.2

Note: A complete document history is maintained in the Standards Committee on TBM Connect.

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Introduction to the TBM Taxonomy

Technology Business Management (TBM) is a value-management framework instituted by CIOs, CTOs, and other technology leaders. Founded on transparency of costs, consumption, and performance, TBM gives technology leaders and their business partners the facts they need to collaborate on business aligned decisions. Those decisions span supply and demand to enable the financial and performance tradeoffs that are necessary to optimize run-the-business spending and accelerate business change. The framework is backed by a community of CIOs, CTOs, and other business leaders on the Technology Business Management Council.

To gain alignment between IT, Finance, and Business Unit leaders, TBM provides a standard taxonomy to describe cost sources, technologies, IT resources (IT towers), applications, and services. The TBM taxonomy provides the ability to compare technologies, towers, and services to peers and third-party options (e.g., public cloud). Just as businesses rely on generally accepted accounting principles (or GAAP) to drive standard practices for financial reporting — and thus comparability between financial statements — the TBM taxonomy provides a generally accepted way of reporting IT costs and other metrics. A simple view of the TBM taxonomy is shown below.
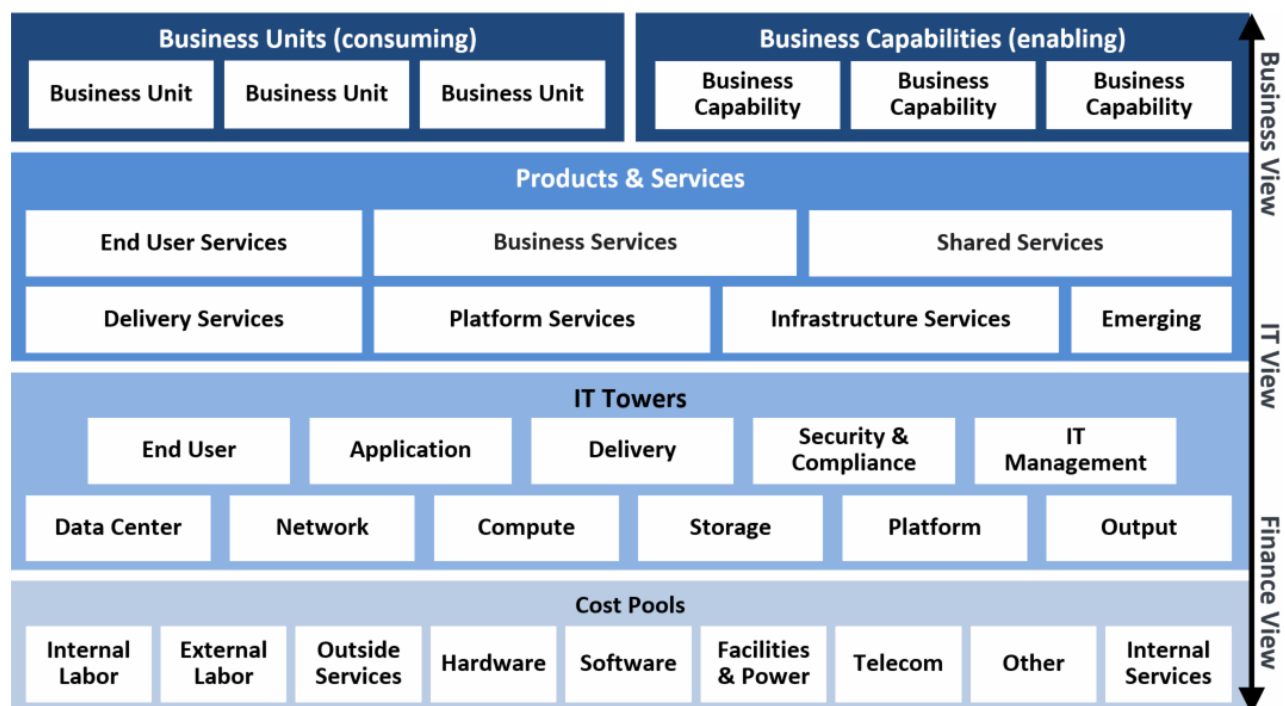

Figure 1: The TBM taxonomy provides a standard set of categories for costs and other metrics

The TBM taxonomy is needed in order to support the modeling of costs and other metrics. A TBM model maps and allocates costs and resource consumption from their sources to their uses, from the hardware, software, labor, services, and facilities IT leaders procure to the applications and services they develop, deliver, and support. In essence, the model is what translates between the layers of the taxonomy (e.g., IT Towers to Products & Services). The TBM model includes the taxonomy objects and layers plus the data requirements, allocation rules, and metrics needed to create transparency and enable the reporting that is needed for the value conversations of TBM.

The TBM model relies on the TBM taxonomy to bring into agreement often disparate and contentious definitions of IT cost components and object classes. This creates a common language so that the terms *server* and *compute* for example are understood by everyone (IT and non-IT stakeholders alike) to mean the same thing and to include the same types of underlying costs calculated using the same methods.
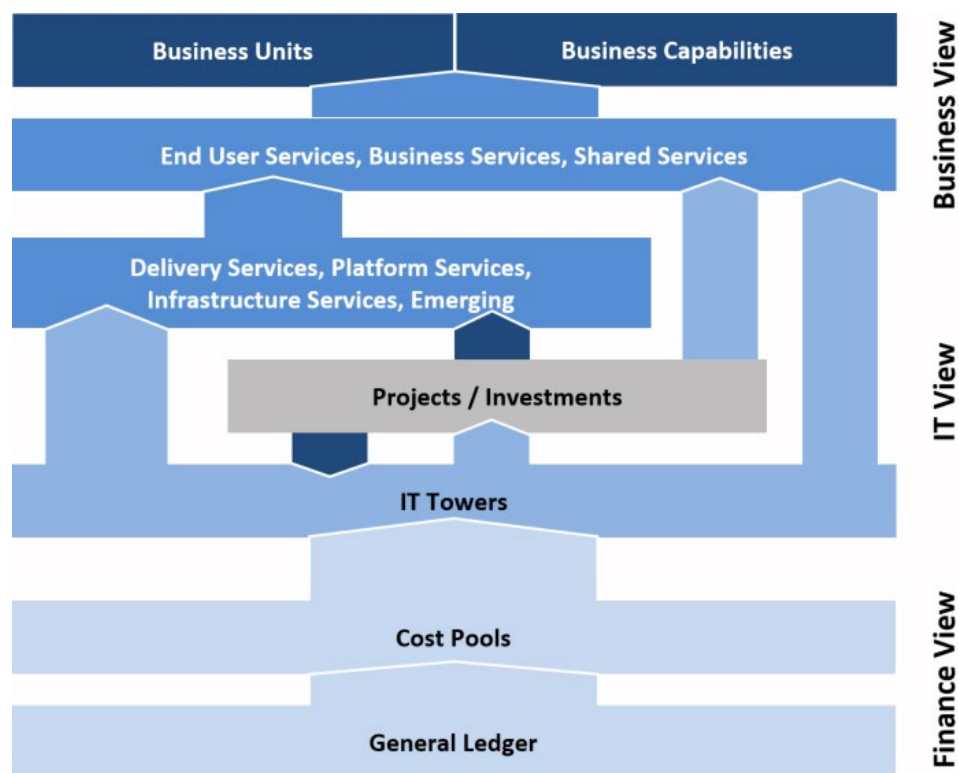

Figure 2: The TBM model translates from a finance view of costs to an IT view of towers, projects, and services and then into a business view of costs

By using the TBM taxonomy and model, CIOs can illustrate, for example, how user demand shapes the cost of applications, services, and technology architectures they maintain. And non-IT leaders can use the same data and insights to guide their consumption (demand).

Perhaps more importantly, these TBM tools allow for benchmarking and trend analysis of IT costs. This includes comparing the unit costs of technologies, such as a virtual Windows server or a terabyte of tier 1 storage, from one business unit, vendor, or data center to another. It also includes comparing unit costs over time, or even looking at ratios such as the IT cost per employee or the storage cost as a percentage of total IT spending.

These are powerful tools used more extensively in the private and public sectors including a diverse array of over 300 organizations: ExxonMobil, Microsoft, First American, Telstra, Zurich Insurance Company, U.S. General Services Administration (GSA), Fannie Mae, Federal Home Loan Bank of San Francisco, and the State of Washington.

Layers of the TBM Taxonomy Explained

The three layers of the taxonomy represent different views into the same costs and other metrics. The model starts with the Finance layer as the foundation of the taxonomy:

- **Finance:** The lowest layer begins with the general ledger, but may include other cost sources unique to the organization. This provides for a standard set of **cost pools**: hardware, software, internal labor, external labor, outside services, facilities and power, telecom, internal services and other. Cost pools not only make cost allocations easier, they enhance reporting because they can be traced through the model to reveal the composition of costs and allow comparability of composition (e.g., how much internal labor is in this service versus that one?).

- **IT:** The middle layer includes a standard set of **IT towers and sub-towers**, such as servers, storage, voice and data networks, application development and support. These are common amongst nearly all companies and can be viewed as the resources or basic building blocks of specific applications, services, and so on. While the tower definitions are standard, in practice they come in many forms. They may be sourced internally (i.e., via hardware, software, internal labor, and facilities & power), largely sourced externally (e.g., outside service, external labor), or as a hybrid of the two. Regardless, this view enables IT leaders to assess the cost-effectiveness of IT technology and service delivery.

- **Business:** At the highest layer the taxonomy provides a standard but generic set of **product** and **service** categories along with higher-layer **business units** and **business capabilities**. It is at this layer of the model we anticipate the creation of industry-specific elements extending this standard organizing taxonomy and following the same general principles present in the model. This will allow for more meaningful reporting and comparisons within each industry, without losing the cross industry comparisons that are possible at the other layers via common apps, services, and capabilities. This layer also includes the business unit consumers.

Because the taxonomy enables IT and financial leaders to bucket infrastructure, applications, and services into standard categories, it enables discussion of these buckets in terms that make sense — and *matter* — to business leaders.

Extensibility is one of the design principles to the TBM Taxonomy. Extensibility will enable companies to use the standard TBM Taxonomy while enabling industry or organization specific extensions to the taxonomy while still supporting compatibility with the standard. Extensions that are supported include the addition of new categories or sub-categories that do not conflict with the definition and meaning of any existing, standard categories. This enables an organization to isolate costs for any unique technology (e.g., medical devices, SCADA equipment) that are not part of an existing standard category. This allows costs to be tracked independently and does not corrupt the definition of an existing standard category.

Types of changes to the TBM Taxonomy that are not supported and are not considered extensions include: 1) splitting an existing category into two or more categories thereby changing the definition of the original category; 2) consolidating two categories into one category; and 3) changing the definition and composition of a published standard category. One of the main reasons for not allowing these types of extension is the impact on benchmarks. If changes are made to the definition and expected composition of costs, then the benchmark values will no longer be relevant. Examples of changes that are not supported as an extension include: 1) splitting the *Enterprise Data Center* IT Tower into Company Owned Data Centers and Co-Location Data Center Facilities. A better solution is to use the optional level 3, IT Sub-Tower Element to distinguish these costs. 2) Consolidating Database and

Middleware into a single Tower. If one of the towers is not material in an organization's environment, don't use it or allocate any costs to it. 3) Changing the definition of the Voice IT Sub-Tower to include both voice equipment and voice telecommunication costs which changes the standard definition of the Voice sub-tower.

The following sections describe and define the finance, IT and business layers of the TBM taxonomy.

Finance Layer: Cost Pool and Sub-Pool Definitions

Cost pools are low-level categories that are often aligned easily to general ledger accounts. Not only do cost pools make cost allocations easier, they enhance reporting because they can be traced through the model to reveal the composition of costs. For example, application total cost of ownership (TCO) can be broken down into hardware, software, internal and external labor, outside services, facilities, and telecom costs.

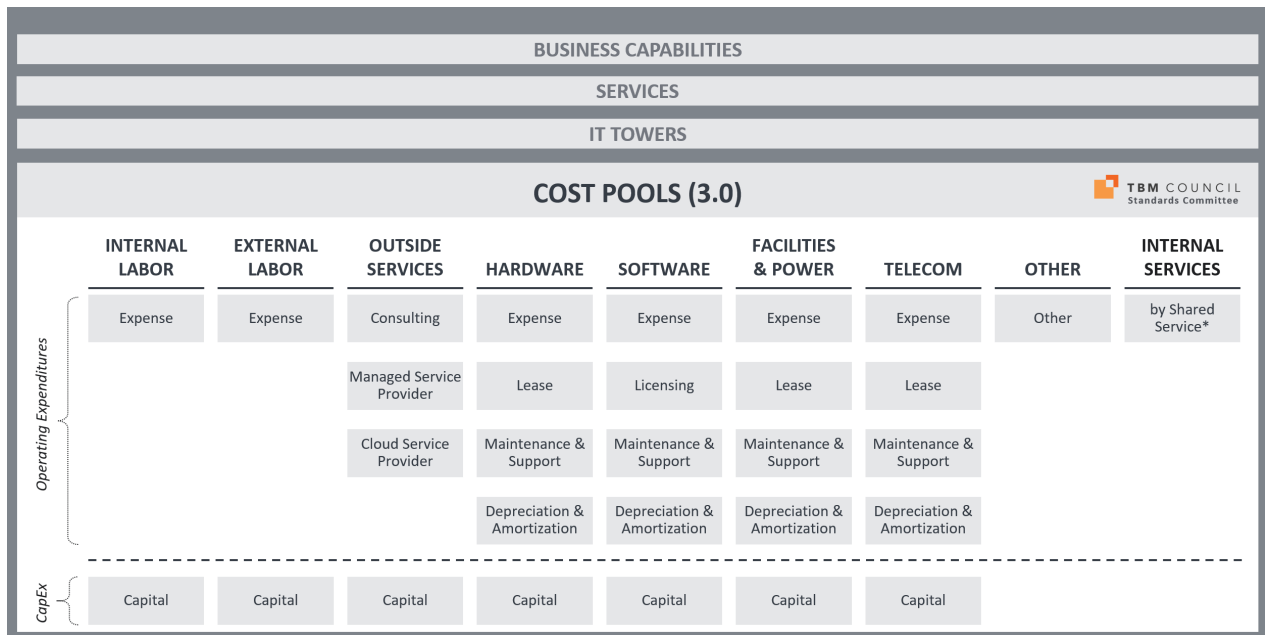The following graphic defines the cost pools and sub-pools in the TBM taxonomy.

Figure 3: Finance Layer: Cost Pool and Sub-Pool Summary View

Cost Pool	Cost Sub-Pool	Description
Operating Expenditures (OpEx)		
Internal Labor	**Internal Labor includes the full range of personnel costs and activities required for delivering or supporting the IT services – including direct operational activities, support and management and administration activities.**	
	Expense	Employee wages, benefits, expenses & occupancy.
External Labor	**External Labor includes the costs of external personnel required for delivering or supporting the IT services – including direct operational activities, support, management and administration activities.**	
	Expense	External contractor fees, travel, and expenses.
Outside Services	**Outside Services include IT services purchased from external service providers including consulting services, managed services and public cloud services. Specific examples of outside services include managed network services, cloud storage for end user backup, and externally provided email services.**	
	Consulting	External consulting project-based services.
	Managed Service Providers	External managed service providers.
	Cloud Service Providers	External public cloud service providers including IaaS, PaaS, and SaaS.
Hardware	**Hardware includes all physical technology assets excluding property, office space or raised floor facilities. The range of assets varies by IT Resource Tower; examples include servers, PCs, storage arrays, network appliances, printers and so on. Where a device contains embedded software (firmware), for example in a network firewall, the cost should be reported as hardware even if the software can be upgraded for a separate fee.**	
	Expense	Hardware expense of non-capitalized purchases (e.g., spare parts, consumables or equipment below capitalization threshold).
	Lease	Hardware lease expenditures (e.g., hardware purchased through a supplier or financial services leasing arrangement).
	Maintenance & Support	Hardware maintenance and support expenditures.
	Depreciation & Amortization	Hardware depreciation of capitalized purchases.

Cost Pool	Cost Sub-Pool	Description
Software		**Software includes the licensing, maintenance and support costs for all software including operating system, middleware, databases, system management and administration tools, desktop applications and utilities and business applications. Software costs include enterprise or per instance licenses, client-access licenses, maintenance/update costs, customization fees.**
	Expense	Software expense of non-capitalized software purchases.
	Licensing	Software license expenditures for the use of non-SaaS provided software. SaaS subscriptions belong under Outside Services > Cloud Service Providers.
	Maintenance & Support	Software maintenance and support expenditures.
	Depreciation & Amortization	Software depreciation of capitalized software license purchases & software development efforts.
Facilities and Power		**Facilities & Power costs include the floor space as well as the power, cooling, and other utilities costs, environmental control (fire suppression), power distribution, rack infrastructure, outside services and personnel costs related to managing the data center environment.**
	Expense	Data center space, power, security and other operating expenses (e.g., co-location facility services, electricity, water, etc.).
	Lease	Data center lease expenditures.
	Maintenance & Support	Data center maintenance & support expenditures.
	Depreciation & Amortization	Data center depreciation of facility build and leasehold improvements (e.g., raised floor investments, power/PDU infrastructure, and rack build-out).

Cost Pool	Cost Sub-Pool	Description
Telecom	**Telecom is for all telecommunications charges, including leased line, domestic and international voice (including mobile), MPLS, ISP and other charges. Telecom costs include the circuits and any associated usage fees for providing voice and/or data telecommunication services between data centers, office locations, the internet and any customer, supplier or partner. This is typically transmission across the wide area network (WAN).**	
	Expense	Voice and data network connectivity expenses including circuit and usage expenditures.
	Lease	Telecom lease expenditures.
	Maintenance & Support	Telecom maintenance & support expenditures.
	Depreciation & Amortization	Depreciation/amortization of any capitalized telecom expenditures; typically, this will show up under Hardware or Facilities depreciation/amortization.
Other	Other	Miscellaneous or non-standard expenses.
Internal Services	Shared Service	Miscellaneous charges received from other internal shared services groups (e.g., HR service fees from the HR department). Real estate management fees for space and power should be included in the *Facilities and Power* cost pool.
Capital Expenditures (CapEx)		
Internal Labor	Capital	Capitalized labor (internal employees)
External Labor	Capital	Capitalized labor (external contractors)
Hardware	Capital	Capitalized hardware expenditures
Software	Capital	Capitalized software expenditures
Outside Services	Capital	Capitalized services
Facilities & Power	Capital	Capitalized leasehold improvements
Telecom	Capital	Capitalized telecom expenditures

IT Layer: IT Tower and Sub-Tower Definitions

IT towers and sub-towers are the basic building blocks of services and applications. Examples include compute (e.g., servers, Unix, mainframe), network, application (e.g., application development, application support and operations) and IT management. They are sometimes called domains or functions. Many IT shops have dedicated departments or cost centers for towers that are then delivered as shared resources for product and service owners.
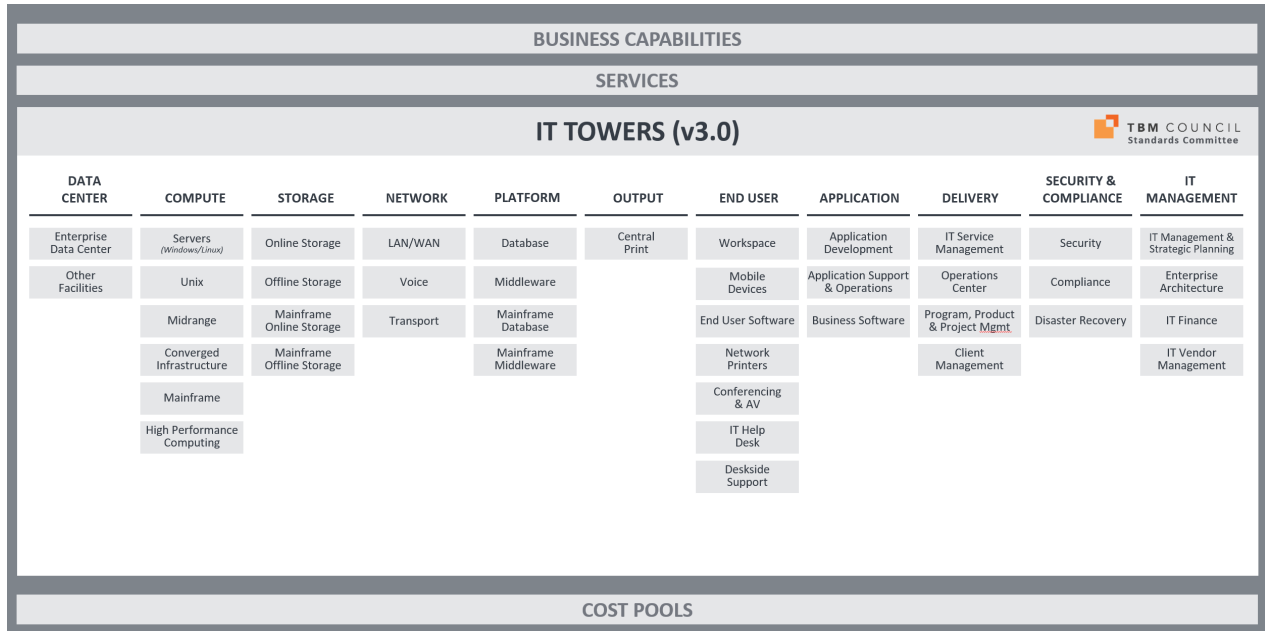

BUSINESS CAPABILITIES										
SERVICES										
IT TOWERS (v3.0)									TBM COUNCIL Standards Committee	
DATA CENTER	COMPUTE	STORAGE	NETWORK	PLATFORM	OUTPUT	END USER	APPLICATION	DELIVERY	SECURITY & COMPLIANCE	IT MANAGEMENT
Enterprise Data Center	Servers *(Windows/Linux)*	Online Storage	LAN/WAN	Database	Central Print	Workspace	Application Development	IT Service Management	Security	IT Management & Strategic Planning
Other Facilities	Unix	Offline Storage	Voice	Middleware		Mobile Devices	Application Support & Operations	Operations Center	Compliance	Enterprise Architecture
	Midrange	Mainframe Online Storage	Transport	Mainframe Database		End User Software	Business Software	Program, Product & Project Mgmt	Disaster Recovery	IT Finance
	Converged Infrastructure	Mainframe Offline Storage		Mainframe Middleware		Network Printers		Client Management		IT Vendor Management
	Mainframe					Conferencing & AV				
	High Performance Computing					IT Help Desk				
						Deskside Support				
COST POOLS										

Figure 4: IT Layer: Tower and Sub-Tower Summary View

The following table defines the IT towers and sub-towers in the TBM taxonomy.

Tower	Sub-Tower	Description
Data Center		**Data Centers are purpose-built facilities to securely house computer equipment. Data Centers provide racks/cabinets & cabling, clean & redundant power, data connectivity, environmental controls including temperature, humidity and fire suppression, physical security and the people to run and operate the facility and its infrastructure.**
	Enterprise Data Center	Purpose-built data center facilities that house and protect critical IT equipment including the space, power, environment controls, racks, cabling and "smart hand" support.
	Other Facilities	Computer rooms and MDF/IDF/telco closets that house IT equipment in corporate headquarters, call centers or other general purpose office buildings.

Tower	Sub-Tower	Description
Compute		**Compute refers to both general and special-purpose devices and software that are programmed to carry out a set of arithmetic or logical operations. In essence, it provides the "brains" to process application and user requests. Compute includes a wide range of physical and virtual servers differentiated by platform and operating system. The Compute tower should include all direct hardware, software, labor and outside service costs.**
	Servers	Physical and virtual servers running a version of Microsoft's Windows Server or the Linux operating system; includes hardware, software, labor and support services. Optional Level 3 categories include: Windows, Linux and Public Cloud Compute.
	Unix	Servers running vendor-specific, proprietary Unix operating systems (e.g., IBM AIX, Sun Solaris, HP UX); includes hardware, software, labor and support services.
	Midrange	Servers running IBM AS/400 platform including hardware, software, labor and support services.
	Converged Infrastructure	Purpose-built appliances that provide compute, storage and network capabilities in one box.
	Mainframe	Traditional mainframe computers and operations running legacy operating systems.
	High Performance Compute	High-Performance Computing (HPC) is used for solving complex computational problems through massive concurrent use of computing resources and parallel processing techniques. HPC technology is applied in areas such as scientific and industrial research, product engineering and development, and complex business modeling, simulation and analysis. HPC hardware and software technologies are specialized and optimized for massively parallel computing and processing vast amounts of data.

Tower	Sub-Tower	Description
Storage	**Storage provides centralized data storage and securely holds information and data to be retrieved later. Storage may hold data for application programs and code, databases, files, media, email and many other forms of information. The storage tower includes distributed and mainframe storage that provides on-line storage for real-time access and archival storage solutions that may enable near-term retrieval or long-term archival. The storage tower excludes the internal storage included with a typical server configuration or end-user device such as a laptop, desktop or mobile phone, or tablet.**	
	Online Storage	Central storage such as SAN, NAS and similar technologies for the distributed compute infrastructure; includes the equipment, software and labor to run and operate. Optional Level 3 categories include: On-Premise, Public Cloud Storage.
	Offline Storage	Offline storage resources used for archive, backup & recovery to support data loss, data corruption, disaster recovery and compliance requirements of the distributed storage.
	Mainframe Online Storage	Mainframe attached storage arrays and the associated equipment, software and labor to run and operate.
	Mainframe Offline Storage	Any storage resources used for archive, backup & recovery to support data loss, data corruption, disaster recovery and compliance requirements of the mainframe storage.
Network	**Network includes the data and voice equipment along with the transport methods to connect systems and people and to enable people to converse. Networks provide core connectivity within the enterprise data centers as well as connectivity to and access within office building and remote locations.**	
	LAN/WAN	Physical and wireless local area network connecting equipment within the core data centers and connecting end users in office working areas to the organization's broader networks. Wide area network equipment, labor and support services directly connecting data centers, offices and third parties (excludes telecom and communication services). Optional Level 3 categories include: LAN, WAN.
	Voice	Voice resources which enable or distribute voice services through on premise equipment including PBX, VoIP, voicemail and handsets (excludes telecom and communication services).

Tower	Sub-Tower	Description
	Transport	Data network circuits and associated access facilities and services; includes dedicated and virtual data networks and internet access. Also includes usage associated with mobility and other data transit based on usage billing. Voice network circuits and associated access facilities and services. Also includes usage associated with standard telephone calls and 800 number service.
		Both voice and data transport may include terrestrial and non-terrestrial (e.g., satellite) technologies.
		Optional Level 3 categories include: Data, Voice.
Platform		**Platform includes all costs associated with distributed and mainframe databases and middleware systems. Costs include DBMS software and tools, labor and outside services.**
	Database	Distributed database services focused on the physical database (versus the logical design) including DBAs, DBMS, tools and operational support.
	Middleware	Distributed platform, application and system integration resources enabling cross application development, communications and information sharing.
	Mainframe Database	Mainframe database services focused on the physical database (versus the logical design) including the DBAs, DBMS, tools and operational support.
	Mainframe Middleware	Mainframe platform, application and system integration resources enabling cross application development, communications and information sharing.
Output		**Output includes the central print services to provide high-volume printing of customer bills, checks, product documentation or other customer support materials. Output also includes additional post print processing support (e.g. fold, stuff, apply postage, bundle).**
	Central Print	Central print services; often provided to support customer billing or customer documentation support processes. Unit of measure: page.

Tower	Sub-Tower	Description
End User		**End User includes end user computing devices and support for end users. The scope includes costs to build, manage and run end user computing devices for the enterprise and deliver centralized support to end users.**
	Workspace	Client compute physical desktops, portable laptops, thin client machines, peripherals (including monitors, pointer devices and attached personal printers) used by individuals to perform work.
	Mobile Devices	Client compute tablets, smart phones (iOS, Android, Windows Mobile) and apps used by individuals to perform work.
	End User Software	Client related software used to author, create, collaborate and share documents and other content. Examples include email, communications, messaging, word processing, spreadsheets, presentations, desktop publishing, graphics and others. Optional Level 3 categories include Productivity; Communications; Collaboration.
	Network Printers	Printers located on or near users' desktops. Examples include network connected personal printers, ink-jet printers, laser printers, departmental or copy-room printers. Only include network connected printers. Do not include printers connected to an end user computer.
	Conferencing & AV	Audio and video conferencing equipment typically used in conference rooms and dedicated telepresence rooms to enable workforce communications.
	IT Help Desk	Centralized Tier 1 help desk resources that handle user requests, answer questions and resolve issues.
	Deskside Support	Local support resources that provide on-site support for moves, adds, changes and hands on issue resolution.

Tower	Sub-Tower	Description
Application		**The Application tower includes costs related to applications in the enterprise. The scope includes the cost of business software and the costs to develop, manage and run applications for the enterprise.**
	Application Development	Resources involved with the analysis, design, development, code, test and release packaging services associated with application development projects. Optional Level 3 categories include: Development, QA
	Application Support & Operations	The operations, support, fix and minor enhancements associated with existing applications.
	Business Software	Software expenditures including licensing, maintenance and support related to off-the-shelf software purchases.
Delivery		**The delivery tower includes the costs to monitor, support, manage, and run IT operations for the enterprise and includes the IT Service Management (ITSM) functions.**
	IT Service Management	Resources involved with the incident, problem and change management activities as part of the IT Service Management process (excludes the Tier 1 help desk).
	Program, Product & Project Management	Resources involved with managing and supporting IT related projects and/or continuous product development (e.g. Agile) across business and IT-driven initiatives.
	Client Management	Resources or "account managers" aligned with the lines of business to understand business needs, communicate IT products, services and status of IT projects.
	Operations Center	Centralized IT Operations Center resources including monitoring and intervention e.g., NOC (network operations center), GOC (global operations center).

Tower	Sub-Tower	Description
Security & Compliance	**The Security & Compliance tower includes service costs related to IT security compliance and disaster recovery. The scope includes costs to define, establish, enforce, and measure security, compliance, and disaster recovery readiness for the enterprise.**	
	Security	IT Security resources setting policy, establishing process & means, measuring compliance and responding to security breaches and providing real-time operational security such as vulnerability scanning, managing firewalls, intrusion prevention systems, and security information and event management (SIEM). Optional Level 3 categories include: Cyber Security. The implementation actions defined by security policies (e.g. mitigating security breaches by applying patches) are not included in the Security sub-tower and are part of the respective towers where the actions take place (e.g. Compute, Storage, Network).
	Compliance	IT Compliance resources setting policy, establishing controls and measuring compliance to relevant legal and compliance requirements. Optional Level 3 categories include: Data Privacy. The implementation actions defined by Compliance policy (e.g. implementing controls like multi-factor authentication) are not included in the Compliance sub-tower and are part of the respective towers where the actions take place (e.g. Compute, Storage, Network, Application, End User).
	Disaster Recovery	IT Disaster Recovery resources setting DR policy, establishing process & means, dedicated failover facilities, performing DR testing. NOTE: DR designated equipment is included directly in its own sub-tower (e.g., extra servers for DR are included in Compute tower, etc.). The implementation actions defined by Disaster Recovery policy (e.g. building DR servers) are not included in the Disaster & Recovery sub-tower and are part of the respective towers where the actions take place (e.g. Compute, Storage, Network).

Tower	Sub-Tower	Description
IT Management		**The IT Management tower includes the costs to manage, administer & plan IT for the enterprise. It includes executive management, strategic management, enterprise architecture, IT finance, and vendor management.**
	IT Management & Strategic Planning	IT management and administration resources; typically CIO, senior IT leaders and administrative support including centralized IT strategy and planning.
	Enterprise Architecture	Enterprise architecture services including business, information, application and technical architecture to drive standardization, integration and efficiency among business technology solutions.
	IT Finance	Resources involved in the planning, budgeting, spend management and chargeback of IT expenditures and the costing of IT products and services.
	IT Vendor Management	Resources involved in the selection, contract management, oversight, performance management and general delivery of services by 3rd party vendors and external service providers.

Business Layer: Products & Services Definitions

Products & Services are what IT delivers to end consumers: business leaders, end users and often external parties such as partners and customers. In more mature, service-oriented organizations, services are well defined, advertised in a service catalog, priced or costed, and measured for consumption, among other practices. Service definitions should convey business value to business leaders, users or other stakeholders. In IT organizations that have adopted the latest in Lean-Agile thinking which incorporates continuous delivery, the concept of Products, rather than Services, may be assumed. The categories and classifications defined by the TBM Taxonomy are appropriate across these different IT operating models. Throughout this document, the term Services is used rather than calling out a distinction between Products or Services terminology.

The following graphic represents the service hierarchy including service types, services categories and services defined in the TBM taxonomy.
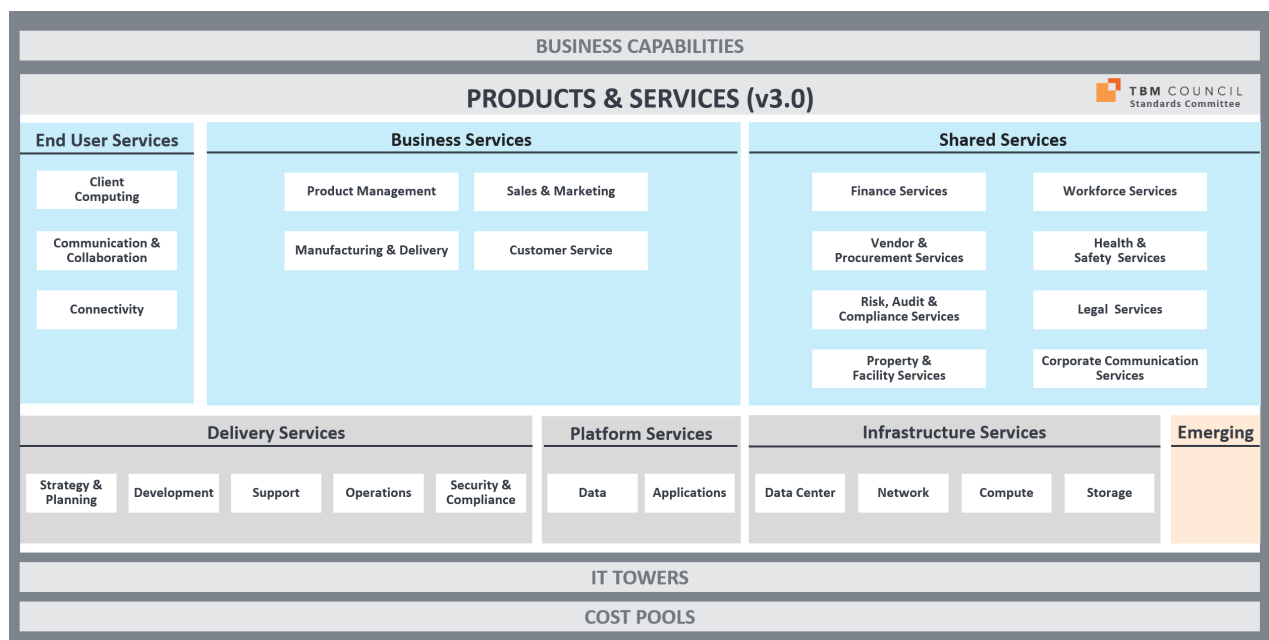
Figure 5: Business Layer: Services Summary View

The service hierarchy is grouped by service type (e.g., end user services, platform services), service category (e.g., client computing, communication & collaboration) and service name. Service offerings, as shown below, would be specific to the organization and are included in the TBM taxonomy as representative examples.

Figure 6: Services Hierarchy

The six Service Types defined in the standard TBM taxonomy include:

- **End User Services** include the client computing devices, software and connectivity to enable the workforce to access business applications; to communicate with other employees, partners and customers; and to create content using productivity software. These are always "user-facing" services.

- **Business Services** are delivered by IT to enable product and external customer focused business capabilities that enable the business to win, serve, and retain customers.. The TBM Taxonomy includes a generic set of capabilities that most enterprises perform including Product Management, Sales & Marketing, Manufacturing & Delivery and Customer Service. Additional technology

extensions may be developed which provide specific business application services unique to an industry. Industry-specific extensions that have been endorsed are published in a separate addendum.

- **Shared Services** are delivered by IT to enable internally focused corporate services which automate and support the organization's internal operations. These are often referred to as business support or shared services which enable the core operating capabilities of an enterprise or organization (e.g. Finance, Human Resources, Legal, etc.).

- **Delivery Services** are those to build, deploy, support and operate the End User Services (above), Business Application Services (below) and Shared Application Services (below). Development services create and change business-facing services, typically through projects. Additional support and operations services assist users, and maintain and ensure the availability of the business-facing services.

- **Platform Services** include the application infrastructure (database, middleware, etc.) that enables business-facing applications and services. Typically, these are not directly consumed by users. They are components required by the end user, business application and shared application services (see below for the latter two types). However, for some IT operating models, the shared "infrastructure and operations group" may directly provide these Platform Services to their customers.

- **Infrastructure Services** include the core infrastructure — facilities, compute, storage and network services — that are required to deliver any technology automation. Typically, these are not directly consumed by users. However, for some IT operating models, a shared "infrastructure and operations group" may directly provide these Infrastructure Services to their customers.

- **Emerging Services** are new trending services in the market with limited adoption across the enterprise. These services or offerings are early in enterprise adoption. The TBM council places services/offerings in the emerging services to provide visibility into possible future designation within the overall TBM taxonomy. The emerging services or offerings will be reviewed annually and organized into existing or new types, categories or services; or removed depending on the maturity and adoption of the service.

Note that many services can be delivered using traditional delivery models (e.g., on premise data centers) or via different cloud delivery models (i.e., public cloud, private cloud, hybrid cloud). These are not specifically reflected in the taxonomy categories below as they can apply to many types of services. Furthermore, the standard cloud service models (i.e., Infrastructure as a Service, Platform as a Service, and Software as a Service) are not included specifically. However, TBM models should incorporate those as classifications (e.g., labels or metadata) of the service offerings where needed for reporting and decision making.

The following tables defines the services in the standard TBM taxonomy.

End User Services

Figure 7: End User Services

Category	Name	Description
Type: End User Services		
Client Computing	**Client Computing includes all the physical and virtual devices and associated services that enable a user to interact with the enterprise's technology systems. This includes desktops, laptops, mobile devices and virtual desktop environments.**	
	Bring Your Own Device	A set of services that enable users to bring in their own personal computing devices (laptop, tablet, smartphone) and connect to the organization's corporate network in accordance with the organization's security and other standards. Standard support may include connectivity to access business applications, information and other technology resources; as well as other security, back-up, updates and patches, remote access and centralized service desk.
	Computer	A selection of IT-provided computers, workstations, laptop or tablet configurations. Each type may be ordered with additional memory and storage. Standard corporate image will be loaded on each device. Requestor may order optional software through the Productivity services. Includes network and remote network access. Standard support package including security, back-up, antivirus, updates and patches, remote access, centralized service desk.
	Mobile	A selection of IT-provided smartphone configurations. Includes network access. Standard support package including security, encryption, back-up, updates and patches, remote access and centralized service desk.

Category	Name	Description
	Virtual Client	The virtualization of desktop and application software enables PC and tablet functionality to be separate from the physical device used to access those functions – whether a fixed or mobile workspace environment. Virtual Workspaces may have different, pre-configured packages of software application and enable access from multiple devices. Advanced desktop management provides higher levels of flexibility, security, backup and disaster recover capabilities.
Communication & Collaboration	**Communication and Collaboration includes the services that allow an end-user to communicate with other people via email or chat, to collaborate through shared workspaces, and to create and print content such as documents, presentations, videos and other forms.**	
	Collaboration	A selection of collaborative software offerings that enable people to work together to achieve common goals across locations and time zones. Enables the sharing of documents and deliverables across distributed users.
	Communication	Communication represents a broad set of integrated or individual services that enable users to communicate with other users, partners or customers. This communication may occur via electronic mail, calendaring, messaging, social communities, audio conferencing, video conferencing and voice calls. More robust, unified messaging service offerings provide file transfer, file sync and share, embedded images, clickable hyperlinks, Voice over IP (VoIP) and video chat.
	Print	A variety of peripheral devices that enable the distribution of information. Specialized devices may offer one or all of these services - print, copy, and fax. Printing output creates a "hard copy" of digital documents, presentations, spreadsheets, etc. Scan inputs a hardcopy document into a digital format for a computer to use.
	Productivity	End user application software enabling the creation and distribution of information in a variety of formats including: documents, presentations, spreadsheet, modeling tools, project management, databases, desktop publishing, web design, graphics and image editing, audio/video editing and CD/DVD recording.

Category	Name	Description
Connectivity	**Connectivity includes the network services that provides a user access to the enterprise's technology systems. This includes wired and wireless access while on premise and remote access while away from the enterprise.**	
	Network Access	A set of connection services which enable users to access a private or public network from their client computing device. Once connected, as part of the network they can access business applications and information; and can communicate and collaborate with other users on the network. Often times, this may be bundled with a Client Computing service.
	Remote Access	A set of connection services which enable users to access the organization's internal private network from their client computing device when away from the corporate facilities. Once connected, the user can access the organization's business applications and information. Often times, this may be bundled with a Client Computing service.

Delivery Services

Figure 8: Delivery Services

Category	Name	Description
Type: Delivery Services		
Strategy & Planning	**Strategy and Planning includes all the services that the CIO and IT leadership team leverage to efficiently plan and manage the enterprise technology environment. This includes planning, architecture, consulting, innovation and R&D, project and agile management, and vendor management. Many of the ITSM strategy services are included in this service category.**	
	Enterprise Architecture	Enterprise architecture guides organizations through the business, information, process, and technology changes necessary to execute their business and IT strategies.
	Business Solution Consulting	Business solution consulting services help the enterprise improve their performance, primarily through the analysis of existing business problems and development of plans for improvement. This includes business relationship management, demand management, business process analysis as well as technology selection.
	Technology Business Management	The disciplines and value conversations for improving the business outcomes enabled by the technology portfolio. Enables technology leaders and their business partners to collaborate on business-aligned decisions. Includes IT management, IT finance and costing, IT billing, business value, metrics, benchmarking, service portfolio management, service catalog management, service level management and availability management.

Category	Name	Description
	Innovation & Ideation	The investment, development and incubation of new technologies to create new or better solutions which meet unarticulated or existing market needs. Includes new technology solutions and new product incubation services.
	IT Vendor Management	The management of technology suppliers who provide, deliver and support technology products and services. Includes services across the life cycle of a vendor including selection, negotiation, contracting, procurement, maintenance and subscription renewals, and performance management.
	Program, Product & Project Management	Program Management is the process of managing several related projects, often with the intention of improving an organization's performance. Product Management refers to a more collaborative and continuous planning, prioritization and delivery process (e.g., Agile methodologies) to provide frequent releases of small packages of new functionality in an iterative approach. Project Management is a traditional method of discrete planning, budgeting and execution of projects to deliver new capabilities, enhance existing capabilities or retire applications or services. Project Management services initiate, plan, execute, control, and close the work of a team to achieve specific goals and meet specific success criteria. Representative service offerings for this service include: Portfolio Investment Planning, Project Planning & Delivery, and Continuous Planning & Delivery.
Development	**Development includes all the services to plan, design, build, test and release new application software and services.**	
	Design & Development	Design and Development services provide the planning, design, programming, documenting, testing, and fixing involved in creating and maintaining a software product.
	System Integration	Development services that link together different computing systems and software applications physically or functionally, to act as a coordinated whole. This can be accomplished across systems that reside within the enterprise's data centers as well as with SaaS services that reside in the provider's facilities.

Category	Name	Description
	Testing	Testing services execute a program or application with the intent of finding errors or other defects. The investigations are conducted to provide stakeholders with information about the quality of the product or service and allow the business to understand the risks of software implementation. Testing may take multiple forms including functional, system, integration, performance and usability.
Operations	**Operations includes the costs to monitor, support, manage, and run the enterprise technology systems for the enterprise. It includes IT Service Management, capacity management, event management, capacity planning, and scheduling. These are typically services provided behind the scenes and not directly user-facing.**	
	Deployment & Administration	Includes the release management and software distribution services to deploy new and/or the most recent software version to the host servers or client computing devices. Also includes ongoing operating system (OS) support and patch management.
	IT Service Management	IT Service Management refers to the incident, problem and change management services necessary for IT to plan, deliver, operate and control the IT services offered to its customers. Software tools and services for assessing, recording and managing asset configurations, such as server settings or network router tables.
	Capacity Management	Services which ensure that IT resources are right-sized to meet current and future business requirements in a cost-effective manner. Takes into account the expected demand from the business or consumer along with the availability and performance of existing capacity and projects future requirements. Capacity management occurs across data center, compute, storage, network and other IT resources.
	Event Management	Services to monitor resources and applications. Services that records API calls and delivers logs and insights. Services that provide log data consolidation, reporting and analysis to enable IT administrators and security personnel to understand asset utilization, user logins, and information access.
	Scheduling	Services involved in the execution of tasks required to operate an IT Service and are often automated using software tools that run batch or online tasks at specific times of the day, week, month or year.

Category	Name	Description
Support		**Support includes the centralized services which directly support the end user community and includes training, application support, service desk and central print services.**
	Application Support	Application Support services provide the ongoing operational activities required to keep the application or service up and running, provide Tier 2 and Tier 3 technical support to more complex or difficulty user questions and requests. Application Support may also include minor development and validation of smaller application enhancements (e.g., minor changes, new reports).
	Central Print	Central Print services provide high-volume and advanced printing for invoices, product literature or other complex documents for mass distribution. Additional post-print services may include folding, envelope stuffing, postage and bundling to expedite distribution.
	IT Training	IT Training provides educational services to the organization's users on how the access and effectively use the organization's business application services, as well as common productivity software and tools.
	Service Desk	Service Desk provides a single point of contact to meet the support needs of users and the IT organization. Service Desk services provide end users with information and support related to IT products and services, usually to troubleshoot problems or provide guidance about products such as computers, electronic equipment, or software. Help desk support may be delivered through various channels such as phone, website, instant messaging, or email. Additional service delivery offerings include IT knowledge management, request fulfillment, desk-side and "tech bar" service offerings.

Category	Name	Description
Security & Compliance		**Security & Compliance includes all the services to ensure the integrity, protection and proper use of the enterprises technology systems and data. It includes identity & access management, security awareness, cyber security & incident response, threat & vulnerability management, data privacy & security; governance, risk & compliance, business continuity & disaster recovery.**
	Identity & Access Management	Identity and access management (IAM) services set policy, business processes, establishes controls and provide technologies to facilitate the management of digital identities by ensuring individuals have the appropriate access to necessary systems at the right times. Specific areas include authentication, identity management and identity governance & administration.
		Specific areas included: Authentication/Authorization, Identity Management, Identity Governance & Administration, Privileged Access Management, and Certificate Management.
	Security Awareness	Security awareness sets policy, procedures and provides corporate knowledge training to members of an organization to promote an understanding for all individuals regarding the protection of an organizations physical and digital assets.
		Specific areas included: Security Training, Security Advisory, and Security Policies and procedures.
	Cyber Security & Incident Response	Cybersecurity services provide policies, procedures and technologies to recognize existing and emerging threats as well as determine associated risk to ensure the organization has the appropriate defense and responses to each incident.
		Specific areas included: Cyber Security Monitoring and Security Incident Response.
	Threat & Vulnerability Management	Threat and vulnerability management services ensures an organizations applications and infrastructure vulnerabilities are proactively identified, classified and corrected to ensure they are not exploited by unauthorized individuals or parties.
		Specific areas included: Application Vulnerability Management, Infrastructure Vulnerability Management, and Network / Endpoint Security.
	Data Privacy & Security	Data privacy and security ensures corporate and user data is not used or accessed by unauthorized individuals or entities by ensuring data and identities are classified appropriately, the correct controls are in place to prevent data loss and data is appropriately secured.
		Specific areas included: Data Classification & Identification, Data Loss Prevention, Data Encryption, Data Access, and Database Security.

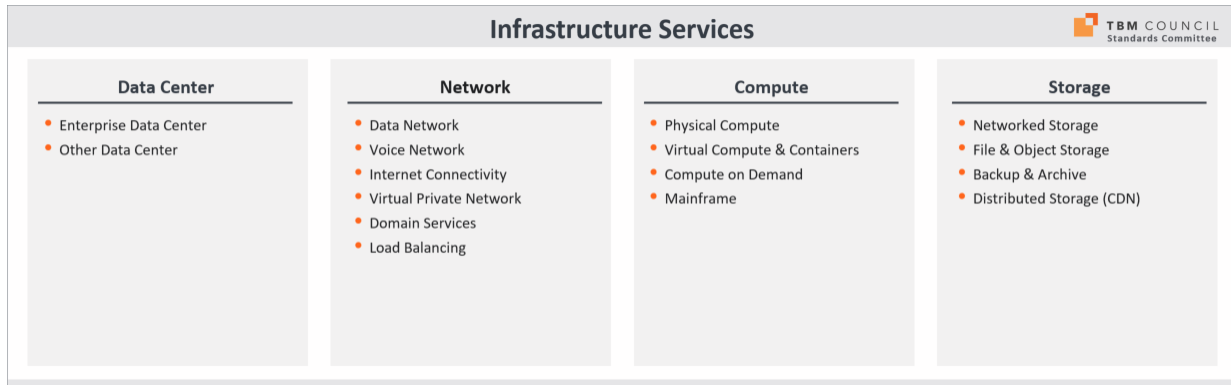| Category	Name	Description
	Governance, Risk & Compliance	IT Compliance services set policy, establish controls and measuring compliance to relevant legal and compliance requirements. Ensure risks are met, alignment with regulatory needs (SSAE16, HIPAA, PCI DSS, SOX, TRICARE etc.), Documented and communicated to business owners. Ensure third parties meet risk and security requirements.
	Business Continuity & Disaster Recovery	Business Continuity ensures the continuous operation of the enterprise. Services include business impact assessments, business resiliency plans, disaster recovery capabilities and the associated exercise, testing, training and awareness to support people, process and technology recoveries in case of an incident.

Infrastructure Services

Infrastructure Services

TBM COUNCIL
Standards Committee

Data Center
- Enterprise Data Center
- Other Data Center

Network
- Data Network
- Voice Network
- Internet Connectivity
- Virtual Private Network
- Domain Services
- Load Balancing

Compute
- Physical Compute
- Virtual Compute & Containers
- Compute on Demand
- Mainframe

Storage
- Networked Storage
- File & Object Storage
- Backup & Archive
- Distributed Storage (CDN)

Figure 9: Infrastructure Services

Category	Name	Description
Type: Infrastructure Services	
Compute Services	**Compute Services includes all the physical and virtual computing services that run business applications, software tools and system services. These compute services can be dedicated or on-demand and may be provided on-premises or through external managed services or public cloud offerings.**	
	Compute on Demand	Offer transient compute services that are executed automatically, either on a schedule or triggered by a predefined event or set of events.
	Mainframe	Offer transactional and batch oriented compute services supported by a mainframe infrastructure.
	Physical Compute	Offer a variety of compute configurations comprised of physical servers. These are typically distributed compute services based on the Windows, Linux or UNIX operating systems for pre-defined configurations of memory, CPU and storage. Standard operational support includes security hardening, backup, updates, patches, and centralized monitoring.
	Virtual Compute & Containers	Offer a variety of compute configurations delivered through the virtualization of physical compute resources. May include on-demand provisioning and de-provisioning based on user interaction or the performance of the application itself. These virtual instances are typically running Windows or Linux operating systems and have pre-defined configurations of virtually allocated memory, CPU and storage. Standard operational support includes security hardening, back-up, updates and patches and centralized monitoring.

Category	Name	Description
Data Center Services	**Data Center Services include the various facility services that provide a secure and controlled environment for housing compute, storage, network and other technology equipment. These may include large, dedicated data centers owned by the enterprise or leased through co-location services. Smaller computer rooms and distribution rooms within the enterprises office buildings provide space for on-premises equipment.**	
	Enterprise Data Center	Purpose-built facilities to securely house computer equipment providing physical security, clean & redundant power, data connectivity and environmental controls – temperature, humidity, fire suppression. Includes data centers owned and operated by the enterprise, as well as co-location or point-of-presence services operated by other service providers. Additional services may include shipping and receiving, assembly, rack and stack and maintenance.
	Other Data Center	Other data center services that may be delivered through dedicated secure rooms or telecom closets with a facility.
Network	**Network Services includes the voice and data network and supporting services such as load balancing, domain services, virtual private network and the internet to enable communications within and outside the enterprise.**	
	Domain Services	Domain services provide lookup capabilities to convert domain names (e.g., www.acme.com) into the associated IP address to enable communication between hosts.
	Internet	Telecommunication services using the public internet to enable communications across the organization including its data centers, office buildings, remote locations, partners and service providers. Virtual Private Networks may be created to limit access and provide security.
	Load Balancing	Offer ability to optimize incoming application/workload requests through load balancing and traffic management to deliver high availability and network performance to applications.
	Virtual Private Network	Virtual Private Network (VPN) services offer a secure method to authenticate users and enable access to corporate systems and information. VPN can also isolate and secure environments in the data center across physical and virtual machines and applications.
	Data Network	A selection of network connection offerings that enable direct data communications across the organization including its data centers, office buildings, remote locations as well as partners and service providers (including public cloud service providers) without traversing the public internet. Typically provides a greater level of performance, security and control. The available service offerings may include terrestrial and non-

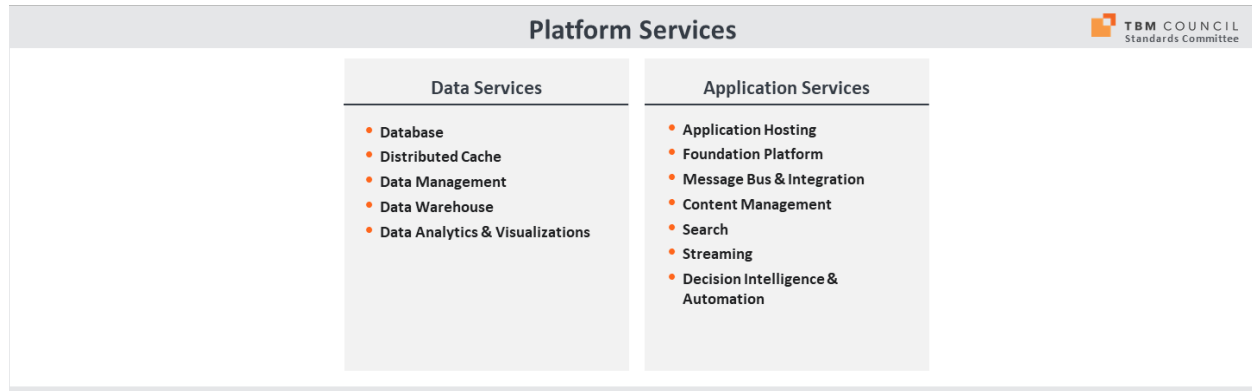| Category	Name	Description
		terrestrial (e.g., satellite) technologies as well as field networks or special-use networks.
	Voice Network	Telecommunication offerings for voice circuits to deliver "plain old telephone service" and other advanced features including 800-services, automatic call distribution, etc. The available service offerings may include terrestrial and non-terrestrial (e.g., satellite) technologies.
Storage Services	**Storage Services includes various offerings for persisting information, data, files and other object types. The services offerings range from supporting real-time, high-performance data retrieval to slower retrieval to long-term archive storage. Different storage offerings also provide recovery point objectives to meet the business needs of an application based on a business impact assessment.**	
	File & Object Storage	Secure and durable object storage where an object can be unstructured data such as documents and media files or structured data like tables.
	Backup & Archive	Secure, durable and lower-cost storage service offerings for data backup and archiving. May include disk backup, tape backup, optical backup and off-site storage services.
	Networked Storage	Storage services that provide a pool of storage to a server for the purposes of hosting data and applications, or to a virtualization environment for the purposes of hosting servers. Networked Storage services enable redundancy, ease of management, rapid move/add/change/delete capabilities, and economies of scale. Storage array network (SAN), network attached storage (NAS) and solid state drives (SSD) storage are example technologies.
	Distributed Storage (CDN)	A content delivery service for storing high-bandwidth content at the edge network to reduce latency and improve application performance.

Platform Services

Category	Name	Description
		Type: Platform Services
Application Services		**Application Services include a wide-range of application-based services that run on top of the compute platform and enable other business applications. Application Services include application hosting, message bus and system integration, audio/video streaming, content management, search and a variety of artificial intelligence and machine learning services.**
	Application Hosting	Fully managed application and web hosting services including the general computing server, database server, web and application server services. Includes standalone Web Service and App Service platform services.
	Foundation Platform	Foundation Platform includes the core foundation capabilities provided by large ERP systems, as well as the "platform as a service" provided by many SaaS applications. ERP foundation platforms (like SAP R/3 Basis or SAP S/4 HANA) are the technical underpinning that enables the ERP application to function. It typically consists of programs and tools that support the interoperability and portability of ERP applications across systems and databases. Many SaaS applications also provide a platform capability to enable integration and development of additional applications or modules that complement the primary application suite. Examples include Salesforce's Force.com product, ServiceNow's Now Platform and Appian.
	Message Bus & Integration	A messaging infrastructure to allow different systems to communicate through a shared set of interfaces. Includes event streaming to multiple applications, subscribe and publish notification service for enterprise and mobile messaging, task completion alerts and threshold alerts.

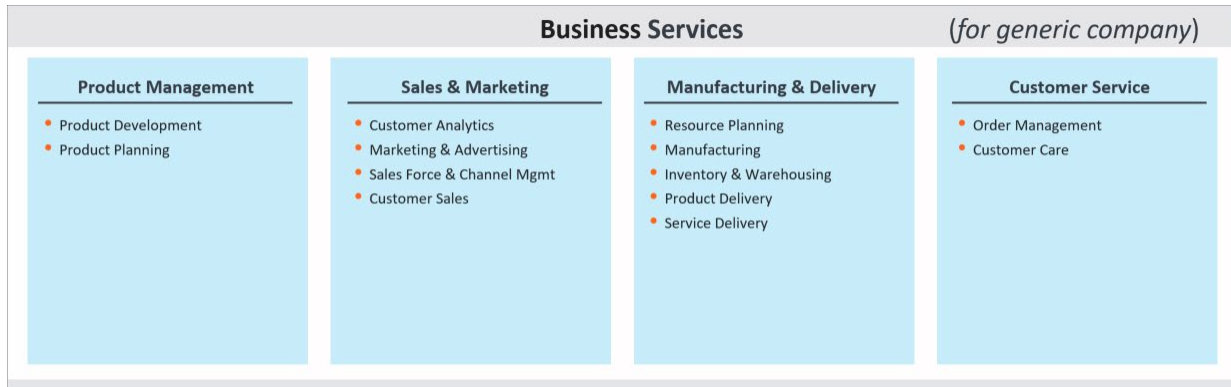| Category	Name	Description
	Content Management	A set of services that support the creation and modification of digital content using a simple interface supporting multiple users in a collaborative environment. Includes records management and digital asset management.
	Search	A keyword search service for web and mobile applications.
	Streaming	Services that deliver live and on-demand media streams including audio and video.
	Decision Intelligence & Automation	Decision Intelligence & Automation services allow software and devices to utilizing large datasets to become more accurate in predicting outcomes without being explicitly programmed. Natural language processing, facial recognition, object recognition, intelligent personal assistants and robotic process automation are offerings that utilize these technologies to augment the human thought process.
Data Services	**Data Services include a variety of data-related services that capture and retrieve transactional activities in a database, store the data in a centralized data warehouse, provide analytical and visualization tools to explore the data and caching technology to distribute information to the edge to improve performance and response times.**	
	Database	A relational database service for applications to access transactional data. A No-SQL database service for applications that need consistent, low-latency scaled out document/key-value store models.
	Distributed Cache	An in-memory cache service that helps improve web application performance.
	Data Management	A set of data analytic services that automate the movement and transformation of data including extract, transform and load (ETL) processes, data quality management and master data management.
	Data Warehouse	Services supporting a central repository or set of repositories of integrated data from one or more disparate sources. Stores current and historical data and are used for creating analytical reports for knowledge workers throughout the enterprise.
	Data Analytics & Visualizations	Software services and BI tools to analyze and communicate information clearly and efficiently to users via graphs, charts and other visual representations including geospatial analytics. Also includes real-time streaming analysis of data by providing low latency, highly available, scalable complex event processing over streaming data in the cloud.

Business Services

Figure 11: Business Services

Category	Name	Description
Type: Business Services (Generic)		
Product Management	Product Development	Applications and services that enable product design and development including innovation management, computer aided design, simulation visualization, enterprise feedback and social product feedback/crowdsourcing.
	Product Planning	Applications and services that enable product life-cycle management including requirements management, product data management, change and configuration management, manufacturing process management, quality management, product analytics, and risk and compliance management.
Sales & Marketing	Customer Analytics	Applications and services that enable customer and product analytics and voice of the customer input.
	Customer Sales	Applications and services that enable B2C commerce platforms, B2B commerce platforms, product configurations, POS platforms and payments.
	Marketing & Advertising	Applications and services that enable marketing automation, online marketing, mobile marketing, and ad technologies.
	Sales Force & Channel Management	Applications and services that enable sales force automation, sales enablement and training, partner relationship management and pricing management.
Manufacturing & Delivery	Inventory & Warehousing	Applications and services that enable inventory management, supply chain scheduling, warehouse management and returns management.
	Manufacturing	Applications and services that enable prototyping, production scheduling, fabrication/manufacturing of tangible products,

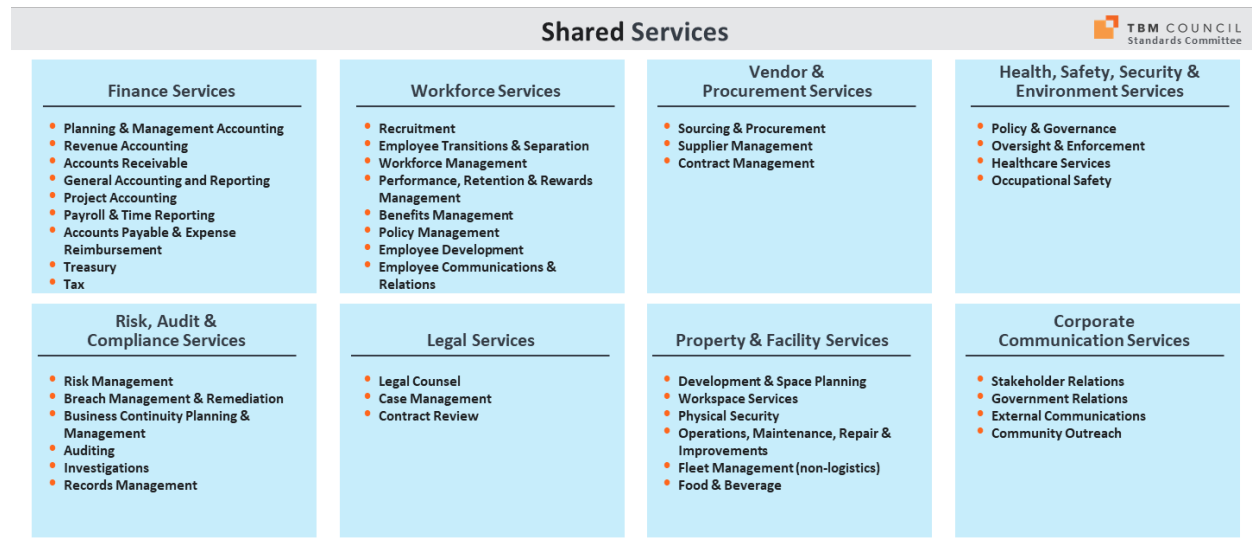| Category	Name	Description
		equipment maintenance, software development of digital products and quality testing.
	Product Delivery	Applications and services that enable the logistics and delivery of physical products including supply-demand matching, fleet/ transportation management, tracking systems and GIS/routing optimization.
	Service Delivery	Applications and services that enable the delivery of nontangible services including resource scheduling, engagement management, professional services, education, and service quality.
	Resource Planning	Applications and services that enable demand forecasting, demand planning, and partner sourcing.
Customer Service	Order Management	Applications and services that enable order management, contract management, pricing optimization, billing and payment processing.
	Customer Care	Applications and services that enable multi-channel customer communication (ACD, CTI, IVR, speech recognition, predictive dialing, email response, change, co-browse), knowledge management, customer service workforce automation, and field service.

Shared Services

Figure 12: Shared Services

Category	Name	Description
Type: Shared Services		
Finance Services		**Applications and services that enable the ability to manage the financial aspects of running the business or organization. In the broadest terms, it includes the activities to manage financial & general accounting and reporting, revenue accounting, accounts payables, payroll, treasury operations, tax management and internal controls.**
	Planning & Management Accounting	Applications and services that enable the strategic allocation of funds in support of established future and current business goals, including planning, budgeting and forecasting, ad-hoc analysis and reporting to inform and guide leadership in the ongoing determination and understanding of business strategy related financial goals, incentives, progress and impact. Specific service offerings may include: planning/budgeting/forecasting, cost accounting & control, cost management and financial performance.
	Revenue Accounting	Applications and services that enable the comparison of revenue targets to actual achievement. Supervisory responsibility over all transactions and entries (receivables, payables, intercompany movements) that pass into the final periodic accounts of an entity, and support int./ext. analysis and communication of profit on a monthly, quarterly or annual basis. (Determination of whether this includes the actual lifecycle processing of payments due from customers, is based on entity type, sector and scale - see Accounts Receivable). Specific service offerings may include: customer credit, invoicing, accounts receivable, and collections.

Category	Name	Description
	Accounts Receivable	Applications and services that enable the complete lifecycle of invoicing and receipts processing to ensure the business is paid by its customers, including Invoicing, payment receipt, processing, error handling, PO setup (as a supplier) reconciliation, reporting and collections.
	General Accounting & Reporting	Applications and services that enable financial statement preparation (balance sheet, statements of income, cash flows, shareholders' equity etc.) in accordance with accepted accounting principles. Also includes responsibilities to classify, determine, analyze, interpret, consolidate and communicate financial information to support up-to-date business decisions for better management & control, and regulatory/legislative compliance (in conjunction with Management Accounting) of costs, assets & equipment. In certain contexts can include grant activities related to the funding and reporting of non-repayable funds provided to corporate, academic or agency entities. Specific service offerings may include: general accounting, fixed asset accounting, grant management, and financial reporting including regulatory and compliance reporting.
	Project Accounting	Applications and services that enable managing accounts for large investment projects, often requiring significant capital outlays over multiple years. Managing investment against major milestone, product or activity expenditures during the course of a project, supporting project, portfolio and program leadership with insight to understand their progress & efficiency toward target. Specific service offerings may include: capital planning, capital project accounting & analysis.
	Payroll & Time Reporting	Applications and services that enable the handling of reported time, and the ongoing processing and payment of wages, salaries and benefits, including quality assurance and error handling (but excl. benefits management). Also inclusive of time keeping, and the capture, aggregation, measurement, validation and transmission of staff time. Specific service offerings may include: time reporting payroll, and payroll taxes.
	Accounts Payables & Expense Reimbursement	Applications and services that enable the processing of payments due to suppliers, lenders and other operating expenses, including those related to employees. Supports the development of policies and procedures around processing of accounts payable & employee expense reimbursement across the entity. This process often includes the receipt & review of invoices and reimbursement requests, payment processing, PO & payment issuance via check, wire transfer or other forms of payment transfer. Specific service offerings may include:

Category	Name	Description
		accounts payable, expense reimbursement, corporate credit cards.
	Treasury	Applications and services that enable the management and optimization of daily liquidity, excess cash, and financial risk via investment activities (e.g. hedging, debt instrument purchase/sale, overnight and short term institutional investments, and funds transfers) focused on supporting ongoing business operations across the entire company, or regionally. Also includes the governance, control, assessment and risk management activities required to ensure effectiveness. Specific service offerings may include: Treasury policies & procedures, cash management, in-house bank accounts, debt & investment, hedge transactions.
	Tax	Applications and services that enable managing the organization's financial accounts specific to the world-wide management, optimization and payment of tax, and related evidence & documentation. This includes, planning, estimations & analysis of the tax position and impact, related transfer pricing strategies, tax return preparation, timely payment, and required authorizations. It also encompasses the orchestration of record retention in support of regulatory requirements and internal policy. Specific service offerings may include: tax strategy, tax planning & analysis, transfer pricing, and tax processing.
Workforce Services		**Applications and services that enable the ability to manage the employee workforce of the business or organization. In the broadest terms, it includes the activities to select, recruit, develop, reward, retain, counsel and retire employees. Includes the management of employee information including workforce analytics.**
	Recruitment	Applications and services that enable determining and handling employee recruiting, sourcing and selection, including requirements gathering; advertising; order creation; agency placement; application receipt, review, filtering; candidate & agency contact; applicant screening & investigations; offering & negotiations; records management. Can also include prior employees.
	Employee Transitions & Separation	Applications and services that enable managing employee (and less commonly vendor staff) transitions of a vertical, horizontal, geographic, mission, or structural nature, including management & administration of programs for: foreign assignment, reassignment, re-deployment, promotion/demotion, separation, outplacement, leave of absence, repatriation, and retirement.

Category	Name	Description
	Workforce Management	Applications and services that enable managing employee focused processes and information for workforce analysis & reporting; inquiry & resolution; employment verification; HR data / information; refreshing / updating indicators of employee retention and motivation, working with time & attendance systems (excluding items like actual survey or assessment delivery).
	Performance, Retention & Rewards Management	Applications and services that enable creating frameworks for, and performing the management & administration of, programs for rewarding, motivating and recognizing employees with the objective of retaining them and enabling career path growth (incl. distributions).
	Benefits Management	Applications and services that enable the management, administration & processing of employee benefits, benefit plans, staff enrollment, claims, funding & entitlements; and includes analysis and planning, provider selection, employee communications & education, and regulatory compliance.
	Policy Management	Applications and services that enable creating strategies, standards, and supporting policy, for purposes of setting and managing standards of conduct, corporate and legal HR compliance and breaches, skills and competencies, and resource Performance, Rewards & Transitions. Includes planning, supervising and implementation of workforce policy inclusive of modeling, analysis and reporting.
	Employee Development	Applications and services that enable employees (and less commonly contractors/providers), with skills, knowledge, and/or capability development, and education. This extends to new hire onboarding / orientation; technical or business skills training; safety, security, conduct, ethics & compliance training; procedural and other legal or organizational aspects. (Excludes education as part of employee Transitions). Also includes program & course creation, delivery, management and reporting.
	Employee Communications & Relations	Applications and services that enable crafting and execution of employee communications plans, its supporting messages, distribution channels and formats, to initiate interaction for: promoting horizontal or vertical employee engagement across the organization; creating awareness (e.g. of new policy, practices, or other internal / external events or actions of relevance); assessing satisfaction and engagement levels and drivers.

Category	Name	Description
Vendor & Procurement Services	**Applications and services that enable the ability to manage the indirect procurement of goods and services required for a business to enable its activity including development of sourcing strategies, vendor selection, contract negotiations, ordering of materials & services and ongoing vendor and contract management.**	
	Sourcing and Procurement	Applications and services that enable creating strategies, standards and processes for procuring goods and services from approved sources. Establish a procurement process that describes the approach, policy and guidelines for purchasing activities including evaluation & sourcing of suppliers. Create sourcing relationships in order to continuously improve price performance. Re-evaluation and assessment of purchasing activities, standards, pricing and impact across the value chain and supplier landscape.
	Supplier Management	Applications and services that enable evaluating supplier options to select the most effective, efficient and low risk suppliers. Validate selected suppliers. Use internal/external data, analysis and feedback to rank and manage strategic and non-strategic suppliers to optimize vendor spend and output, including the ongoing management and reporting of supplier performance (e.g. output quality, delivery cycle times). Can also include survey & research activities.
	Contract Management	Applications and services that enable the intake and management of vendor contracts. Keeping contracts current with routine evaluation. Ensure proactive dissemination of knowledge to key stakeholders regarding renewals, expirations, price changes, volume thresholds or other contract aspects, to provide adequate lead times and avoid lapses in service, or surprise / unplanned expenditures.
Health, Safety, Security & Environmental Services	**Applications and services that enable the ability to provide a safe environment for the organization, environment and local residents including policy, oversight, healthcare, occupational safety and threat assessment.**	
	Policy & Governance	Applications and services that enable determining the desired outcomes, obligations, conduct and impacts related to personal and environmental health and safety. Creating and implementing the HSSE program. Train and educate employees of the on the HSSE program. Oversee and manage the HSSE program.
	Oversight & Enforcement	Applications and services that enable monitoring and oversight of policy adherence and enforcement activities (including investigations) related to environmental, health and safety

Category	Name	Description
		standards, should activity fall outside of defined processes, regulations or legislation.
	Healthcare Services	Applications and services that enable the definition and structuring of health services provided to/by the workforce, to promote preventative health and basic treatment, including the provision of on-site health services.
	Occupational Safety	Applications and services that enable the programmatic evaluation and management of risks & opportunities that may affect industry-specific or role-related personal health and safety of employees, contractors or other 3rd parties. Provide required compliance and reporting as required by local and national governing bodies.
Risk, Audit & Compliance Services	**Applications and services that enable the ability to proactively manage the risk of the business and ensure adherence to regulatory requirements.**	
	Risk Management	Applications and services that enable establishing umbrella frameworks, management activities, policy and related procedures and requirements for the entire organization, to defend against risks that may negatively impact the viability, growth, performance, health, stability, competitiveness, preparedness, or reputation of an ongoing concern, state, product or service. Ensures the identification, detection, assessment, monitoring and communication of risk and the execution of risk management activities across all levels of the organization, including all risk facets, including but not limited to sector, organization, operations, compliance, data, personal privacy, cyber, espionage, geo-political, etc.
	Breach Management & Remediation	Applications and services that enable administering the efforts and activities for breach assessment / estimation of impact and causality, as well as containment and remediation efforts. This may require the creation of plans for corrective action, even in collaboration with government agencies and pertinent professional services firms specialized in remediation efforts relevant to the organization's operations. Includes generation of new recommendations for implementation by Risk Management to be embedded as part of the ongoing capability/process.
	Business Continuity Planning & Management	Applications and services that enable the plans, processes and resources required to rapidly adapt and respond to any internal or external disruption, threat or event that may present an opportunity or result in degradation or catastrophic failure of business operations.

Category	Name	Description
	Auditing	Applications and services that enable the internal or external planning, preparation, execution and review of internal control mechanisms, policies and procedures in order to manage internal controls. Includes observation, reviews, interviews, fact-finding and the generation of recommendations and designs of control activities to be implemented. Monitor and review control effectiveness, remediate control deficiencies, and enable compliance functions. Can also include the implementation and maintenance of technologies and tools to enable internal controls-related activities.
	Investigations	Applications and services that enable following up on a breach of standard operating procedures to identify, locate and understand the impact of the breach. An investigation can include searching, research, interviews, evidence collection, data preservation and various methods of investigation, as well as the gathering and documentation of findings & observations, and reporting of them.
	Records Management	Applications and services that enable managing codified information in an organization throughout its life cycle and state/form, from the time of creation or inscription to its access and eventual disposition. This includes identifying, classifying, storing, securing, retrieving, tracking and destroying or permanently preserving records, including digital and physical.
Legal Services	**Applications and services that enable the ability to provide legal counsel and support to the organizations governance and operations including discovery, litigation, contract reviews and intellectual property protection.**	
	Legal Counsel	Applications and services that enable providing guidance and legal practices to abide by the law involving the practical application of legal theories, laws, regulations and knowledge to govern the organization's messaging, product, and business operations. This includes the safeguarding (incl. litigation) and defense of intellectual property, brand value, confidential information, corporate and personal exposure to liability (physical or environment injury, cyber etc.) and many other forms and applications of law.
	Case Management	Applications and services that enable managing the (mostly) administrative lifecycle of legal cases, including matter management, time and billing, document completion and submittal, monitoring case status, scheduling hearings and meetings, time and billing, orchestration of litigation support, collaboration and communications, record storage and search.

Category	Name	Description
	Contract Review	Applications and services that enable reviewing and negotiating terms to reach a final draft of a contract that is acceptable to all parties. Contracts may include non-disclosure agreements, master service agreements, statements of work and other types of contracts.
Property & Facility Services	**Applications and services that enable the ability to provide for the non-productive facilities for the organization including development & space planning, physical security, workplace services, fleet management (non-logistics), food services and the maintenance of facilities and equipment.**	
	Development & Space Planning	Applications and services that enable planning the use, services, acquisition and construction or build out, of non-performing or performing real property (whether owned or leased) for the organization. Execution of the planning, approvals, and acquisition of a site, for the build out or installation of real property or assets that may or may not yield direct income or house staff, equipment, or inventory. Creation of long-term vision, strategies and standards for acquiring, developing and managing purchased / leased / retained property and improvements.
	Workspace Services	Applications and services that enable provisioning workspaces and related assets, and management of that provisioning effort. The orchestration and/or installation of office, shared community or light industrial spaces according to requirements (e.g. tables, chairs, couches, monitors, AV equipment, privacy screens, cubicles, doors, appliances, lighting, cabling, shelving, racks etc.). *Not intended for large scale industrial/plant construction.* Excludes Physical Security.
	Physical Security	Applications and services that enable managing the physical safety of property, facilities, equipment and people through the presence of physical barriers, workforce authentication and authorization, and visible or unseen manned or unmanned security services.
	Operations, Maintenance, Repair & Improvements	Applications and services that enable preserving and improving productive assets through the planning, managing, and performance of preventative, routine, and critical maintenance work, and occasional improvements to those existing facilities or equipment.
	Fleet Management (non-logistics)	Applications and services that enable managing vehicles used to support the transportation of the workforce and may include vehicle financing, maintenance, telematics, and scheduling. Vehicles may include cars, vans, trucks, motorized carts, bicycles and other forms of transportation. Does not include

Category	Name	Description
		transportation associated with the shipment of the organization's products or service delivery.
	Food & Beverage	Applications and services that enable providing and managing on-site food and beverage services for consumption by the organization's workforce.
Corporate Communication Services		**Applications and services that enable the ability to manage and orchestrate all internal and external communications aimed at creating a favorable view among stakeholders including public relations, stakeholder relations, government relations, external relations and community outreach.**
	Stakeholder Relations	Applications and services that enable fostering external relationships with stakeholders of the entity, including investors, government and industry, the board of directors, and the general public. This is not related to customer management.
	Government Relations	Applications and services that enable creating and maintaining relationships with government and industry representatives. Persuading public and government policy at the local, regional, national, and global level (subject to government regulations).
	External Communications	Applications and services that enable developing and managing relations with media. Develop connections with journalists to solicit critical, third-party endorsements for a product, issue, service, or organization.
	Community Outreach	Applications and services that enable developing and administering community relations. Establish business connections with the people constituting the environment the organization operates in and draws resources from in order to foster mutual understanding, trust, and support. Create programs that promote the organization's image in a positive and community-oriented way.

About the Technology Business Management Council

The Technology Business Management (TBM) Council is a nonprofit business entity focused on developing a definitive framework for managing the business of IT. It is governed by an independent board of business technology leaders from a diverse group of the world's most innovative companies. The TBM Council established a set of tools and best practices including organizational traits, management disciplines, a common taxonomy, and metrics. Members are encouraged to develop and contribute to their understanding of TBM through the Council's research, standards, education offerings, and community engagements. Members collaborate with their peers through an annual global conference, regional meetings, and an online community.

About the TBM Council Standards Committee

The Standards Committee, working together with TBM Council Staff, oversees, reviews and manages the development and maintenance of TBM standards, including but not limited to the TBM taxonomy and TBM KPIs/metrics. The Committee reports and is accountable to the TBM Council Board of Directors. The Committee has the responsibility to keep the Board informed regarding standards development and is also responsible for documenting and publishing the standards for all TBM Council members to see, use and comment upon.

The Committee is comprised of a chairman (James LaPlaine, CIO, Red Ventures), 15 voting members from industry, a Federal government liaison (non-voting), and TBM Council Alliance Partner representatives (from ISG and KPMG). Service Provider representatives from firms such as IBM, HCL, Atos, Hexaware and others also participate in the Council as non-voting members.