



TBM
COUNCIL

TBM Taxonomy

Version 2.1

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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

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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.

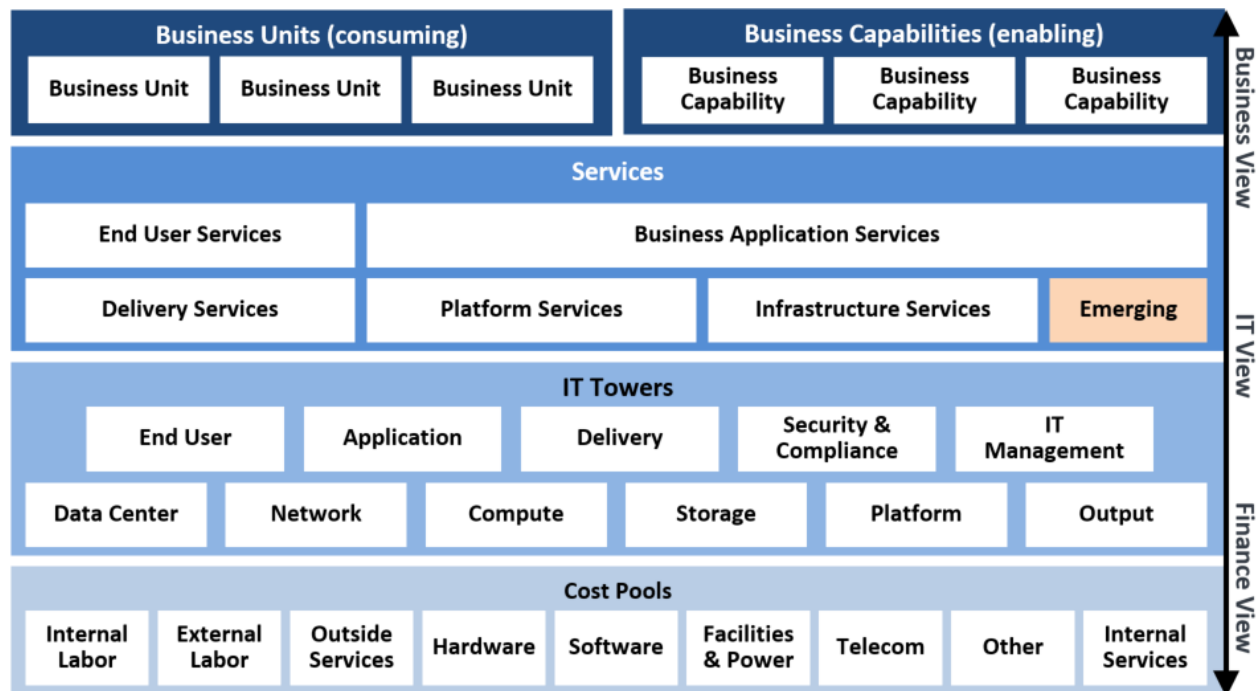


Figure 1: The TBM taxonomy provides a standard set of categories for costs and other metrics

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 Applications & Services). The TBM model includes the taxonomy objects and layers plus the

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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.

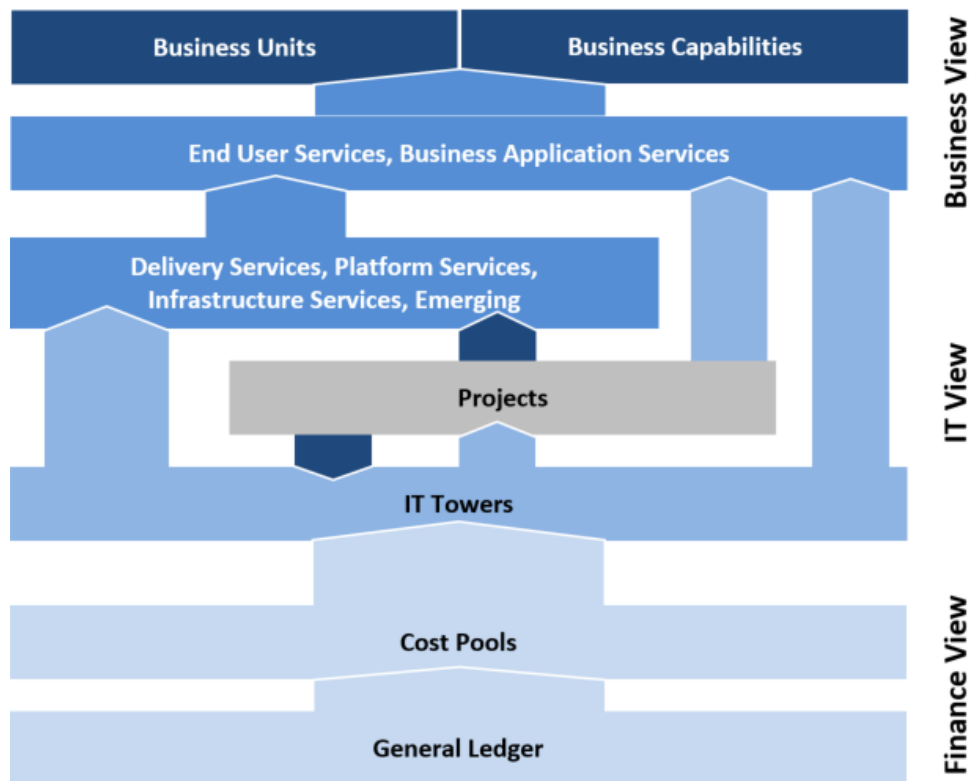


Figure 2: The TBM model translates from a finance view of costs to an IT view of towers, projects, and services and then into a business view of costs

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

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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, facilities and power, outside 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 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 **application 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.

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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.

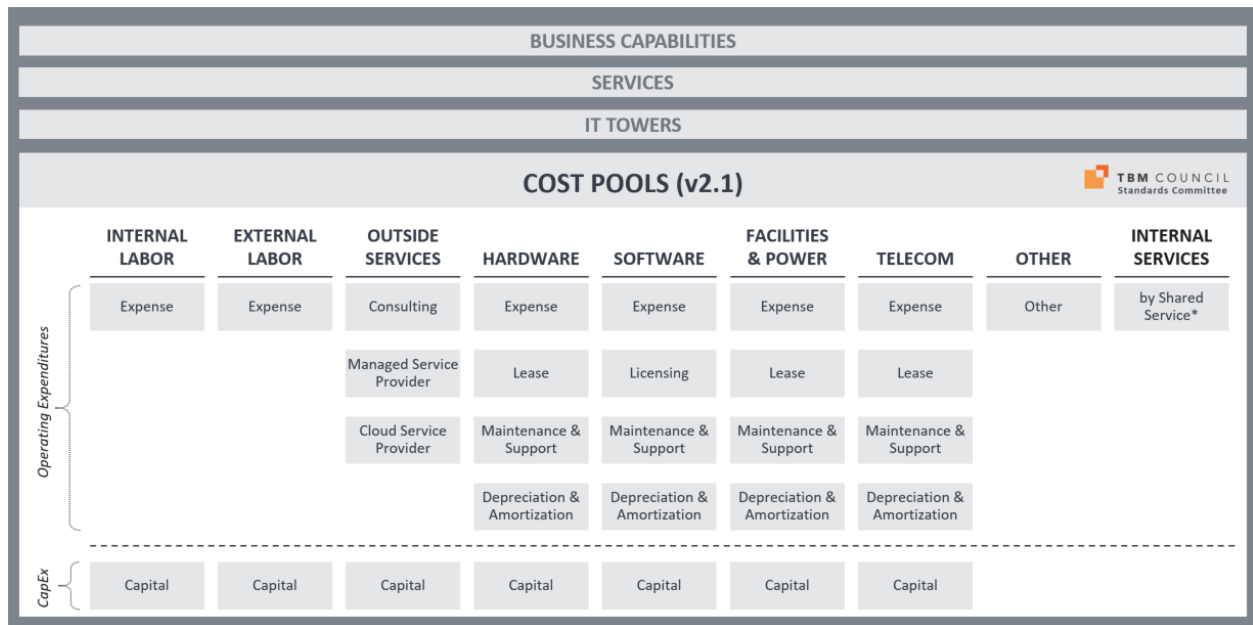


Figure 3: Finance Layer: Cost Pool and Sub-Pool Summary View

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| Cost Pool | Cost Sub-Pool | Description |
|--------------------------------------|-----------------------------|--|
| Operating Expenditures (OpEx) | | |
| Internal Labor | Expense | Employee wages, benefits, expenses & occupancy. |
| External Labor | Expense | External contractor fees, travel, and expenses. |
| Outside 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 | 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. |
| Software | 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 | Expense | Data center space, power, security and other operating expenses (e.g., co-location facility services, electricity, water, etc.). |
| | Lease | Data center lease expenditures. |

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| Cost Pool | Cost Sub-Pool | Description |
|-------------------------------------|-----------------------------|--|
| | 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). |
| Telecom | 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 <i>Facilities and Power</i> 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 |

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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., app dev, app support and maintenance) 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 application and service owners.

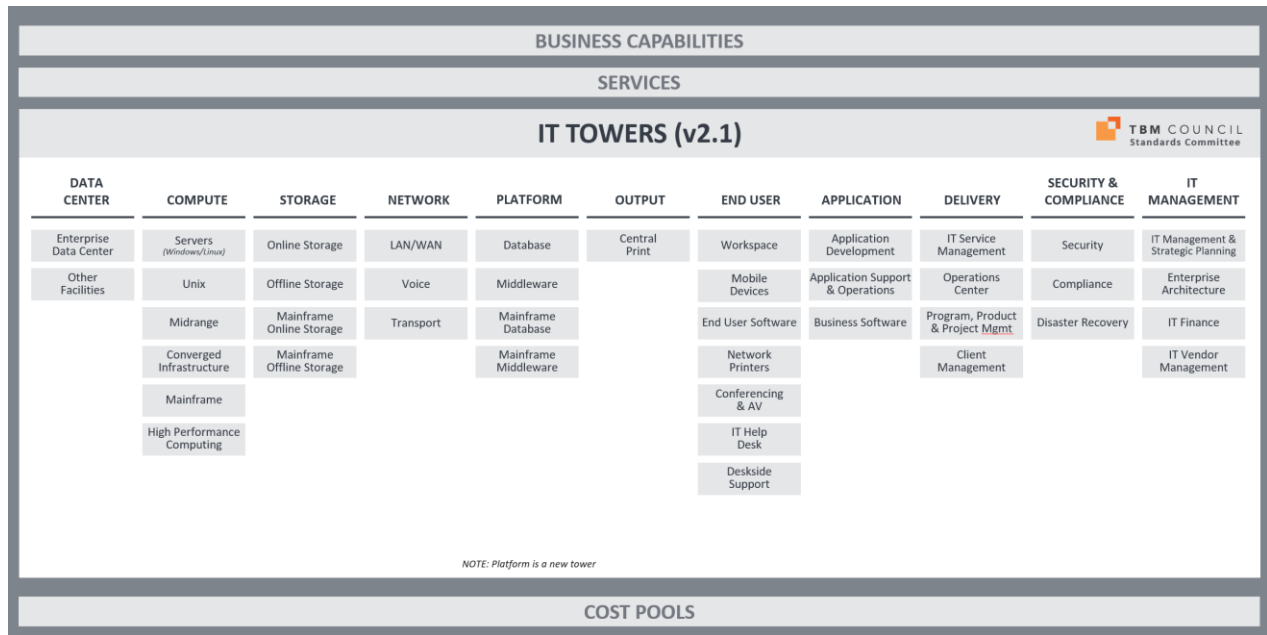


Figure 4: IT Layer: Tower and Sub-Tower Summary View

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

| Tower | Sub-Tower | Description |
|-------------|------------------------|--|
| Data Center | 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. |
| Compute | 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. |

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| Tower | Sub-Tower | Description |
|----------------|----------------------------|--|
| | 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. |
| | High Performance Computing | 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. |
| | Mainframe | Traditional mainframe computers and operations running legacy operating systems. |
| Storage | 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. |

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| Tower | Sub-Tower | Description |
|-----------------|----------------------|---|
| Network | 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). |
| | 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 | 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 | Central Print | Central print services; often provided to support customer billing or customer documentation support processes. Unit of measure: page. |

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| Tower | Sub-Tower | Description |
|--------------------|----------------------------------|---|
| End User | 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. |
| Application | 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. |

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| Tower | Sub-Tower | Description |
|----------------------------------|---------------------------------------|---|
| | Business Software | Software expenditures including licensing, maintenance and support related to off-the-shelf software purchases. |
| Delivery | 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). |
| Security & Compliance | 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). |

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| Tower | Sub-Tower | Description |
|---------------|------------------------------------|--|
| | Disaster Recovery | <p>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.).</p> <p>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).</p> |
| IT 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. |

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Business Layer: Services Definitions

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.

The following graphic represents the service hierarchy including service types, services categories and services defined in the TBM taxonomy.

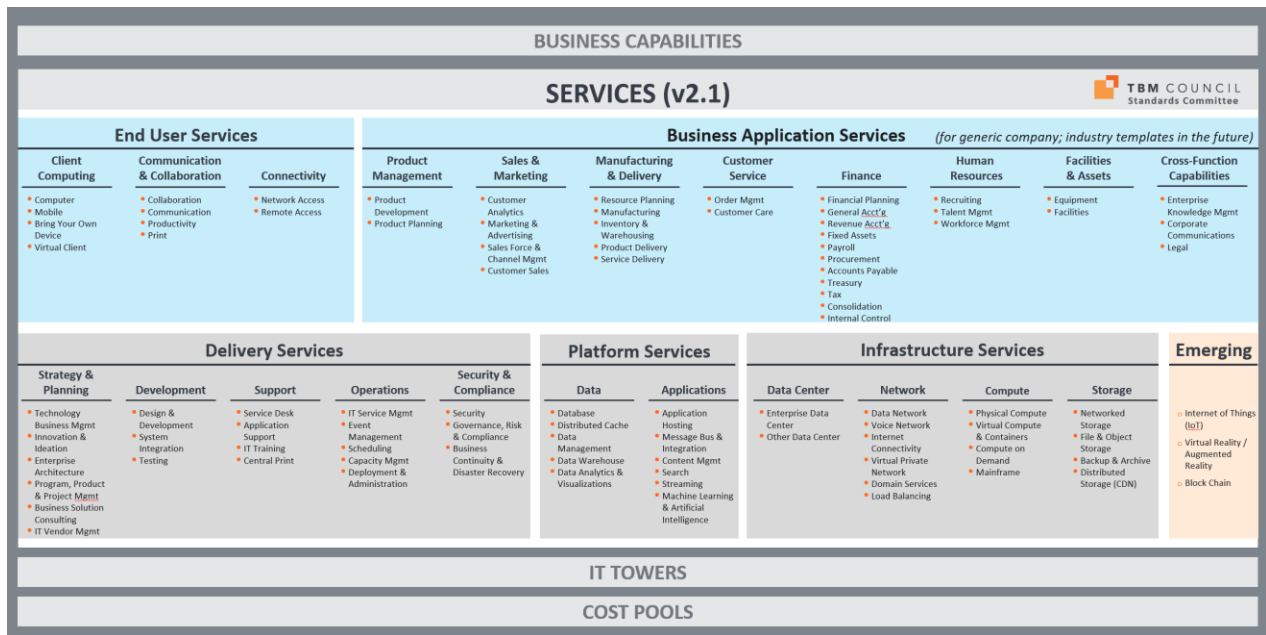


Figure 5: Business Layer: Services Summary View

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.

| Services Hierarchy | | Example |
|---------------------|---------------------------------|--------------------|
| 1. Service Type | Standardized TBM Taxonomy | ➤ End User |
| 2. Service Category | | ➤ Client Computing |
| 3. Service Name | | ➤ Computer |
| <hr/> | | |
| 4. Service Offering | Customer specific modifications | ➤ Standard Desktop |
| | | ➤ Dev Workstation |

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 Application Services** are delivered by IT to enable constituent focused capabilities that enable the business to sell its products or services, to serve its customers; and to automate and support the organization’s internal operations.
- **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.

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). 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 table defines the services in the standard TBM taxonomy.

| Category | Name | Description |
|--|-----------------------|---|
| Type: End User Services | | |
| Client Computing | 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. |
| | 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 | 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. |

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| Category | Name | Description |
|---------------------|----------------|--|
| | 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. |
| Connectivity | 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. |

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| Category | Name | Description |
|--------------------------------|--------------------------------|--|
| Type: Delivery Services | | |
| Strategy & Planning | 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. |
| | 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, and performance management. |

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| Category | Name | Description |
|-------------|---------------------------------------|---|
| | Program, Product & Project Management | <p>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.</p> <p>Representative service offerings for this service include: Portfolio Investment Planning, Project Planning & Delivery, and Continuous Planning & Delivery.</p> |
| Development | 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. |
| | 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 | 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. |

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| Category | Name | Description |
|----------------|-----------------------|---|
| | 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. |
| Support | 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. |

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| Category | Name | Description |
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| | 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. |
| Security & Compliance | Security | IT Security services which set security policy, establish process & controls, monitor compliance to security controls, and respond to security breaches. It includes the protection of information systems from theft or damage of the hardware, the software and the information on them, as well as from disruption or misdirection. Specific areas included: identity & access management, awareness & engagement, cyber security, incident management, threat & vulnerability management, and data security. |
| | 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. |

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| Category | Name | Description |
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| Type: Infrastructure Services | | |
| Compute Services | 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. |
| Data Center Services | 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 | 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. |

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| Category | Name | Description |
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| | 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-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 | 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. |

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| Category | Name | Description |
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| Type: Platform Services | | |
| Application 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. |
| | Streaming | Services that deliver live and on-demand media streams including audio and video. |
| | 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. |
| | 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. |
| | Machine Learning & Artificial Intelligence | Machine Learning and Artificial Intelligence 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 | 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. |

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| Category | Name | Description |
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| | 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. Also includes real-time streaming analysis of data by providing low latency, highly available, scalable complex event processing over streaming data in the cloud. |

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| Category | Name | Description |
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| Type: Business Application Services | | |
| 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, 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. |

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| Category | Name | Description |
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| | Resource Planning | Applications and services that enable demand forecasting, demand planning, and partner sourcing. |
| Customer Service | 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. |
| Facilities & Assets | Order Management | Applications and services that enable order management, contract management, pricing optimization, billing and payment processing. |
| | Equipment | Applications and services that enable preventative maintenance scheduling and delivery. |
| | Facilities | Applications and services that manage property acquisition, construction, lease-hold improvements and maintenance. |
| Finance | Accounts Payable | Applications and services that enable accounts payable and expense reimbursements. |
| | Consolidation | Applications and services that enable international rates management, currency management, global consolidation and reporting. |
| | Financial Planning | Applications and services that enable resource planning, project planning, operating expense planning and capital planning. |
| | General Accounting | Applications and services that enable general accounting, fixed assets accounting, financial reporting, project accounting. |
| | Internal Control | Applications and services that manage the financial audit and compliance activities. |
| | Payroll | Applications and services that enable time reporting, payroll and payroll taxes. |
| | Procurement | Applications and services that enable sourcing strategies, vendor selection, contract management and procurement. |

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| Category | Name | Description |
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| | Revenue Accounting | Applications and services that enable customer credit scoring, customer invoicing, accounts receivable, collections and adjustments/deductions. |
| | Tax | Applications and services that manage tax and treasury, including Sales tax, tax filing, |
| | Treasury | Applications and services that enable treasury policies, cash management, bank accounts, debt, investments and financial risks. |
| Human Resources | Recruiting | Applications and services that enable employee recruitment, sourcing, selection and hiring. |
| | Talent Management | Applications and services that enable employee development, employee performance management, rewards and employee retention. |
| | Workforce Management | Applications and services that manage employee information and enable employee deployment, time tracking, relocation, promotion, separation, compensation planning, benefits and retirement. |
| Cross Function Capabilities | Enterprise Knowledge Management | Applications and services that enable enterprise-wide knowledge management capabilities typically focused on organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration, and continuous improvement of the organization. |
| | Corporate Communications | Applications and services involved in managing and orchestrating all internal and external communications. Includes employee communications, board of director relations, investor relationships, government and industry relationships, and public relations. |
| | Legal | Applications and services that manage legal and ethical policies, compliance, intellectual property protection, agreements and contract management. |

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 two (2) co-chairmen (James LaPlaine, CIO, AOL and Rahul Auradkar, VP of Products, Apptio), 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.