

# Towards A High-Level Business Architecture Methodology for Enterprise IT Strategy

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## Abstract

Due to the rapid development of enterprise digital transformation and the dynamic and changeable nature of enterprise strategy, the traditional enterprise business architecture methodologies are cumbersome for many enterprise IT strategy projects. To solve this problem, this paper proposes a high-level business architecture methodology, which is more suitable for application and promotion in enterprise IT strategy projects. This paper describes the application process of this methodology and illustrates its application results through the practical example.

## Keywords

Digital transformation, IT strategy, Business architecture

## 1. Introduction

Enterprise digital transformation has become an inevitable choice of many enterprises. A digital strategy is a means of embracing new and different technologies in ways that challenge operational and value assumptions and which integrate them with existing technologies to deliver new products, services, business models, revenue streams and/or customer/stakeholder experiences [1]. In fact, in the practice of enterprise digitalization, enterprise digital strategy is often the evolution of enterprise IT strategy. Even in some enterprises, digital strategy and IT strategy are implemented in one. Therefore, in this paper, our view is that the approach of IT strategy is equally applicable to digital strategy, no longer entangled in the conceptual difference between the two.

In June, 2021, Tencent Research Institute released the digital transformation report of China state-owned enterprises. Through the research questions of more than 60 enterprises, it was found that the main challenge of digital transformation in various industries was not the lack of leadership support and financial support, but the difficulty in integrating digital technology and business scenarios, resulting in many enterprises not knowing where to start to promote the digital transformation [2]. Enterprise IT strategy is the methodology to solve this dilemma, and among them, business architecture plays a key role as a bridge connecting enterprise strategy and IT strategy [3,4].

Business architecture is the set of structures and stories that underpin “the business of the business”. The structures might include higher-level concerns such as business models, organizational structures, brand architectures, and financial structures [5]. According to TOGAF (The Open Group Architecture Framework), business architecture defines the business strategy, governance, organization, and key business processes [6].

Due to the complexity of traditional business architecture methodologies, the design and delivery of business architecture are often completed by professional IT consulting companies in enterprise IT strategy planning projects. In fact, because of the dynamic and changing nature of enterprise strategy [7,8], a more operational and flexible business architecture is often needed. Based on the review of

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business architecture methodologies, this paper proposes a high-level business architecture methodology to make it more suitable for enterprise IT strategy practice.

## 2. Existing business architecture practices

In the practice of enterprise IT strategy over the past few decades, there are two typical business architecture methodologies. One is from IT consulting companies such as IBM and Accenture, and the other is that some industry organizations provide such methodologies. Below, this paper will illustrate these two methodologies with examples.

### 2.1. Component business architecture

Summarizing many enterprise IT strategy projects and establishing typical component business models of enterprises in various industries is the quintessence of IT consulting company methodology. The Component Business Model (CBM) developed by IBM is a typical representative of this type of methodology [9].

		Business competencies				
		Customers	Products/ services	Channels	Logistics	Business administration
Accountability level	Direct	Market strategy	Merchandise planning	Channel strategy	Network design	Corporate strategy
			Channel planning	Store design		
		Customer service strategy	Assortment planning	Real estate strategy	Warehouse design	Corporate planning
	Space planning		Internet design			
	Promotion planning		Catalog/call center design	Demand/flow planning	Financial planning	
	Market strategy	Product development			Corporate governance	
			Sourcing			
	Control	Campaign management	Product flow	Channel management	Inbound routing	Business performance management
			Planogramming	Labor management		
			Allocation	Order management	Receipt scheduling	Treasury and risk management
			Inventory mgt/OTB	Real estate construction and facilities management		Delivery scheduling
		Service management	Demand forecasting		Carrier management	IT systems and operations
			Price management			
			Content management			
			Vendor management	Loss prevention		
Execute	Customer service	Item management	Order management	Warehouse management	Financial accounting and reporting	
	Customer communications	Product management	Inventory management	Transportation management	Indirect procurement	
		PO management				
	Marketing	Vendor management	Merchandise management	Fleet management	HR administration	
	Advertising	Replenishment				
	Public relations	Revenue/clearance management	Price/sign management	Reverse logistics	IT systems and operations	

Source: IBM Global Business Services.

**Figure 1:** IBM CBM Example for Retail Industry

Figure 1 is an example of IBM CBM for the retail industry. As shown in the figure, in the CBM business architecture, responsibility levels are set vertically, usually divided into three levels.

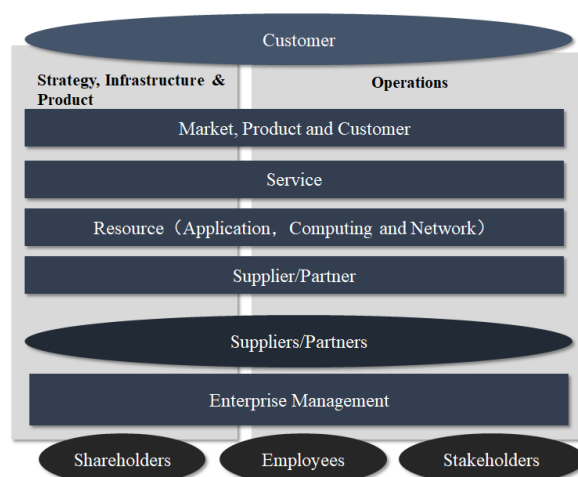
1. Direct: Responsible for strategy, overall management, and policy formulation.
2. Control: Responsible for monitoring, managing exceptions, and making decisions at the tactical level.
3. Execute: Responsible for daily work and implementation of specific matters.

Through the CBM, a componentized view can be established for an enterprise to help the enterprise analyze the status and gaps of its business architecture and organizational capabilities in various special fields. Through the analysis of the CBM business architecture, the enterprise management can determine which business components should be paid attention to so as to bring more value to the enterprise, including consolidating competitiveness, creating profit growth, and bringing about cost optimization. And these analysis results are the important basis for guiding enterprise IT strategy planning.

## 2.2. Industry reference business architecture

In some industries, industry organizations will take the lead in formulating and publishing reference business architectures for the industry. For example, the ACORD reference framework published by the insurance industry international organization ACORD (Association for Cooperative Operations Research and Development) contains seven industry models closely related to the insurance industry; the SCOR (Supply the Chain Operations Reference) reference architecture defines the three-level business architecture of the supply chain industry; the eTOM (enhanced Telecom Operations Map) released by the TeleManagement Forum has become an industry standard for telecom operators' operations management.

This paper takes eTOM as an example to illustrate the industry reference business architecture [10].



**Figure 2:** eTOM Level0 Process Framework

eTOM includes four levels of business architecture views from Level0 to Level3. Level0, also known as the conceptual framework, is an overall description of the telecom operator's enterprise environment, as shown in Figure 2. In this view, eTOM is divided into three main process areas: Strategy, Infrastructure and Product (SIP); Operations Processes (OPS); Enterprise Management (EM). In addition to these three areas, eTOM is further divided into four levels of functional process areas: Market, Product and Customer; Service; Resource; Supplier/Partner/Partner. eTOM provides a business architecture blueprint from best practices for telecom operations, and has become an important concept and key component of NGOSS (Next Generation Operations System and Software) in the global telecom industry.

## 3. Enterprise high-level business architecture requirements

The above two typical enterprise business architecture methodologies have been applied in many enterprise IT strategies. However, because the enterprise strategy itself is often dynamic and changeable, it is often necessary to adjust and reconstruct the enterprise business architecture in a timely manner, and the above traditional methodologies are too heavy. Enterprise IT strategy mainly needs to ensure consistency with the enterprise strategy, rather than going into the details of the enterprise process. In this regard, the enterprise high-level business architecture is more suitable for providing effective input to the IT architecture in terms of direction and structure.

Therefore, the point of this paper is to establish an easy to implement high-level business architecture methodology, which should meet the following requirements.

### 1. Focus on high-level business architecture

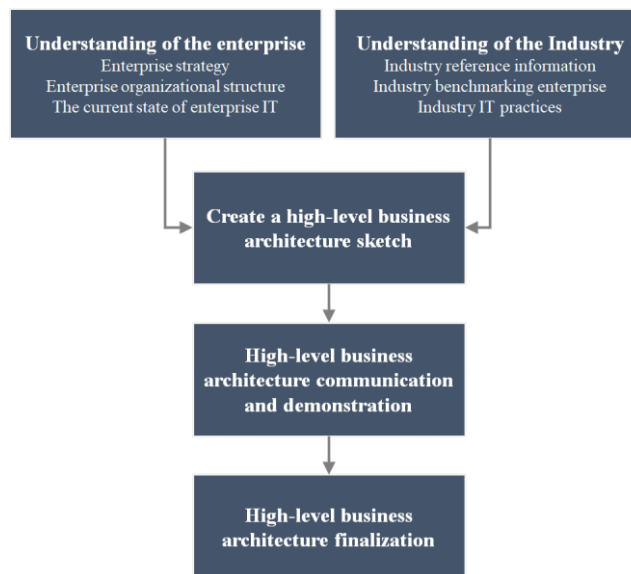
Enterprise IT strategy planning is the top-level design for the overall IT of the enterprise, and takes the business architecture as an important foundation. In this field, the enterprise business architecture should be a high-level business architecture that can match the enterprise strategy and help IT strategy planners build the work foundation of IT strategy planning from an overall view of the enterprise.

## 2. Componentization is the right choice

Whether it is the practice of consulting companies or the research of industry organizations, it is obvious that the componentization approach is the basic tool of business architecture. Starting from the business capability, through the relationship analysis between them, just like building the architecture of a computer system, by defining and using business components to build the business architecture view of an enterprise. This business architecture can become an important tool for IT strategy planners to communicate and analyze with enterprise management, operation, execution and internal and external technical teams, making it an important foundation for IT strategy planning.

## 4. A high-level business architecture methodology

The high-level business architecture methodology proposed in this paper is shown in the following figure.



**Figure 3:** A High-Level Business Architecture Methodology

### 4.1. Understanding of the enterprise

The target enterprise should be understood from three aspects.

#### 1. Enterprise strategy

From the perspective of business architecture, the most important thing to understand enterprise strategy is to grasp the business model, development vision and strategic path of the enterprise. This determines the target business architecture required by the enterprise.

#### 2. Enterprise organizational structure

An enterprise's internal business units and department settings are the basis for the definition of enterprise business components. At the same time, the process of implementing many enterprise strategies is often a process of organizational structure adjustment. Therefore, the current organizational structure of the enterprise and the foreseeable adjustment of the organizational structure are the important basis for the construction of the business architecture.

#### 3. The current state of enterprise IT

In the business architecture, it should not only be limited to business and management, but should also incorporate the current state of enterprise IT into the scope of business architecture work. Especially for enterprises that rely on IT to carry out business with a high degree, their IT status is often a concrete manifestation of the actual situation of enterprise management and business. Taking the current state of enterprise IT into account in the business architecture will help the business architecture conform to the actual situation of the enterprise.

## 4.2. Understanding of the industry

The enterprise business architecture cannot be separated from the industry of the enterprise. The industry of the enterprise can be understood from the following three points.

### 1. Industry reference information

Industry reference information from authoritative and professional industry organizations, industry regulatory agencies, and professional research institutions is the most valuable. Industry reference business architectures like eTOM are obviously very helpful to the construction of enterprise business architectures. However, such mature industry reference business architectures are rare. In many industries, there is often no reference business architecture to obtain. In this case, a structured industry understanding framework can be established by means of multi-angle information collection and comprehensive induction.

### 2. Industry benchmarking enterprise

Since the business architecture itself needs to carry the goal of implementing the enterprise strategy, many companies often build their enterprise strategy based on the benchmarking enterprise in the industry. Therefore, if the benchmarking enterprises can be determined, the business architecture of the benchmarking enterprise is often of great reference significance. In most cases, the benchmarking enterprise is often a listed company, and its annual report, industry research report for it and other related information often describe its business architecture in a relatively complete manner.

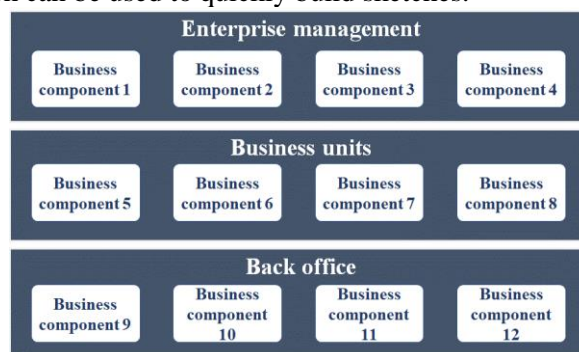
### 3. Industry IT practices

Industry IT practices, especially those of benchmarking enterprises, often contribute to the development of business architecture. Under the current wave of enterprise digital transformation, technology-driven business architecture transformation and upgrading has become an unavoidable and important trend. Therefore, in the business architecture, we must also pay attention to the evolution direction and specific form of business architecture brought about by industry IT practices.

## 4.3. Create a high-level business architecture sketch

It is a very necessary choice for the business architecture of the IT strategy planning project to build a high-level business architecture sketch as soon as possible and carry out communication and demonstration.

If the industry to which the target enterprise belongs has an industry reference business architecture, it is the best way to build a sketch by directly tailoring it. However, most enterprises often do not have this industry reference business architecture. Here, this paper proposes the following three-tier architecture method, which can be used to quickly build sketches.



**Figure 4:** Example of the three-tier business architecture

As shown in figure 4, any enterprise can be divided into three tiers to build a high-level business architecture. First, the enterprise management, which is often the business component that needs attention for the overall governance, management and operation of the enterprise, such as strategy management, investment management, business assessment, etc. The second is the business units. The business units of enterprises in a single industry are usually divided according to the business chain or industrial chain. The business units of cross industry enterprises often become one unit in one industry. The third is the back office, which includes typical backstage functions of enterprises such as

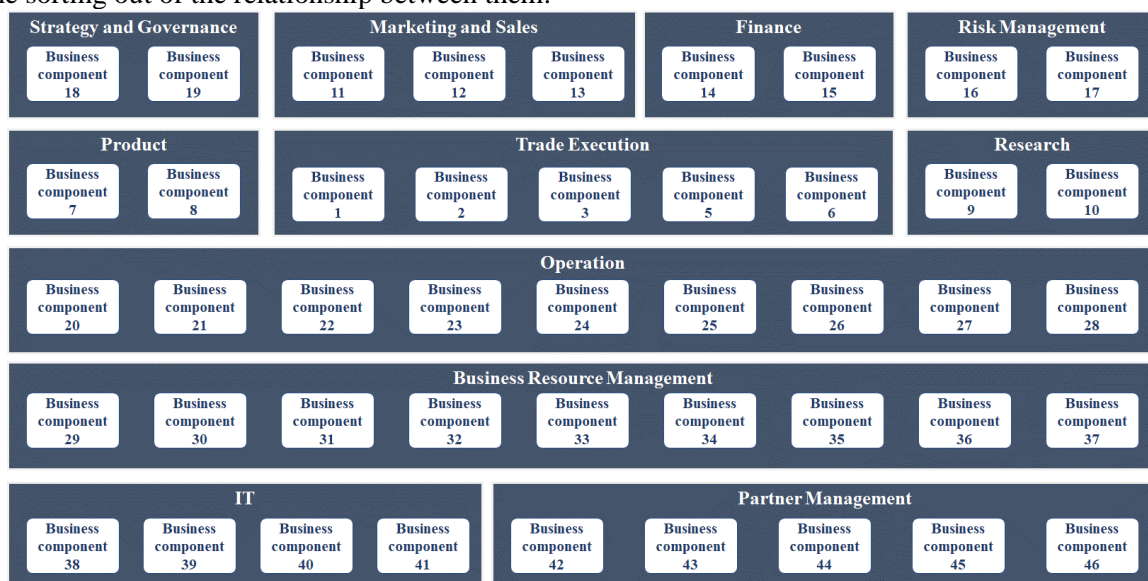
administration, finance and human resource, and may also include backstage support capabilities such as operation, risk and compliance in combination with industry characteristics.

#### 4.4. High-level business architecture communication and demonstration

Carrying out communication and demonstration work based on the sketch of the enterprise's high-level business architecture is an inevitable process to complete the delivery of it. Typically, this can be done using a two-step method.

The first is to preach and guide. This needs to explain the logic and supporting basis for the construction of the sketch to the middle and senior managers of the enterprise, and lay a foundation for understanding and consensus for communication and argumentation.

The second is hierarchical communication and demonstration, demonstrating the overall logic of the high-level business architecture with the CEO and CXO, and communicating with the middle and senior managers of each business unit and department to demonstrate the definition of each component and the sorting out of the relationship between them.



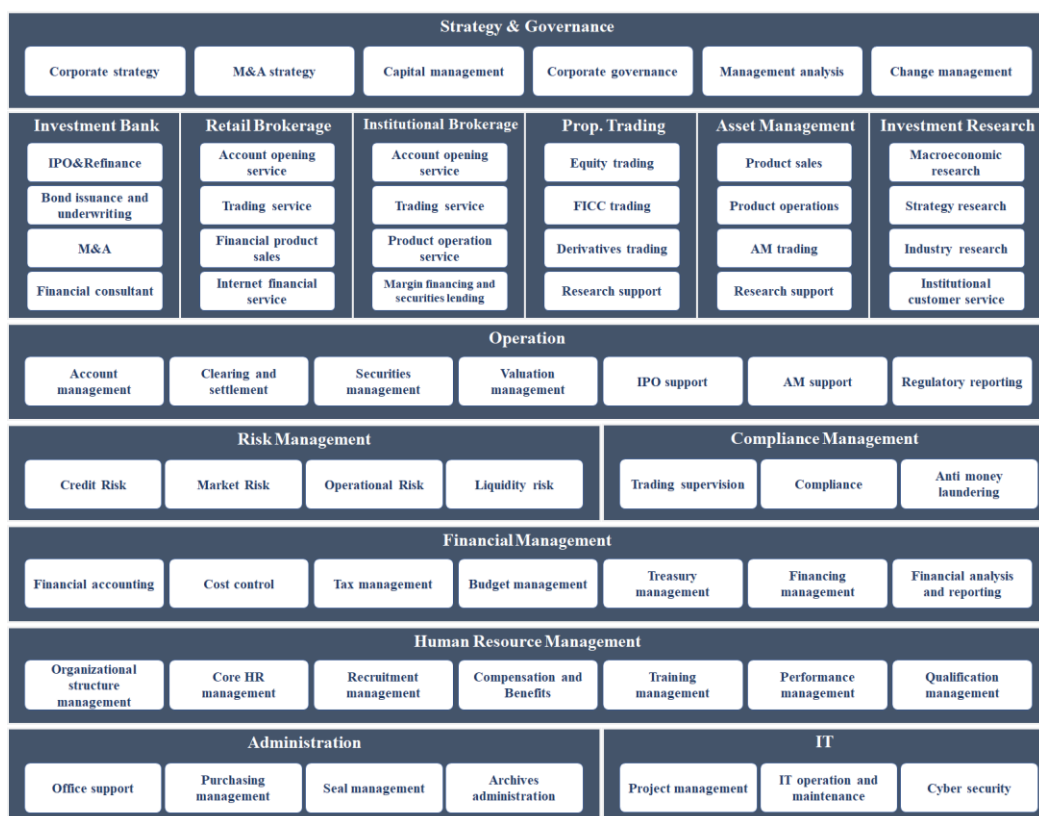
**Figure 5:** Example of business architecture from the perspective of the CEO of a capital markets company

In IT strategy practice, the most critical stakeholder is the CEO. Enterprise business architecture should be constructed from the CEO's perspective as much as possible. The so-called CEO's perspective is to construct the grouping, hierarchy and relationship among business components from the CEO's point of view, so as to conform to the CEO's understanding logic and management ideas. For example, for a company engaged in capital market industry, the high-level business structure from the CEO's perspective may be as shown in the figure 5, with trade execution as the core, and expansion from the center to the outside according to the degree of attention, forming different areas of competence.

#### 4.5. High-level business architecture finalization

Through communication and argumentation, after obtaining the support of the middle and senior management of the enterprise, the finalization of the enterprise's high-level business architecture can be completed. In the subsequent IT architecture design, this high-level business architecture will serve as the most important basis, and also provide a foundation for the middle and senior leaders of the enterprise, who are often not IT professionals, to understand the IT architecture.

## 5. Example of the methodology application



**Figure 6:** Example of the high-level business architecture of a typical Chinese domestic securities company

The high-level business architecture methodology proposed in this paper has been applied in many enterprise IT strategy projects. Here, the application results are illustrated through the high-level business architecture of a typical Chinese domestic securities company, as shown in the figure 6.

In terms of strategy and governance, senior managers will focus on enterprise strategy, M&A strategy, capital management, governance mechanisms, management analysis and change management.

In terms of business units, the business of a typical securities company generally includes investment banking, retail brokerage, institutional brokerage, proprietary trading, asset management, and investment research. Each business unit will be composed of corresponding business components according to its business attributes.

Usually, securities companies will build a centralized operation support department for each business segment and provide operation support services, including account management, clearing and settlement, securities management, valuation management, IPO support, AM support, and regulatory reporting.

Risk management and compliance management have become key middle-office functions of securities companies. Risk management includes credit risk, market risk, operational risk and liquidity risk; compliance management covers trading supervision, compliance management, and anti-money laundering.

Financial management, human resource management, administration and IT management are all important support functions and are usually incorporated as a supporting part of the business architecture.

## 6. Conclusions

Facing the practice of enterprise IT strategy, this paper proposes a high-level business architecture methodology. Compared with the existing methodologies, this methodology has three characteristics.

First, it is higher-level, which is easier for CEOs and CXOs to understand; second, it is convenient for continuous adjustment and improvement from the overall perspective of the enterprise, rather than being trapped in the specific process of the enterprise, which helps to be consistent with the enterprise strategy; third, it is more suitable for IT strategy planners to master, and is conducive to promotion and use in enterprise IT strategy projects.

Undoubtedly, the application of this methodology requires a systematic understanding of the industry to which the target enterprise belongs. Therefore, in the future work, the research and setup of high-level business reference architectures for those industries with high demand for digital transformation will be more conducive to the practice of this methodology in enterprise IT strategy projects.

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