



KAPITEL 10 / CHAPTER 10¹⁰
**METHODOLOGY FOR BUILDING THE ARCHITECTURE OF BUSINESS
PROCESSES AND FINANCIAL MANAGEMENT SYSTEMS IN IT**
DOI: 10.30890/2709-2313.2025-45-01-040

Introduction

Modern information technology organizations are faced with the need to effectively integrate business processes and financial systems to achieve strategic goals. Enterprise architecture serves as a strategic framework that creates a business strategy, shapes business processes, creates an information environment and technologies of the organization [1-2]. An architectural approach provides a holistic view of the company and optimizes the interaction between business and IT for optimal functioning. In the context of financial management, this is especially important, since financial processes permeate all aspects of the business. Without a proper methodology for creating architecture, there is a risk that IT solutions will be developed separately from business needs, creating a gap between corporate strategy and the execution of operations. One of the important tasks is to formalize business processes and align them with the company's IT development plan [3]. Therefore, there is a need for a scientifically sound methodology that can design business processes and financial systems in the IT sector in such a way that IT solutions support business goals, and business processes are effectively integrated with the financial management system.

This study presents the architecture of business processes and the theoretical justification of the financial system of the enterprise, and also proposes methodological approaches to their construction. The conceptual principles of business architecture and business process architecture are considered, the methodology for developing business process architecture is presented. Special attention is paid to the architecture of the financial management system and the phased methodology for building the architecture of the financial system. The importance of using a holistic methodology for integrating business processes and financial management in the IT sector forms the relevance of the selected topic for further research.

¹⁰ *Authors: Bershadska Kateryna*
Author's sheets: 0,52



10.1 Theoretical foundations of business process architecture in IT

To create a methodology, it is necessary to understand the essence and concept of business process architecture, as well as to determine the role it plays in ensuring the efficiency of an enterprise in the IT sector. Business architecture is generally defined as a discipline that describes and designs the general structure of an organization to its business processes, information flows, organizational structure and technological infrastructure [1]. It acts as a kind of combination between the strategic goals of the enterprise and their operational implementation [1]. One of the components of business architecture is business process architecture, which is a hierarchical model of all the main processes of the organization and the relationships between them [4]. Therefore, business process architecture should be understood as a hierarchy of enterprise activities - from the highest level (value chain) to detailed processes and workflows. According to practical recommendations, a process architecture is being developed that includes not only a list of processes, but also related resources, documentation, performance indicators and management mechanisms [4].

It is important to emphasize that process architecture is not isolated, it is an integral part of the overall corporate architecture of the organization [4]. Enterprise architecture establishes a common “business-IT map”, where business processes are coordinated with information systems and technologies, aimed at creating a “blueprint” of the enterprise, a general description of the structure and functions, often in the form of a business opportunity map or process model [2]. Business process architecture defines how organizations create value through their processes, and provides transparency and manageability of these processes for management.

In the IT sector, business architecture helps to solve the typical problem of the gap between business and IT and offers standardized and unified approaches to processes across departments, eliminating clutter and duplication of tasks [2]. As a result, a properly designed business process architecture orients IT activities to support business goals. Using an appropriate corporate architecture framework contributes to this alignment. The TOGAF (The Open Group Architecture Framework) standard is



widely known, it is a methodology for developing and implementing architecture, based on the cyclical ADM (Architecture Development Method) process and many years of experience. TOGAF covers the stages of creating business, data, application and technology architecture, from the vision phase to implementation and control. Another approach is presented by the Zachman methodology, which provides a matrix structure for representing architecture from different perspectives (owner, designer, developer, etc.) and aspects (data, function, network, people, time, motivation). Common to such approaches is the desire to ensure integrity, that is, that business processes, information systems (including financial) and infrastructure work as a single system [2].

Business process architecture in the IT industry represents a conceptual framework that describes what an organization does (process sets), how it does it (process sequence and structure), and why these processes are performed (goals and value created). A well-designed process architecture allows management to make informed decisions about optimizing operations, IT solutions, and investments. Next, we will discuss the methodology for creating such an architecture.

10.2 Methodology for developing a business process architecture

Developing a business process architecture is a multi-step process that includes analytical and design work. Several approaches and methods for designing an architecture have been proposed in the scientific literature, although their empirical evaluation has been limited. However, there are several generally accepted steps that must be followed to create an effective process architecture [5]. These steps can be organized as follows.

1. Defining goals and structure. At an early stage, the goals of creating the architecture are clearly defined. It is important to determine what the company wants to achieve with the help of process architecture - increasing efficiency, reducing costs, improving service quality, or aligning processes with the strategic goals of the organization. Formulating clear goals helps to focus all future work [6].



2. Defining key business processes. Next, the processes are listed and structured. The main processes that create value for customers or internal consumers and generate competitive advantages are identified. Larger and more complex processes should be broken down into subprocesses and steps, which facilitates their analysis. At this level, it is appropriate to create a high-level map of the enterprise processes, for example, in the form of Michael Porter's value chain or another model that reflects "what the company does" (mission/value level) [6-7].

3. Documenting and modeling processes. A detailed description or model is developed for each main process. Graphical modeling tools are used - flowcharts, BPMN diagrams (Business Process Model and Notation), flowcharts, SIPOC diagrams, etc. to record all process steps, responsible executors, input and output data. For example, one approach is a three-level modeling of the process architecture: at level 1, the mission and main value are defined (value chain), at level 2 - the main functions and processes with their inputs and outputs (SIPOC diagram), at level 3 - detailed processes and workflows (BPMN notation). Such a multi-level model provides a holistic view of "why" the process exists, "what" it processes, and "how" it is performed in practice [2, 6].

4. Analysis and improvement. After correcting the current processes (the so-called "as is" model), they are critically analyzed. The goal is to identify bottlenecks, duplication, unnecessary steps, delays, or other inefficiencies. Based on this, a target process model ("what should be") is created, in which changes are proposed: eliminating unnecessary steps, simplifying approvals, automating manual operations, etc. At this stage, it is advisable to involve employees from different departments in discussing process problems - a cross-functional approach allows you to take into account different points of view and find better solutions [6].

5. Standardization and automation. The developed target process architecture is implemented by setting standards for process execution and using IT tools. It is important to document best practices for each process and develop rules that ensure a unified approach to work. Modern IT systems (business process management systems, BPM platforms) can be used to automate specific or routine tasks, increase productivity



and reduce the likelihood of errors. The introduction of technologies should take place after direct analysis - first, those parts of the processes are automated where it will bring the greatest return (for example, integration with systems, elimination of double data entry, etc.) [6].

6. Communication and training. The success of changes in business processes largely depends on the human factor. Therefore, it is important to convey the essence and necessity of changing procedures to all employees. The communication strategy should include an explanation of the benefits for the organization and employees from implementing a new process architecture (faster task completion, clearer areas of responsibility, less bureaucracy, etc.). At the same time, employees are trained in new processes, working with updated IT systems and implementing standards. Training and coaching should cover all levels - from key process managers (process owners) to individual operators [4, 6].

7. Monitoring and Adjustment. Creating a business process architecture is not a one-time event, but an ongoing process. After implementing new process solutions, a process performance indicator (KPI) monitoring system and feedback mechanism should be established. By regularly measuring results (process cycle time, process costs, customer satisfaction, etc.) and comparing them with their expectations, organizations can identify deviations and make appropriate adjustments. It is important to keep the process architecture up to date: if there are changes in the business environment (new services, technologies, regulatory requirements), this should be reflected in the process model. Continuous improvement Q Action-based management is key - regular review and optimization of BPA ensures that processes are effective, in aligned with the strategy and supported by the appropriate IT infrastructure.

Following these steps provides a systematic approach to creating a business process architecture. As a result, the organization receives several benefits, including a transparent view of its activities, consistency of processes among themselves (taking into account inter-process dependencies and eliminating conflicts), a focus on creating value for the customer at all levels of the process hierarchy, as well as a solid foundation for automation and digital transformation. A well-designed business



process architecture becomes a practical management tool that helps managers make decisions based on process data and implement changes with less risk [4].

It is clear that specific methodologies may differ in detail, but the above steps are similar for most of them. The resulting business process architecture forms a solid foundation on which the architecture of information systems, especially financial management systems, is built, as discussed below.

10.3 Architecture of the Financial Management System in the IT Sector

A financial management system is a set of software tools and processes designed to manage all financial operations of an organization: from daily transactions to long-term financial planning [8]. In the modern IT sector, such systems are the basis for business operations, linking financial functions with other business processes. As a rule, the system is based on accounting (general ledger modules, accounts receivable and accounts payable, etc.) and is closely integrated with broader enterprise resource planning systems to ensure financial transparency and compliance with regulatory standards. Thus, the financial system is not isolated, but is part of a single information space of the enterprise, where financial data is linked in real time with operational data of other departments (sales, production, purchasing, human resources management, etc.) [8].

Let us consider in more detail the integration of business processes through ERP. Modern ERP systems act as a technological foundation that unites the main business processes of the company on a single platform. The ERP system acts as a technological foundation that connects key processes and a common database for all departments in real time [9]. Architecturally, the financial management module is one of the central components of ERP, closely related to other modules. For example, a typical set of ERP modules includes: finance and accounting, human resources management, supply chain management (purchasing, warehousing, logistics), sales and distribution, customer relationship management (CRM), project management, etc. Each module automates a certain group of processes: financial - transactional accounting (accounts



payable and receivable), general ledger - HR roles, general SCM data, in particular warehouse operations and distribution, etc. The basis of such an architecture is close integration. Data entered into one module is immediately available to other modules, which eliminates the gap between departments. For example, making a sale in the CRM module automatically updates the warehouse balance (delivery module) and reflects revenue in the financial module. This means that all departments work with the same up-to-date information, reducing the number of errors and coordinating the actions of departments. Architecturally, ERP is a single platform with different modules united by a common database and business logic, which ensures the integrity of data and processes [9].

Specific requirements for financial systems are set in accordance with the chosen architecture construction methodology. Unlike some other corporate systems, financial systems have increased requirements for accuracy, security and compliance with regulatory requirements. Financial information is a critical asset, errors or leaks of which can have catastrophic consequences. Therefore, the architecture of the financial system is designed with reliability and control in mind. The system must support regulatory requirements (financial reporting in accordance with accounting standards, tax legislation, IFRS or local GAAP standards). Modern ERP financial modules integrate these requirements into the logic of the program, constantly update them as legislation changes, and even provide tools for auditing. In particular, a well-managed financial system has detailed audit logs of all transactions, so you can track which transactions were made and when. This greatly facilitates both internal control and external audit, reducing the risk of errors and fraud. Built-in access control mechanisms ensure that financial operations can be performed only by authorized employees: the distribution of rights between accountants, cashiers, financial managers, etc. is ensured by user roles and authorization rules [9]. In addition to security and compliance, the architecture of financial software must meet the requirements of high performance (fast processing of a large number of transactions, fast reporting), reliability (failure resistance, data backup) and scalability (the ability to support the growth of data and users as the business grows). Therefore, a multi-tiered application architecture is often



used: presentation layer - logic layer - data layer. The division into layers allows the system to be scaled, simplifying its maintenance and updating [10]. For example, in a typical financial system, at the top level is the user interface (web application or client software), in the middle is the application server that implements business rules (transactions, calculations, validation), and at the bottom is the database where financial records are stored. Such a modular structure provides flexibility: you can make changes to the business logic without affecting the interface or data warehouse and vice versa. The relationship between process and system architecture has an impact on the construction of the architecture methodology. In the context of this study, it should be emphasized that business process architecture and financial system architecture processes are closely related and should be developed in a coordinated manner. The business processes (budgeting, accounting, treasury, financial analysis, etc.) of an organization are part of the overall business process architecture. The created business model of financing processes sets the requirements for the functionality of the information system. In turn, the capabilities of the IT system can suggest new ways to optimize processes (for example, using real-time analytics to make financial decisions). Therefore, the architecture development methodology should take into account the two-way connection: business processes determine what the system should do, and the system affects how these processes can be performed (faster, more automated, with better control) [1-10].

Conclusions

The methodology for building a business process architecture and a financial management system demonstrates the importance of a holistic, systemic approach to enterprise management in the IT sector. First, the business process architecture provides transparency and systematicity of operational activities, forming the basis for effective management and further digitalization. Methodological modeling and optimization of processes allows you to focus on aligning daily operations with the company's strategic goals, eliminating duplication and creating value for customers.



Secondly, the architecture of the financial management system, being integrated with business processes, provides financial transparency and control. The architecture guarantees centralized collection of financial data, reflects the true state of the business in real time and serves as a reliable basis for making management decisions.

It is important that the successful implementation of both the business process architecture and the financial system takes place according to a clear methodology that combines technical and organizational measures. Building a process architecture is not a one-time project, but a continuous cycle of improvement that supports the flexibility of the company in the conditions of a rapidly changing business world. Similarly, the implementation of a financial system, which should be understood as an investment that pays off through increased efficiency, reduced risk and improved financial results. Modern financial systems are no longer just accounting tools, but strategic platforms that increase operational efficiency, expand analytical capabilities and support sustainable business development. In the IT sector, where companies face fierce competition and constant technological progress, the consistency of business processes and IT systems is a critical factor for success. The presented methodology is aimed at achieving this consistency through the use of the principles of enterprise architecture, best practices of business engineering and IT management, allowing you to build a flexible and reliable architecture. Such an architecture can adapt to new challenges (the introduction of new technology, changing regulatory requirements or scaling the business) without losing control and efficiency. An integrated architectural approach and financial systems creates a solid foundation on which the successful activities of the IT organization are based. It provides synergy between processes and technologies, allowing the company to simultaneously maintain operational flexibility and financial discipline. A scientifically sound methodology and reliance on genuine sources of knowledge and standards reduce risks during the implementation of such projects. The result is a transparent, manageable and change-resistant business, where information technology not only supports business processes, but also strategically strengthens them, which leads to the long-term success of the organization.