Business-finance Integration in Public Hospitals: Theoretical Foundations, Conceptual Boundaries, and Practical Pathways

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Abstract

Against the backdrop of high-quality development of public hospitals, the reform of medical insurance payment methods, and the strengthening of financial supervision, the integration of business and finance has become an important pathway for modernizing hospital governance. Using literature review and normative analysis, this paper systematically examines the theoretical basis, conceptual connotation, and practical pathways of business-finance integration in public hospitals. The study shows that business-finance integration is not merely an issue of data sharing. Rather, it is a composite management proposition involving both "business-accounting" integration and "business-finance" integration. Its core lies in promoting deep linkage among business activities, resource allocation, risk control, and value creation through information system coordination, governance improvement, and process reengineering. Existing practices mainly focus on system integration, governance coordination, and process refinement, while deficiencies remain in conceptual clarification, pathway adaptation, institutional support, and performance evaluation. Future research should therefore strengthen the theoretical explanation of business-finance integration, develop operational evaluation frameworks, and pay closer attention to the role of artificial intelligence, data governance, and institutional change within hospitals.

Keywords

Public hospitals, Business-finance integration, Information systems, Corporate governance, Process reengineering

Introduction

Public hospitals in China are operating in an increasingly complex environment shaped by deeper health system reform, medical insurance payment reform, fiscal constraints, and the policy requirement of high-quality development [1]. Under these conditions, the traditional finance function, which has long emphasized bookkeeping, accounting verification, and ex post reporting, is no longer sufficient for hospitals that must simultaneously improve resource allocation, operational efficiency, service quality, and risk prevention. The central managerial challenge is therefore not merely how to produce more accurate financial statements, but how to enable finance to participate in business activities before decisions are made, to monitor implementation while activities are being performed, and to provide feedback after results are generated.

Business-finance integration (BFI) responds to this challenge by promoting the systematic connection of business activities, accounting information, financial management tools, and governance mechanisms. In a public hospital, BFI is closely related to budget management, cost control, performance evaluation, medical insurance settlement, internal control, and clinical process optimization [2]. It also reflects a broader transformation in which finance shifts from an accounting-centered support function to a strategic function embedded in hospital governance and operational decision-making.

However, BFI in public hospitals cannot be directly equated with similar practices in profit-oriented enterprises. Public hospitals have a public welfare mandate, professional autonomy in clinical services, complex medical quality and safety requirements, and

multiple accountability relationships involving the government, medical insurance agencies, patients, and hospital managers. These characteristics mean that the value objective of BFI is not limited to financial performance. It must also incorporate public value, medical quality, compliance, risk control, and sustainable operation.

Existing studies have paid considerable attention to business-finance integration in enterprises, financial shared services, and the transformation of management accounting. By comparison, research on public hospitals remains relatively fragmented. Important questions remain insufficiently answered: What is the conceptual boundary of BFI in a hospital setting? How should business-accounting integration be distinguished from business-finance integration? Through which mechanisms do BFI improve governance and operations? How can hospitals select pathways that fit their own resource endowments, digital infrastructure, and governance conditions?

To address these questions, this paper reviews and reconstructs the logic of business-finance integration in public hospitals. It first explains the theoretical foundations of BFI from the perspectives of corporate governance theory and business process reengineering theory. It then clarifies the conceptual connotation of BFI by distinguishing between the dimensions of business-accounting integration and business-finance integration. Finally, it summarizes the practical pathways of information system integration, governance coordination, and process refinement, and proposes future research directions. The purpose is to provide a clearer analytical framework for public hospitals seeking advanced refined management and governance modernization.

Theoretical foundations of business-finance integration in public hospitals

Corporate governance theory

Corporate governance theory provides an organizational explanation for why business and finance become separated and why they need to be reintegrated. Although public hospitals are not conventional corporations, they are legal-person organizations with public welfare objectives, professional management responsibilities, and delegated authority over resources. As a result, they may encounter agency and coordination problems arising from the separation of ownership, management, and execution. When governance structures are incomplete or responsibility boundaries are unclear, clinical departments, administrative departments, finance departments, and information departments may develop different objectives, fragmented data, and inconsistent accountability systems.

From a governance perspective, the key to BFI is not the isolated improvement of the finance department. Rather, it lies in aligning decision-making, incentives, supervision, and accountability across departments. When strategic objectives, resource allocation, and performance evaluation are aligned, finance can be embedded into business decision-making, and business departments can develop stronger awareness of value creation, cost responsibility, and risk control. In this sense, BFI is not merely a financial technique but a governance arrangement that reshapes how hospitals define objectives, allocate resources, monitor activities, and evaluate outcomes.

This governance interpretation is particularly relevant for public hospitals because hospital decisions often involve trade-offs among medical quality, patient experience, operational efficiency, cost containment, and public welfare. Without an integrated governance mechanism, financial constraints may be interpreted as administrative pressure imposed from outside the clinical system, while clinical needs may be detached from resource feasibility. BFI can reduce this tension by creating a shared language between clinical operations and financial management [3].

Business process reengineering theory

Business process reengineering theory emphasizes the fundamental redesign of organizational processes to improve efficiency, cost, quality, and service outcomes. Public hospitals are highly specialized and functionally differentiated organizations. Their core activities involve outpatient services, inpatient services, surgery, medical technology, nursing, pharmaceutical management, consumables, equipment, logistics, medical insurance settlement, and administrative management. Because these processes span multiple departments and professional boundaries, information may be transmitted slowly and responsibilities may be

divided by function rather than by process. As a result, management feedback may frequently lag significantly behind real-time clinical activities [4].

BFI is therefore not the simple addition of financial control to existing workflows. It requires hospitals to redesign key processes so that budgeting, costing, performance evaluation, compliance review, and risk control are embedded into the full cycle of business activities. For example, the management of medical consumables is not only a procurement issue or a warehouse issue. It is also connected to clinical pathways, inventory turnover, cost accounting, internal control, and medical insurance payment. Likewise, cost management under Diagnosis Related Groups (DRG) and Diagnosis-Intervention Packet (DIP) payment reform cannot be realized only through retrospective accounting. It must be linked to clinical pathways, treatment decisions, resource consumption, and performance feedback [5].

From the process reengineering perspective, BFI transforms hospital management from functional segmentation to cross-functional coordination, from experience-based judgment to data-driven decision-making, and from ex post accounting to full-process control. The deeper the integration of financial tools into business processes, the more likely BFI is to generate practical improvements in efficiency, compliance, and value creation.

Conceptual connotation and analytical framework

From information integration to governance integration

The meaning of business-finance integration has evolved with the transformation of accounting functions, financial shared services, and digital technology. Previous studies have generally understood BFI from three perspectives: information integration, value integration, and system integration. Information integration emphasizes the combination of business data and financial data to provide decision-useful and value-relevant information to stakeholders. Value integration highlights the embedding of business activities into the value chain and interprets finance not only as accounting but also as value creation and value realization [6]. System integration focuses on the use of digital platforms, financial systems, artificial intelligence, and other information technologies to integrate multiple organizational elements.

These perspectives are not mutually exclusive. Instead, they reveal different layers of the same problem. Information integration provides the data foundation; value integration clarifies the management objective; system integration offers technological support. In public hospitals, these layers must be combined with institutional rules, clinical processes, medical quality requirements, and public accountability. Therefore, BFI should be understood as both a technical arrangement and an organizational governance mechanism.

Two dimensions: Business-accounting integration and business-finance integration

Based on the organizational characteristics and management practices of public hospitals, this paper defines BFI as a composite concept consisting of two interrelated dimensions.

First, business-accounting integration refers to the transformation of business activities into reliable, standardized, and decision-useful accounting information. Its focus is data connection, information recognition, and accounting translation. Hospitals can leverage financial systems, hospital information systems, human resource planning systems, supply-processing-distribution systems, medical insurance settlement systems, and artificial intelligence tools to break down information silos and standardize data definitions. In doing so, they can accurately identify the financial implications of routine business activities. This dimension enables managers to understand where resources are consumed, how costs are formed, and how business activities affect financial and governance outcomes.

Second, business-finance integration in a narrower sense refers to the embedding of financial management tools into business processes. Its focus is management control, resource allocation, and risk prevention. Budget constraints, cost management, performance evaluation, and internal control should not remain within the finance department. They should be integrated into clinical diagnosis and treatment, procurement, equipment management, medical insurance settlement, and operational analysis. Through this dimension, hospitals can connect financial logic with business logic and achieve real-time or near-real-time feedback on resource utilization and operational risk [7].

The two dimensions are mutually reinforcing. Business-accounting integration improves the quality and usefulness of information, while business-finance integration ensures that information is transformed into management action. Without the former, financial management lacks accurate and timely data. Without the latter, data integration may remain a technical project without meaningful governance effects.

Practical pathways of business-finance integration in public hospitals

The objective of BFI in public hospitals is to remove the barriers between business activities and financial management, strengthen the management accounting function, provide decision-useful and value-relevant information for hospital managers, and embed internal control and cost management into key operational processes. Existing practice can be summarized into three main pathways: information system integration, governance coordination, and process management refinement.

Information system integration: Building the data foundation

Information system integration is the foundational condition for BFI. In many public hospitals, the most common obstacle is the existence of information silos. Systems such as the hospital information system (HIS), laboratory information system (LIS), hospital resource planning system (HRP), supply-processing-distribution system (SPD), office automation system (OA), and medical insurance settlement platform are often separated in terms of data standards, functional interfaces, and application scenarios. As a result, business data cannot easily enter the management analysis chain, and financial information cannot be fed back to business departments in a timely and actionable manner.

To address this problem, hospitals should first establish unified data standards, business definitions, and accounting rules. On this basis, different business systems and financial systems can be connected to form a digital platform that covers diagnosis and treatment, operations, settlement, budgeting, costing, and performance analysis. The purpose is not simply to connect systems, but to make data comparable, traceable, and useful for decision-making.

Digital tools can further improve the efficiency and value of information processing. Financial shared service platforms, robotic process automation, optical character recognition, big data analytics, and artificial intelligence can reduce repetitive manual work, improve the timeliness of accounting processing, and support more refined operational analysis [8]. In this process, the finance function gradually shifts from bookkeeping and reporting to business analysis, resource coordination, and strategic support. Information system integration therefore provides not only technical support but also the data infrastructure for governance modernization.

Governance coordination: Strengthening institutional support

BFI cannot be sustained by technology alone. Without clear organizational leadership, role division, and accountability arrangements, integration may remain limited to system construction or isolated pilot projects. Public hospitals should therefore incorporate BFI into their governance systems and medium- to long-term development plans. Top-level design should clarify implementation objectives, milestones, responsible departments, and evaluation mechanisms.

A practical approach is to establish a hospital-level coordination mechanism led by senior management and involving finance, medical insurance, operations, information technology, quality control, procurement, logistics, and clinical departments. Such a mechanism helps ensure that financial requirements are understood by business departments and that clinical and operational needs are incorporated into financial management tools. In this way, BFI becomes a cross-functional governance project rather than a departmental reform initiated only by the finance office.

Governance coordination also requires compatible incentive and constraint mechanisms. Hospitals may promote job rotation, interdisciplinary talent development, performance-oriented evaluation, and regular communication mechanisms to enhance employees' motivation and capacity to collaborate. Finance staff need to understand clinical and operational processes, while business staff need to understand cost structure, budget constraints, and risk responsibilities. Only when decision-making, incentives, and supervision are aligned can BFI move from local

improvement to institutionalized practice.

Process management refinement: Extending integration to operational endpoints

Process management refinement is the point at which BFI generates observable managerial effects. From the perspective of financial processes, budget management, cost management, and financial analysis are three core scenarios [9]. Comprehensive budget management should move beyond a single result-based constraint and become a system of full-staff participation, full-process tracking, and full-business coverage. Cost management should respond to DRG and DIP payment reform by incorporating disease-based cost accounting, clinical pathway optimization, consumables and pharmaceutical control, and efficiency analysis of large medical equipment into an integrated framework. Financial analysis should go beyond surface-level financial indicators and identify the business drivers behind financial results, thereby providing more scientific recommendations for decision-makers.

From the perspective of business processes, outpatient and inpatient services, equipment and consumables management, surgical services, and medical technology examinations are important application scenarios. Through process mapping, node optimization, responsibility refinement, and performance feedback, financial management can move closer to the clinical frontline. At the same time, business departments can more clearly identify cost formation mechanisms, resource consumption structures, and risk points.

Empirical examples in the literature illustrate how process optimization can create measurable effects [10]. Researchers showed that measures such as integrated medical-nursing collaboration, standardized consultation, staggered staffing, 6S management, and technical training helped optimize the first intravenous medication process for hospitalized children and reduced patient visit time by more than 30%. In the field of consumables management, adopting the SPD model has been proven to enhance supply chain efficiency, streamline unpacking and distribution procedures, and support standardized operational governance. These studies suggest that business-finance integration can be implemented through specific operational scenarios rather than through abstract financial reform alone.

Research gaps and future agenda

Although research and practice on BFI in public hospitals have developed rapidly, several limitations remain.

First, the conceptual boundary of BFI remains insufficiently clarified. Some studies treat BFI as information system integration, while others define it as management accounting transformation or value chain management. These interpretations are related but not identical. Future studies should distinguish more clearly among data integration, accounting transformation, financial management embedding, and governance coordination. Such conceptual clarification is necessary for building cumulative knowledge and designing comparable evaluation indicators.

Second, more attention should be paid to contextual adaptation. Public hospitals differ in size, specialty structure, digital capability, resource endowment, governance maturity, and regional policy environment. A pathway that works well in a large tertiary hospital may not be directly transferable to a smaller hospital with weaker information infrastructure. Future research should examine how different organizational contexts shape the selection, sequencing, and effectiveness of BFI pathways [11].

Third, institutional support and behavioral mechanisms deserve deeper analysis. BFI changes not only systems and processes but also decision rights, departmental interests, professional roles, and accountability relationships. Resistance may arise when financial control is perceived to conflict with clinical autonomy, or when data sharing is seen as increasing transparency and accountability in ways that create discomfort. Future research should therefore investigate how leadership support, incentive systems, professional trust, communication mechanisms, and organizational culture affect the implementation of BFI [12].

Fourth, the evaluation of BFI outcomes remains underdeveloped. Existing studies often rely on case descriptions or practical experience, while systematic measurement frameworks are still limited. Future research should construct multidimensional evaluation frameworks covering data quality, process efficiency, cost control, budget execution, risk prevention, medical quality, patient experience, and governance improvement. Such frameworks would help shift BFI

evaluation from experience-based judgment to evidence-based assessment.

Finally, the role of artificial intelligence and data governance should be further examined. AI may enable more accurate cost prediction, risk warning, budget monitoring, medical insurance analysis, and clinical decision support. However, AI-driven BFI also raises new issues concerning data quality, algorithmic accountability, privacy protection, and human-machine collaboration. Future research should explore how AI can support the joint improvement of financial sustainability and medical quality without weakening professional judgment or public accountability [13].

Conclusion

Business-finance integration in public hospitals is not a simple extension of traditional financial management. It is a systematic governance transformation oriented toward high-quality development. Its theoretical foundation can be explained through corporate governance theory and business process reengineering theory. Its conceptual connotation includes both business-accounting integration, which provides decision-useful information, and business-finance integration, which embeds financial management tools into business processes. Its practical implementation depends on the coordinated development of information systems, governance mechanisms, and refined processes.

When technology, institutions, and processes are aligned, BFI can improve resource allocation efficiency, strengthen risk control, enhance decision quality, and support public value creation. For public hospitals, the core significance of BFI lies not only in making finances more efficient, but also in making hospital governance more transparent, coordinated, and responsive to the dual goals of medical quality and financial sustainability. Future research should continue to refine the theoretical framework, evaluation methods, and implementation mechanisms of BFI, especially under the new conditions created by medical insurance payment reform, digital transformation, artificial intelligence, and stronger internal control requirements.

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Conflicts of Interest

The authors declare no conflict of interest.

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