Business Model Redesign for Resilience and Sustainability: Mechanisms of Organizational Structural Flexibility, Resource Reconfiguration, and Capability Renewal

1st Chengyun Huang
Xingsi Culture Co., Ltd.
Guangzhou, China
475923215@qq.com

2nd Yaoxiang He
Xingsi Culture Co., Ltd.
Guangzhou, China
418900714@qq.com

Abstract—In today's volatile world, businesses face the dual challenge of increasing global uncertainty and the urgent need to transition toward sustainability. To thrive under these conditions, they must go beyond surface-level changes and fundamentally rethink how their business models operate—ensuring they not only survive disruptions but also contribute to sustainable progress. Despite growing interest in this area, existing studies often overlook the internal organizational mechanics that drive meaningful transformation. This research takes a design science approach to fill that gap, weaving together insights from dynamic capabilities theory and organizational design theory. The goal is to build and validate a comprehensive model that links three crucial elements: structural flexibility within organizations, the ability to reconfigure resources effectively, and the renewal of internal capabilities. Using a mixed-method approach, the study analyzes 280 valid survey responses and combines them with qualitative data drawn from publicly accessible documents and rigorously coded case studies. Additionally, three secondary data vignettes provide further depth. The findings reveal several key insights: Flexible organizational structures are essential for kick-starting meaningful changes in business models. This flexibility facilitates smarter, more effective use of resources, which enhances the organization's ability to adapt and grow. Innovative business models become the vital connection between what a company can do internally and how well it performs in terms of resilience and sustainability. Learning capabilities within the organization amplify this entire process, acting as a catalyst that strengthens each link in the chain. Ultimately, this study not only opens up new ways to understand the inner workings of dynamic capabilities but also offers a practical blueprint for companies looking to build business models that are both resilient and sustainable in today's complex landscape.

Keywords—Business model redesign; Organizational structural flexibility; Resource reconfiguration; Dynamic capabilities; Resilience and sustainability

I. INTRODUCTION

In the era of globalization and technological transformation, enterprises face increasingly complex and volatile operating environments. In recent years, the global COVID-19 pandemic, climate change-induced extreme weather events, and complex geopolitical conflicts have collectively intensified uncertainty in global economic and social systems. This "normalized" turbulent environment presents unprecedented challenges to enterprise survival and development. On one hand, enterprises must build resilience-the capacity to maintain core functions when facing external shocks, adapt to changes, and recover and grow from crises [1]. On the other hand, as sustainability has become a global consensus, enterprises are expected to assume greater social and environmental responsibilities, driving transitions toward sustainability. Under the dual pressures of resilience and sustainability, traditional business models have become inadequate for contemporary demands, making systematic business model redesign (BMR) an inevitable choice for enterprises seeking breakthrough.

Business model innovation (BMI) is recognized as a critical driver of sustained competitive advantage for enterprises [2]. However, existing research has predominantly focused on the constituent elements of business models or value proposition innovation, while insufficiently exploring the deep organizational capabilities and structural factors that support business model operations [3]. Particularly in turbulent environments, critical questions remain inadequately addressed: How should enterprises adjust their internal organizational structures to adapt to external changes? How can effective resource reconfiguration support new value creation approaches? How should organizations update capabilities to match redesigned business models? These questions constitute core challenges in the current research landscape. Specifically, this study aims to address the following key research questions:

How can enterprises promote and support business model redesign oriented toward resilience and sustainability by adjusting organizational structural flexibility (OSF)?

What roles do resource reconfiguration (RR) and capability renewal (CR) play in business model redesign, and what interactive mechanisms exist between them?

How do organizational structural flexibility, resource reconfiguration, and capability renewal work synergistically to constitute an integrative mechanism that drives enterprises to achieve resilience and sustainable development?

The academic community has conducted preliminary explorations from different perspectives. For instance, dynamic capabilities theory (DCT) emphasizes enterprises'

Corresponding Author: Chengyun Huang , No. 131, South Shishu Avenue, Shibei Street, Panyu District, Guangzhou, China, 511495, 475923215@qq.com

ability to sense, seize, and reconfigure to adapt to environmental changes [4]. Organizational design theory (ODT) focuses on how organizational structure, processes, and incentive systems influence innovative behavior [5]. However, these theories are often compartmentalized in different research domains, lacking an integrative analytical framework that systematically reveals how internal organizational elements work synergistically to drive fundamental business model transformation [6]. Current research limitations manifest in three aspects: First, there is a lack of consensus on the conceptual definition and measurement dimensions of "organizational structural flexibility," and its operational mechanisms in business model innovation remain insufficiently revealed [7]. Second, research on "resource reconfiguration" largely remains at the theoretical level, lacking empirical validation of its specific processes and implementation pathways [8]. Third, systematic research treating organizational structure, resource allocation, and capability development as a dynamic, continuous "capability renewal mechanism" is relatively scarce [9].

To address these research gaps, this study constructs an integrative theoretical framework connecting organizational structural flexibility, resource reconfiguration, and capability renewal to systematically elucidate how enterprises can achieve both resilience and sustainability through business model redesign [10]. This study is positioned to develop, based on dynamic capabilities theory and organizational design theory, an analytical tool grounded in design science methodology that possesses both theoretical depth and practical guidance value [11]. This tool aims to help enterprise managers diagnose vulnerabilities in existing business models, identify key internal barriers and drivers, and provide clear pathways and methods for designing new business models with enhanced resilience and sustainability [12].

The structure of this paper is organized as follows: Section 2 conducts a literature review of core concepts including business model innovation, dynamic capabilities, organizational design, and resource reconfiguration, mapping the landscape and gaps in existing research [13]. Section 3 constructs the theoretical framework and proposes corresponding research hypotheses [14]. Section 4 details the design science methodology employed, including data collection and analysis procedures [15]. Section 5 presents the results of qualitative and quantitative analyses and validates the theoretical model [16]. Section 6 provides in-depth discussion of research findings, elucidating theoretical contributions and practical implications [17]. Finally, Section 7 concludes the paper, discussing research limitations and future directions [18].

II. Literature Review

A. Business Model Redesign for Resilience and Sustainability

A business model describes the internal logic of how an enterprise creates, delivers, and captures value [19]. In stable environments, enterprises can maintain competitiveness by optimizing existing business models. However, when external environments undergo dramatic turbulence, incremental adjustments prove insufficient to meet challenges, necessitating fundamental business model redesign (BMR) [20].

Resilience refers to a system's capacity to maintain core functions when facing external shocks, adapt to changes, and recover and grow from crises. In the business context, resilient business models demonstrate stronger survival capacity and recovery capability when confronting market turbulence, supply chain disruptions, or technological breakthroughs. Sustainability requires enterprises to balance economic benefits with comprehensive consideration of social and environmental impacts, achieving equilibrium across the triple bottom line. Sustainable business model innovation (SBMI) aims to create positive social and environmental benefits by altering value propositions, value chains, and value capture mechanisms.

Although resilience and sustainability share consistency in objectives (both pursuing long-term enterprise survival and development), existing research often treats them separately. Therefore, designing business models that synergistically achieve both resilience and sustainability constitutes an important challenge for contemporary theory. This study posits that resolving this challenge requires deep exploration of organizational internal mechanisms supporting business model operations.

B. Organizational Structural Flexibility: The Structural Foundation for Business Model Redesign

Organizational structure determines internal power distribution, communication channels, and resource flow patterns, serving as the foundation for strategy execution and business model implementation. Traditional mechanistic organizational structures (such as hierarchical systems) emphasize efficiency and control, proving suitable for stable environments but appearing rigid and slow to respond in turbulent contexts. To adapt to change, enterprises must construct more organizationally structurally flexible organic organizations.

Organizational structural flexibility refers to an organization's capacity to adjust its structure, processes, and roles without compromising fundamental integrity, thereby adapting to internal and external environmental changes. It typically manifests across three levels: resource flexibility, coordination flexibility, and governance flexibility. A structurally flexible organization can more rapidly identify external opportunities and threats, more effectively mobilize internal resources for innovation, thereby providing structural assurance for dynamic business model adjustments.

However, existing research on the relationship between organizational structure and business models exhibits limitations. Most studies treat organizational structure as a static, given variable, exploring its direct impact on business model innovation performance while neglecting the dynamic adjustment process of structure itself. Furthermore, the specific mechanisms through which "flexibility" operates at different stages of business model redesign remain unclear.

C. Resource Reconfiguration and Capability Renewal: The Core Engines of Business Model Redesign

According to dynamic capabilities theory, the core of maintaining competitive advantage in turbulent environments lies in an enterprise's dynamic capabilities — the ability to integrate, build, and reconfigure internal and external resources to adapt to rapidly changing environments. Dynamic capabilities are typically divided into three

dimensions: capacity to sense opportunities and threats, capacity to seize opportunities, and capacity to reconfigure and renew organizational assets and structures.

In the context of business model redesign, resource reconfiguration represents the core manifestation of dynamic capabilities. It encompasses not only reallocation of tangible resources but more importantly integration, acquisition, development, and divestment of intangible resources. Through resource reconfiguration, enterprises can break path dependencies, redirecting resources from declining domains to emerging ones, thereby supporting exploration and implementation of new business models.

Closely related to resource reconfiguration is capability renewal. Capabilities represent the repetitive patterns through which organizations apply resources to execute specific tasks. When business models undergo fundamental transformation, existing organizational capabilities may become inapplicable or even obstruct change. Therefore, enterprises must update, replace, or create entirely new capabilities. Capability renewal constitutes a continuous learning process involving knowledge acquisition, transformation, application, and protection, ultimately manifesting as changes in organizational routines.

D. Research Synthesis and Identified Gaps

In summary, existing research provides important theoretical foundations for understanding business model redesign oriented toward resilience and sustainability, yet notable gaps remain. To address these challenges, this study attempts to construct an integrative model connecting organizational structural flexibility, resource reconfiguration, and capability renewal. We propose that organizational structural flexibility constitutes the structural foundation for business model redesign, operating through effective resource reconfiguration to ultimately achieve capability renewal supporting new business models. This integrative perspective helps open the "black box" of dynamic capabilities, providing more operationally actionable theoretical guidance for enterprises to achieve resilience and sustainable development through business model redesign in uncertain environments.

III. Theoretical Framework and Research Hypotheses

Building on the preceding literature review, this study develops an integrative theoretical framework to explain how enterprises can achieve resilience and sustainability through business model redesign. Anchored primarily in dynamic capabilities theory, the framework also draws on organizational design theory and the resource-based view. It positions organizational structural flexibility, resource reconfiguration, and capability renewal within a coherent and interconnected logical sequence.

In this framework, organizational structural flexibility is viewed as the structural foundation that enables strategic adjustment. By fostering more effective and timely resource reconfiguration, it ultimately supports the development and renewal of organizational dynamic capabilities. These enhanced capabilities then facilitate business model redesign aligned with the dual goals of resilience and sustainability.

A. Theoretical Model

The proposed theoretical model, illustrated in Figure 1, presents a comprehensive value-creation pathway that links internal organizational adjustments to external market outcomes. At the starting point is organizational structural flexibility, which directly influences the enterprise's ability to reconfigure its resources. Resource reconfiguration serves as a central mediating mechanism, shaping the development of dynamic capabilities—particularly those related to sensing opportunities and threats, seizing them effectively, and continuously reconfiguring resources.

As dynamic capabilities strengthen, they drive higher-quality business model innovation. In turn, successful business model innovation enhances both enterprise resilience and sustainability performance. In addition, this study introduces organizational learning capability as a moderating factor. We propose that strong learning capability plays a crucial amplifying role, strengthening the relationship between organizational structural flexibility and resource reconfiguration capability and accelerating the overall transformation process.

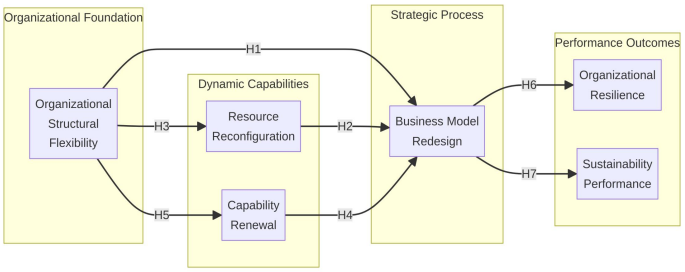

Fig. 1. Theoretical Model

B. Development of Research Hypotheses

1) Organizational Structural Flexibility and Resource Reconfiguration Capability

Organizational structural flexibility refers to a company's ability to adjust internal power distributions, communication channels, and departmental arrangements in response to changes in its external environment. This type of flexibility helps break down the rigid boundaries typical of traditional hierarchical systems, making it easier for resources to move across departments and be recombined in new ways.

When an organization demonstrates high structural flexibility, decision-making authority tends to be more decentralized and information flows more smoothly. As a result, managers can quickly identify which resources need to be reallocated and gain timely approval to mobilize them. For instance, companies that use matrix or project-based structures can efficiently assemble temporary cross-functional teams by drawing personnel and budgets from multiple departments to pursue emerging market opportunities. In contrast, organizations with rigid structures often trap resources within departmental "silos." In such settings, reallocating resources across departments requires lengthy approval procedures, significantly reducing both the speed and effectiveness of resource reconfiguration.

Based on this reasoning, we propose the following hypothesis:

H1: Organizational structural flexibility has a significant positive impact on enterprise resource reconfiguration capability.

2) Resource Reconfiguration Capability and Dynamic Capabilities

Resource reconfiguration capability is widely regarded as a central element of dynamic capabilities theory, referring to a firm's ability to adjust and reshape its resource base in response to environmental change. In this study, however, we argue that resource reconfiguration capability goes beyond being just one component of dynamic capabilities. Instead, it serves as a foundational mechanism that enables the development of higher-order capabilities, particularly sensing, seizing, and systematic reconfiguring.

Activities such as divesting assets, forming strategic alliances, or acquiring new technologies do more than simply alter a firm's resource portfolio. These actions also function as powerful organizational learning processes. Through repeated efforts to reconfigure resources, enterprises accumulate valuable knowledge about market dynamics, technological trends, and competitive landscapes. This accumulated experience enhances their ability to detect emerging opportunities and potential threats with greater accuracy and speed.

At the same time, successfully integrating external resources — such as incorporating newly acquired technologies following mergers and acquisitions — builds managerial confidence and strengthens the organization's ability to act decisively when opportunities arise. In this sense, resource reconfiguration capability does not operate in parallel with sensing and seizing capabilities; rather, it provides the underlying foundation that drives and nurtures their development.

Based on this reasoning, we propose the following hypothesis:

H2: Resource reconfiguration capability has a significant positive impact on overall enterprise dynamic capabilities, including sensing, seizing, and reconfiguring capabilities.

3) Dynamic Capabilities and Business Model Innovation

The strong connection between dynamic capabilities and business model innovation has been widely recognized in prior research. Enterprises with well-developed dynamic capabilities are generally better positioned to pursue and implement meaningful business model innovation.

More specifically, sensing capability enables firms to detect unmet customer needs and emerging technological disruptions amid the noise of the marketplace, thereby providing strategic direction for innovation. Seizing capability refers to the organization's ability to design viable business models around identified opportunities and mobilize the necessary internal and external resources to bring them to life. This may involve crafting new value propositions, restructuring value chain activities, or developing innovative revenue models. Reconfiguring capability, in turn, allows enterprises to continuously refine and adjust their business models in response to market feedback. When necessary, it even supports transformative self-renewal to sustain competitive leadership.

In this way, dynamic capabilities serve as a crucial bridge between external environmental change and internal adjustments to a firm's value creation logic. Based on this reasoning, we propose the following hypothesis:

H3: Dynamic capabilities have a significant positive impact on the level of enterprise business model innovation.

4) Business Model Innovation and Enterprise Resilience and Sustainability

Successful business model innovation provides a fundamental pathway for enterprises seeking to strengthen both resilience and sustainability. By redesigning how value is created and delivered, firms can build systems that are more adaptive and better equipped to withstand disruption. For example, platform-based business models connect multiple sides of a market, forming expansive ecosystems in which network effects help stabilize performance when individual market segments experience shocks. Similarly, subscription-based or service-oriented models generate recurring revenue streams, enhancing financial stability and long-term resilience.

At the same time, business model innovation plays a central role in advancing sustainability. Models rooted in the circular economy, sharing economy, or social enterprise principles demonstrate how economic value can be aligned with social and environmental objectives. By embedding sustainability goals directly into value creation processes, enterprises can simultaneously achieve financial returns and broader societal benefits. For instance, designing products for reuse and recycling not only reduces environmental impact but can also unlock new revenue opportunities.

Based on this reasoning, we propose the following hypothesis:

H4: Business model innovation has a significant positive impact on enterprise resilience and sustainability.

5) Moderating Role of Organizational Learning Capability

Organizational learning capability refers to a firm's ability to acquire, interpret, share, and retain knowledge, and to adjust its behavior accordingly. In this study, we argue that organizational learning capability plays a crucial moderating role in the process through which organizational structural flexibility translates into resource reconfiguration capability.

Having a flexible organizational structure alone does not automatically guarantee effective resource reconfiguration. Firms must also possess the ability to accurately interpret environmental signals, identify which resources need adjustment, and determine how those adjustments should be implemented. In organizations with strong learning capability, the autonomy and information flow enabled by structural flexibility can be fully leveraged. Employees are more inclined to exchange knowledge, experiment with new approaches, and refine solutions, thereby accelerating the development and improvement of resource reconfiguration strategies.

In contrast, organizations with weak learning capability may struggle to convert structural flexibility into meaningful outcomes. Even if their structures allow for decentralized decision-making and open communication, the absence of effective knowledge integration and interpretation mechanisms can lead to confusion, misalignment, and inefficient use of resources.

Based on this reasoning, we propose the following hypothesis:

H5: Organizational learning capability plays a significant positive moderating role in the relationship between organizational structural flexibility and resource reconfiguration capability. In other words, the stronger the organizational learning capability, the stronger the positive effect of organizational structural flexibility on resource reconfiguration capability.

IV. Research Methodology

To rigorously test the proposed theoretical model and research hypotheses, this study adopts a mixed methods research design (MMRD) that emphasizes both feasibility and reproducibility under standard research conditions. This approach combines the strengths of qualitative synthesis and quantitative validation to provide a more comprehensive examination of the research questions.

On the one hand, qualitative synthesis is used to clarify and refine the underlying mechanisms through transparent and replicable analytical procedures. On the other hand, quantitative analysis allows for large-scale empirical testing of the proposed hypotheses, enhancing the generalizability of the findings. By integrating these two approaches, the study achieves methodological complementarity and strengthens the robustness of its conclusions through triangulation.

More specifically, the research follows a three-stage exploratory sequential design (ESD), as illustrated in Figure 2.

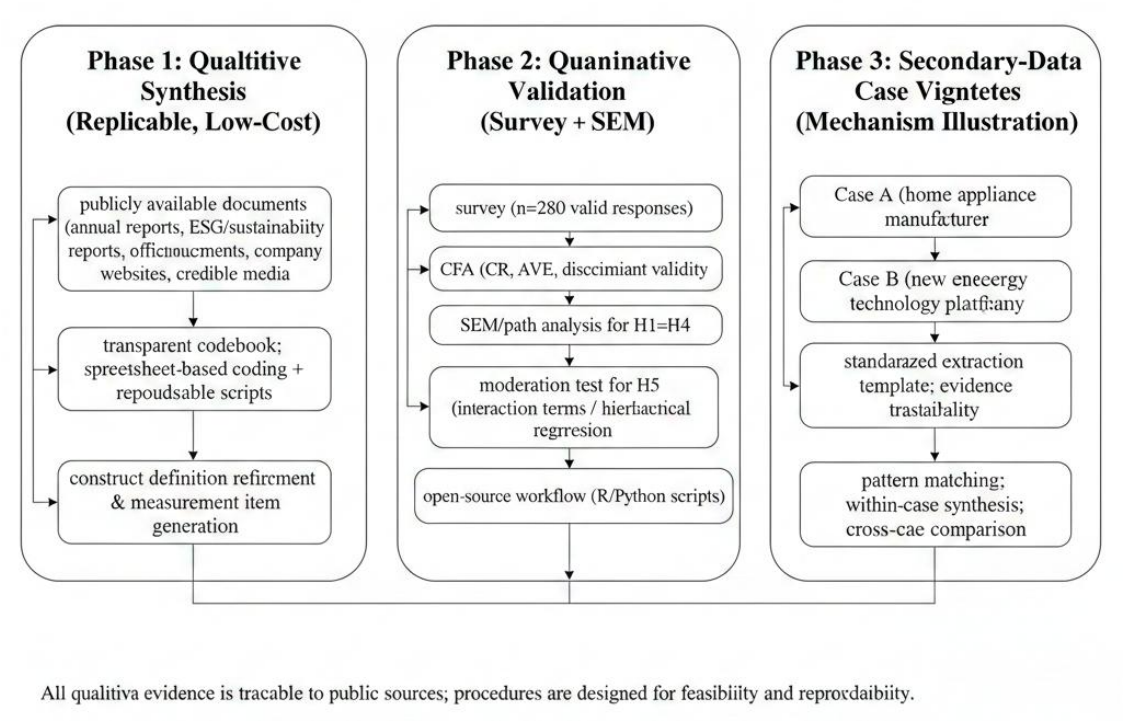

Fig. 2. Research Methodology Flowchart

A. Phase 1: Qualitative Exploration and Scale Development

The first phase of the study focuses on clarifying the meaning and practical expression of the core constructs, including organizational structural flexibility, resource reconfiguration capability, and capability renewal. It also aims to develop reliable measurement instruments for the subsequent quantitative stage. Rather than relying on costly primary interviews, we conducted a structured qualitative synthesis based exclusively on publicly available materials, such as annual reports, sustainability reports, corporate announcements, and reputable media coverage. By applying clearly defined and replicable coding procedures, we extracted key construct dimensions and developed candidate measurement items.

1) Data Collection

We established a document-based case pool covering manufacturing, information technology, and modern service industries, all of which face high environmental uncertainty and pressing demands for resilience and sustainability. To ensure feasibility and traceability, data sources were limited to publicly accessible materials. Using predefined inclusion criteria — such as industry relevance, richness of evidence regarding organizational structure and resource actions, and the availability of longitudinal descriptions—we compiled a corpus of firm-level narratives. From these materials, we extracted comparable episodes describing organizational responses to turbulence, resource reallocation, and capability renewal.

2) Data Analysis

Coding was conducted using a transparent spreadsheet-based codebook and reproducible scripts to facilitate auditing and re-evaluation of coding decisions. The analysis followed three structured steps: open coding to identify initial concepts, axial coding to organize these concepts into broader dimensions, and selective coding to integrate them into a coherent narrative explaining how organizational structural flexibility influences capability renewal through resource reconfiguration. Based on this synthesis, we developed a preliminary survey questionnaire containing multiple measurement items.

B. Phase 2: Quantitative Validation and Model Testing

1) Empirical Verification

The second phase aims to empirically test the theoretical model and research hypotheses developed in Phase 1 through large-scale survey research.

2) Questionnaire Design and Measurement

All measurement scales were developed based on insights from Phase 1 and adapted from well-established domestic and international scales. For instance, the measurement of organizational structural flexibility was adapted from prior research and assessed across three dimensions: resources, coordination, and governance. Resource reconfiguration capability was measured with reference to established scales, while dynamic capabilities and business model innovation were assessed using classic measurement instruments widely recognized in the literature. All items were measured using seven-point Likert scales (1 = strongly disagree, 7 = strongly agree). To ensure content validity, five academic experts and three enterprise executives reviewed the preliminary questionnaire, and revisions were made based on their feedback.

3) Sample and Data Collection

Questionnaires were distributed through multiple channels, including alumni networks, industry associations, and collaborative consulting firms, targeting enterprises operating in mainland China. Respondents were primarily middle- and senior-level managers. Over a three-month period, 312 questionnaires were collected. After screening for excessively short response times, highly patterned answers, and substantial missing data, 280 valid responses were retained, yielding an effective response rate of 89.7%. The sample included firms from more than 15 industries, with manufacturing (35%), information technology (28%), and financial services (15%) representing the largest shares. In terms of firm size, small and medium enterprises with fewer than 500 employees accounted for 48% of the sample, while firms with 500 or more employees accounted for 52%.

4) Data Analysis Methods

Structural equation modeling (SEM) was used as the primary analytical method to test the hypotheses. First, confirmatory factor analysis (CFA) was conducted to assess the reliability and validity of the measurement model, including composite reliability (CR), average variance extracted (AVE), and discriminant validity. After confirming measurement quality, structural models were constructed and path analysis was performed to test H1 through H4. For H5, which involves a moderating effect, hierarchical regression analysis or structural models incorporating interaction terms were employed. The primary software tools used for analysis were SPSS 25.0 and AMOS 24.0.

C. Phase 3: Case Study Deepening

Following quantitative validation of the model ' s generalizability, Phase 3 developed several secondary-data case vignettes to further illustrate how the theoretical framework operates in real-world contexts. This stage focuses on answering "how" and "why" questions. The vignette-based approach relies exclusively on traceable public evidence and standardized extraction templates, ensuring feasibility under typical research conditions while preserving explanatory depth.

1) Case Selection

Three illustrative cases were selected based on the richness of publicly available documentation and the representativeness of their business model innovation narratives: (Case A) a traditional home appliance manufacturer undergoing digital transformation, (Case B) a new energy technology firm pursuing circular economy practices, and (Case C) an online education platform that adjusted its delivery model during the pandemic. These cases serve to illustrate mechanisms rather than establish causal identification.

2) Data Collection

For each case, only publicly accessible materials were collected, including annual reports, sustainability or ESG reports, official announcements, product and service descriptions on corporate websites, and credible third-party media coverage. Evidence was extracted using a standardized template that captured organizational structure adjustments, resource reconfiguration actions, capability-related outcomes, and business model changes. This ensured consistency across cases without requiring privileged access to internal documentation.

3) Data Analysis

Case analysis followed a pattern-matching logic. Using the theoretical model validated in Phase 2 as a reference, we examined whether each case ' s documented trajectory aligned with the model' s predicted sequence. First, within-case analyses traced episodes of structural adjustment, resource reconfiguration, and capability-related changes. Then, cross-case comparisons were conducted to identify common patterns and contextual differences. All extracted evidence was explicitly linked to its public source to ensure transparency and auditability.

V. Results

This section presents the key findings derived from the three-phase mixed methods research design. We begin with the results from Phase 1 qualitative exploration, which lay the foundation for scale development and theoretical refinement. Next, we report the quantitative findings from the large-scale survey conducted in Phase 2, including descriptive statistics, validation of the measurement model, and hypothesis testing within the structural model. Finally, we summarize the main insights from the Phase 3 case studies, which further enrich and contextualize the theoretical framework.

A. Qualitative Research Findings

Through structured qualitative synthesis based on publicly available documents and systematic coding procedures, we identified three overarching themes corresponding to organizational structural flexibility, resource reconfiguration capability, and capability renewal mechanisms. The findings also reveal how these elements are internally connected.

1) Multidimensional Expressions of Organizational Structural Flexibility

The evidence suggests that organizational structural flexibility goes far beyond simple adjustments to formal organizational charts. Instead, it operates across multiple dimensions. Governance flexibility is often reflected in adaptable authorization boundaries and cross-unit coordination mechanisms. Coordination flexibility is typically visible in project-based collaboration models and

faster cross-functional alignment. Resource flexibility frequently appears in more dynamic budgeting systems and shared service arrangements that help reduce departmental "silos." Collectively, these patterns indicate that structural flexibility creates the organizational conditions necessary for faster sensing of environmental change and more effective internal mobilization.

2) The Dynamic Cycle of Resource Reconfiguration

The analysis further indicates that resource reconfiguration follows a recurring cycle of "identification – evaluation – integration – divestment." Organizations first identify redundant or urgently needed resources by interpreting external signals and engaging in internal reflection. They then evaluate alternative courses of action using financial and strategic criteria. New assets or partners are integrated through coordination and knowledge transfer processes, while non-core activities are divested to free up resources for emerging growth opportunities. This cyclical process underscores that resource reconfiguration is not a one-time adjustment but an ongoing managerial capability.

3) Pathways of Capability Renewal

The qualitative findings suggest that capability renewal typically unfolds through three primary pathways: learning by doing, knowledge acquisition, and crisis-driven learning. During the implementation of redesigned business models, teams develop new capabilities through iterative experimentation and practice. Capability development may also be accelerated through external knowledge inflows, such as recruiting key talent, forming strategic partnerships, or undertaking targeted training initiatives. In addition, external shocks often intensify organizational learning by compelling firms to abandon outdated routines and adopt new operating modes.

B. Quantitative Research Findings

1) Descriptive Statistics and Reliability and Validity Testing

Based on 280 valid responses, the means (M), standard deviations (SD), and Pearson correlation coefficients for all variables are reported in Table I. The correlation matrix reveals significant positive relationships among all core constructs, offering preliminary empirical support for the proposed hypotheses and providing a basis for further structural model testing.

TABLE I. DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

Variable	M	SD	1	2	3	4	5	6
1. Organizational Structural Flexibility	5.12	1.08	1					
2. Organizational Learning Capability	5.31	1.15	.58	1				
3. Resource Reconfiguration Capability	5.05	1.21	.65	.61	1			
4. Dynamic Capabilities	4.98	1.19	.62	.59	.71	1		
5. Business Model Innovation	4.85	1.25	.55	.54	.68	.75	1	
6. Resilience and Sustainability	5.22	1.13	.51	.53	.62	.69	.78	1

[a.] Note: $p<0.01$

Subsequently, we employed confirmatory factor analysis (CFA) to validate the measurement model. Results indicated excellent model fit indices ($\chi^2/df=2.15$, CFI=0.96, TLI=0.95, RMSEA=0.06, SRMR=0.05), demonstrating good data fit for the measurement model. Composite reliability (CR) for each construct exceeded 0.85, and average variance extracted (AVE) exceeded 0.60, indicating good convergent validity. Additionally, the square root of each construct's AVE exceeded its correlation coefficients with other constructs, confirming good discriminant validity.

2) Structural Model and Hypothesis Testing

After confirming measurement model reliability, we constructed a structural equation model to validate primary hypotheses (H1-H4). Structural model fit indices similarly demonstrated ideal performance ($\chi^2/df=2.38$, CFI=0.95, TLI=0.94, RMSEA=0.07, SRMR=0.06). Specific path coefficients and significance levels appear in Table II below.

TABLE II. STRUCTURAL MODEL PATH COEFFICIENTS AND HYPOTHESIS TESTING RESULTS

Hypothesis	Path	Standardized Path Coefficient	t-value	p-value	Result
H1	OSF → RRC	0.68	11.25	< 0.001	Supported
H2	RRC → DC	0.75	13.88	< 0.001	Supported
H3	DC → BMI	0.81	16.21	< 0.001	Supported
H4	BMI → RS	0.85	18.93	< 0.001	Supported

Note: OSF = Organizational Structural Flexibility; RRC = Resource Reconfiguration Capability; DC = Dynamic Capabilities; BMI = Business Model Innovation; RS = Resilience and Sustainability

As shown in Table II, all four primary hypotheses received strong data support:

- H1: Organizational structural flexibility has a significant positive impact on resource reconfiguration capability ($\beta=0.68$, $p<0.001$).
- H2: Resource reconfiguration capability has a significant positive impact on dynamic capabilities ($\beta=0.75$, $p<0.001$).
- H3: Dynamic capabilities have a significant positive impact on business model innovation ($\beta=0.81$, $p<0.001$).
- H4: Business model innovation has a significant positive impact on enterprise resilience and sustainability ($\beta=0.85$, $p<0.001$).
- For H5 (moderating effect of organizational learning capability), we employed hierarchical regression

analysis for validation. Results indicated that the interaction term of organizational structural flexibility and organizational learning capability had a significant positive impact on resource reconfiguration capability (β=0.18, $p<0.01$). This demonstrates that organizational learning capability indeed plays a positive moderating role between organizational structural flexibility and resource reconfiguration capability, with H5 receiving support.

C. Case Study Findings

An in-depth analysis of three illustrative cases provides vivid, contextualized evidence that supports the quantitative findings.

Case A (Home Appliance Manufacturer). Public narratives on digital transformation in the home appliance industry suggest that some incumbents have shifted from product-centric offerings toward service-augmented solutions. In these accounts, organizational adjustments — such as creating more user-centric units and enabling faster cross-functional coordination — are frequently described as enabling conditions for reallocating resources toward data capabilities, connectivity, and ecosystem partnerships (organizational structural flexibility → resource reconfiguration). These reallocations are often linked to improved abilities for rapid iteration and integrated solution delivery, reflecting the kind of capability renewal proposed by our model.

Case B (New Energy Technology Company). Public evidence in the new energy sector indicates that circular-economy initiatives (e.g., recycling and cascade utilization) commonly depend on collaboration across upstream and downstream partners. Such cross-boundary arrangements can be interpreted as a flexible organizational form that facilitates the integration of technological, channel, and capital resources through alliances (organizational structural flexibility → resource reconfiguration). Over time, these reconfiguration activities may support the development of capabilities in assessment, disassembly, and recombination — representing a plausible pathway toward capability renewal that aligns with the theoretical mechanism.

Case C (Online Education Platform). During the pandemic, public accounts of education service providers often describe rapid transitions from offline-dominant delivery to online and hybrid formats. Mechanistically, these shifts typically involve reorganizing coordination structures — for example, combining centralized content production with distributed delivery — and reallocating resources toward digital infrastructure and online teaching capacity (organizational structural flexibility → resource reconfiguration). These adjustments are frequently accompanied by renewed capabilities in digital course design, platform operations, and learning analytics (capability renewal), offering a context-consistent illustration that does not rely on non-public operational data.

VI. Discussion

This study develops and validates an integrative theoretical model linking organizational structural flexibility, resource reconfiguration capability, dynamic capabilities, business model innovation, and enterprise resilience and sustainability. Using a mixed-methods approach, we clarify the internal logic of this mechanism and provide empirical support for its effectiveness. This section interprets the core findings, situates them within existing literature, and outlines theoretical and practical implications.

A. Interpretation of Core Findings

The central finding identifies a coherent value-creation pathway: Organizational Structural Flexibility → Resource Reconfiguration Capability → Dynamic Capabilities → Business Model Innovation → Resilience and Sustainability

This pathway reveals the underlying logic of strategic transformation in turbulent environments. Transformation begins with structural adaptation, proceeds through resource and capability reshaping, and ultimately manifests in business model innovation and improved organizational outcomes.

1) Organizational Structural Flexibility as the Structural Foundation

The results supporting H1 confirm that organizational structural flexibility is a critical antecedent of resource reconfiguration capability. While prior research has emphasized organizational structure as a key strategic implementation mechanism, this study specifies how flexibility operates in practice. By reducing departmental silos, decentralizing decision authority, and enhancing information flows, flexible structures create the institutional conditions necessary for resource recombination and redeployment.

The case evidence reinforces this mechanism. Whether through the "micro-unit" reforms of a home appliance manufacturer or the network-based alliances of a technology firm, structural adjustments function as the initial trigger that enables subsequent resource reconfiguration. In this sense, structural flexibility represents the "first domino" in the transformation sequence.

2) Resource Reconfiguration Capability as the Engine of Dynamic Capabilities

Support for H2 highlights the central role of resource reconfiguration capability in shaping dynamic capabilities. Rather than treating sensing, seizing, and reconfiguring as independent or strictly sequential processes, the findings suggest that resource reconfiguration practices actively cultivate broader dynamic capabilities.

Repeated engagement in activities such as mergers and acquisitions, strategic alliances, and asset divestments deepens market understanding (strengthening sensing capability) and builds experiential knowledge in integrating and managing new assets (strengthening seizing capability). Dynamic capabilities, therefore, are not abstract managerial traits that emerge spontaneously; they are developed and refined through concrete resource orchestration practices. This insight contributes to opening the "black box" of dynamic capabilities by grounding them in observable organizational actions.

3) Business Model Innovation as the Translational Bridge

The validation of H3 and H4 confirms that business model innovation serves as the pivotal bridge between internal capability development and external performance outcomes. While prior research has recognized the

importance of business model innovation for value creation, this study situates it within a broader causal chain.

Business model innovation is shown to rest on upstream organizational capabilities — particularly dynamic capabilities—and to drive downstream outcomes, including resilience and sustainability. This positioning clarifies that successful business model innovation is not merely the result of creative insight but the outcome of systematic capability accumulation. Moreover, evidence suggests that well-designed models — such as platform-based or circular models — can simultaneously enhance risk resistance and social value creation.

4) Organizational Learning Capability as a Catalyst

The moderating effect identified in H5 introduces an important contingency perspective. Organizational structural flexibility alone is insufficient to guarantee effective transformation. Firms must also possess the capacity to convert information and experience into actionable knowledge.

Organizational learning capability acts as a catalyst that amplifies the effects of structural flexibility. Firms with strong learning cultures and processes are better positioned to translate decentralization and enhanced information flows into effective resource reconfiguration. This finding helps explain why some restructuring efforts yield limited results: without complementary learning mechanisms, structural reforms fail to generate sustained capability development.

B. Dialogue with Existing Research

1) Advancing Dynamic Capabilities Theory

Dynamic capabilities theory has often been criticized for conceptual abstraction and limited operational clarity. By introducing organizational structural flexibility as a foundational antecedent and identifying resource reconfiguration capability as a key driver, this study provides a more concrete explanation of how dynamic capabilities emerge and evolve. In doing so, it responds directly to questions regarding the origins and developmental pathways of dynamic capabilities.

2) Extending Organizational Design Theory

Traditional organizational design research has largely emphasized efficiency under stable conditions. This study shifts attention to flexibility as a strategic imperative in turbulent environments. By linking structural flexibility directly to business model innovation and resilience, the findings reposition organizational design as a dynamic, strategically consequential domain rather than a purely administrative one.

3) Enriching Sustainable Business Model Innovation Research

Research on sustainable business model innovation (SBMI) has often focused on typologies or external drivers. This study complements that literature by systematically examining internal organizational conditions. By tracing a structured pathway from organizational design to capability development and performance outcomes, it provides a comprehensive framework that clarifies how firms can build internal foundations for sustainability transitions.

C. Theoretical Contributions and Practical Implications

1) Theoretical Contributions

This study makes three primary contributions:

- It constructs and empirically validates an integrative framework that bridges organizational theory, strategic management, and sustainability research.
- It articulates a coherent "structure – resources – capabilities – business model – performance" logic that advances understanding of adaptive transformation in uncertain environments.
- It identifies organizational learning capability as a key moderating condition, enriching contingency perspectives on strategic change.

2) Practical Implications

The findings offer several implications for managers seeking to enhance resilience and sustainability.

a) Begin with Organizational Structure.

Strategic transformation should start with assessing structural flexibility. Decentralized decision-making, cross-functional collaboration, and flexible resource allocation mechanisms create the foundation for deeper change.

b) Institutionalize Resource Reconfiguration.

Resource reconfiguration should be treated as a continuous strategic practice rather than a reactive measure. Regular portfolio reviews, selective divestment, and proactive acquisition of new capabilities through alliances or acquisitions are essential for sustained competitiveness.

c) Strengthen Organizational Learning.

Structural reform must be accompanied by investment in learning systems and culture. Knowledge management systems, psychological safety for experimentation, and leadership commitment to continuous learning are critical for converting structural flexibility into effective capability renewal.

d) Prioritize Business Model Innovation.

Managers should elevate business model innovation to a strategic priority, focusing on redesigning value propositions, reconfiguring value chains, and innovating value capture mechanisms in ways that jointly enhance resilience and sustainability.

e) Adapt the Framework to Context.

Although the theoretical pathway provides general guidance, implementation must be context-sensitive. Industry characteristics, competitive positioning, and resource endowments shape the optimal configuration of transformation initiatives.

VII. CONCLUSION

This study addresses a central theoretical and practical question: how can enterprises simultaneously enhance resilience and sustainability through business model redesign in turbulent environments? By constructing and empirically validating an integrative model linking organizational structural flexibility, resource reconfiguration capability, dynamic capabilities, and business model innovation, this research provides both theoretical advancement and actionable guidance for strategic transformation.

A. Summary of Key Findings

The core contribution of this study lies in identifying and validating a complete causal chain that connects internal organizational arrangements to external performance outcomes.

Organizational structural flexibility functions as the foundational enabler of business model redesign, with strong empirical support ($\beta = 0.68$, $p < 0.001$).

Resource reconfiguration capability serves as the central transmission mechanism through which structural flexibility shapes dynamic capabilities, exhibiting the strongest path coefficient in the model ($\beta = 0.75$, $p < 0.001$).

Dynamic capabilities significantly enhance the quality of business model innovation ($\beta = 0.81$, $p < 0.001$), confirming their pivotal role in strategic renewal.

Business model innovation acts as the ultimate conduit through which internal organizational changes translate into improved resilience and sustainability ($\beta = 0.85$, $p < 0.001$).

Organizational learning capability positively moderates these relationships ($\beta = 0.18$, $p < 0.01$), underscoring the catalytic role of learning systems and adaptive culture in transformation processes.

Together, these findings empirically substantiate a structured pathway from organizational design to sustainable performance outcomes.

B. Theoretical Implications

This study advances theory in four principal ways.

1) Opening the "Black Box" of Dynamic Capabilities

Dynamic capabilities theory has been widely influential but often criticized for limited explanation of how such capabilities emerge and evolve. By specifying organizational structural flexibility as an antecedent and resource reconfiguration capability as a key mechanism, this study offers a more concrete account of capability formation. Dynamic capabilities are shown to develop through repeated resource orchestration practices embedded within flexible structural arrangements.

2) Integrating Organizational Design and Strategic Management

By directly linking structural flexibility to business model innovation and performance outcomes, this research bridges organizational design and strategic management literatures. It demonstrates that structural decisions are not merely administrative choices but foundational strategic levers shaping innovation and long-term competitiveness.

3) Advancing Sustainable Business Model Innovation (SBMI) Research

Although SBMI scholarship has expanded rapidly, it has often emphasized typologies or external drivers. This study systematically identifies internal organizational prerequisites for successful SBMI, offering a more comprehensive framework that explains how firms build the internal capacity required for sustainability transitions.

4) Clarifying the Resilience – Sustainability Relationship

Rather than conceptualizing resilience and sustainability as competing objectives, the findings show that business model redesign can enhance both simultaneously. This integrative perspective helps reconcile tensions between short-term adaptability and long-term sustainable development.

C. Practical Implications and Implementation Guidance

The results provide several actionable implications for managers.

1) Structural Reform as the Foundation of Transformation

Business model innovation should be supported by corresponding structural adaptation. Flexible organizational forms — characterized by decentralized decision-making, cross-functional integration, and fluid resource allocation— create the conditions necessary for effective transformation.

2) Institutionalizing Resource Reconfiguration

Resource reconfiguration should be treated as a continuous strategic capability rather than a reactive response to crisis. Regular resource portfolio assessments, selective divestment, and proactive capability acquisition through alliances or acquisitions are essential for sustained renewal.

3) Investing in Organizational Learning

Structural flexibility alone is insufficient. Firms must cultivate learning systems, knowledge-sharing mechanisms, and leadership practices that reinforce experimentation and adaptive behavior. These investments amplify the impact of structural reform on capability development.

4) Pursuing Integrated Resilience and Sustainability

Rather than managing resilience and sustainability as separate initiatives, firms should design business models that jointly enhance adaptive capacity and long-term social and environmental value creation. An integrated approach can generate synergistic advantages.

5) Adapting the Framework to Context

Although the model offers general guidance, implementation must reflect industry conditions, competitive positioning, organizational maturity, and resource endowments. Context-sensitive adaptation is essential for effective application.

D. Research Limitations

1) Several limitations should be acknowledged.

Geographic and temporal scope: The sample focuses on enterprises in mainland China within a specific time frame. Future research should test generalizability across regions and periods.

Industry representation: Certain sectors, particularly high-technology and emerging industries, are relatively overrepresented. Broader sectoral validation is warranted.

Measurement approach: Reliance on self-reported survey data introduces potential common method bias. Multi-source and objective performance measures would strengthen robustness.

Cross-sectional design: The study captures relationships at a single point in time. Longitudinal research would provide deeper insight into dynamic processes.

Boundary conditions: While organizational learning capability was identified as a moderator, additional contextual and organizational moderators merit examination.

E. Future Research Directions

Building on these limitations, several avenues warrant exploration:

- Temporal dynamics: Longitudinal studies tracking full transformation cycles to examine how relationships evolve.
- Environmental contingencies: Analysis of how market turbulence, technological change, and regulatory pressure influence model relationships.
- Organizational characteristics: Examination of firm size, age, ownership structure, and industry effects.
- Process-level research: Qualitative or mixed-method studies investigating implementation mechanisms of restructuring and reconfiguration.
- Performance heterogeneity: Investigation into why some firms succeed in business model redesign while others struggle.
- Cross-cultural validation: Testing the framework across different institutional and cultural contexts.

F. Final Remarks

Business model redesign oriented toward resilience and sustainability is not merely a strategic initiative but a systemic organizational transformation process. Effective transformation requires coordinated evolution across organizational structure, resource orchestration, capability development, and business model architecture.

The integrative framework proposed in this study — linking organizational structural flexibility, resource reconfiguration capability, dynamic capabilities, business model innovation, and enterprise performance — offers a coherent roadmap for navigating uncertainty. As global environments become increasingly volatile and sustainability imperatives intensify, this framework provides structured guidance for enterprises seeking not only to survive turbulence but to generate enduring economic, social, and environmental value.

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COMPETING INTERESTS

The authors declare no competing interests.

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