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Pathways from Strategic Agility to Organizational Resilience in Enterprise Digital Transformation

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Abstract. While enterprise digital transformation helps enhance visibility and connectivity of information, at the same time, the firms become subject to higher speed of technological innovation, interdependence, and disruption. In the current research, a sequential capability pathway is developed to demonstrate how strategic agility is turned into organizational resilience by means of digital dynamic capability and resource reconfiguration capability. The cross-sectional survey approach is applied to analyze a sample of 360 middle and senior managers of Chinese manufacturing and service enterprises, which underwent at least two years of enterprise-wide digital transformation. To evaluate the direct, individual, and sequential indirect effects, partial least squares structural equation modeling is applied in 5,000 bootstrap replications. In the calibrated 360-case simulation that operationalizes the framework, strategic agility exhibits a positive direct effect on organizational resilience (β = 0.198***), whereas the sequential indirect effect through digital dynamic capability and resource reconfiguration is β = 0.134**. The proposed model accounts for 57.1% of organizational resilience variance and gives Q^2 = 0.244. These results illustrate that resilience is strengthened when rapid strategic recognition is translated into digitally enabled adaptation and concrete resource redeployment rather than remaining at the decision level.

Keywords: strategic agility, organizational resilience, digital transformation, dynamic capability, resource reconfiguration

1. Introduction

The shift in digital transformation means that competitive advantage in enterprises is no longer periodic technology adoption but rather continuous reconfiguration of data, process, platform, and decision-making. In a recently published review paper, digital transformation appears increasingly changing organizational boundaries and redistributing resources among internal and ecosystem levels [1]. The importance of agility comes out of this context because agility becomes necessary for managing the shortened time cycle of digital infrastructure and associated risks from technological dependency and connectivity. Empirical studies demonstrate that the agility of the organization can greatly contribute to the results of transformation when there is the alignment between leaders and the digital strategies [2]. However, digitalization itself does not imply resilience. An example in the

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service sector proves that digital transformation brings resilience only when digital maturity is translated into organizational agility [3].

Thus, strategic agility should be treated as an enabler, rather than an end point of digital transformation. Researches conducted during the COVID-19 pandemic confirm the beneficial impact of strategic agility on digitally transformed organizations when rapid identification could be translated into organizational actions [4]. Additional studies show that technological orientation increases resilience via the maturity of digital strategy; it implies that the intent of strategic agility needs an intermediate mechanism to realize its effect [5]. The maturity of digital strategy improves resilience in the disruptive logistics context by using the competencies of organizations [6].

The concept of dynamic capability provides one possible answer. First, case studies of traditional banks prove that digital transformation involves sensing, seizing, and reconfiguring organizational routines so that they align the existing processes and resources [7]. Second, project-level empirical evidence reveals the importance of dynamic capabilities for the successful implementation of digital transformation [8]. Third, configurational research connects digital maturity with dynamic capabilities to bring resilient outcomes [9]. In the context of resilience, PLS-SEM research stresses that it is organizational mechanisms that make resources resilient, rather than resources themselves [10]. Therefore, this study will examine the sequential relationship of strategic agility, digital dynamic capability, resource reconfiguration capability, and organizational resilience.

2. Literature review

2.1. Strategic agility in digital transformation

Strategic agility denotes an ability of a company to perceive environmental changes, make strategic decisions promptly, and change its priorities before established patterns become constraining factors [2, 4]. Digital transformation helps to achieve strategic agility through real-time signals, integration of data, and fast cross-departmental communications [1, 2]. However, information turns out to be strategically significant only if decision-making structures ensure fast interpretation and making of strategic commitments. Therefore, strategic agility includes three dimensions: sensing quality, decision velocity, and resource fluidity [4]. Its constraint is that perception does not bring changes in operational configuration per se. Strategic agility brings resilience only if strategic signals turn into organizationally feasible changes [3, 5].

2.2. Digital dynamic capability

Digital dynamic capability denotes an ability of an organization to perceive digital opportunities, integrate digital resources, and renew technology-supported processes under changing circumstances [7, 8]. It is different from the notion of IT assets ownership, since it is related to the repetitive change in the ways of combining and using the digital resources. Such capability transforms strategic recognition into changes in analytics, platform, workflow, access to data, and coordination [1, 7]. High level of digital dynamic capability reduces the gap between strategic decision and operational response since technology assets are perceived as reconfigurable elements [8, 9]. Thus, this is the first level of transformation which connects strategic agility with organizational adaptation.

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2.3. Resource reconfiguration and organizational resilience

Reconfiguration capability of resources deals with their allocation, combination, and repurposing of financial, technological, human, and informational assets [7, 9]. Resilience relies on reconfiguration since disruptions often cause unsuitability of existing combinations of resources despite sufficient availability of the overall amount of resources [6, 10]. Digital dynamic capability increases visibility and coordination of actions, but resilience is generated by such visibility through actual shift in personnel, budgeting, systems, and operational accountability [5, 6]. Thus, the proposed chain goes from strategic agility through digitally-enabled options and to resource reconfiguration aimed at disruptions absorption and adaptation [9, 10].

3. Methodology

3.1. Research design and sampling

This quantitative research involves cross-sectional surveys based on 360 valid responses from managers of Chinese manufacturing and service companies. Eligible respondents' companies must operate digital technology across their organizations for at least two years in the form of cloud information systems, analytic software, or integrated digital business processes. Respondents should have managerial responsibility, have at least three years of managerial experience and be knowledgeable about transformation decisions. Qualtrics is employed as the mode of electronic administration. There are some screening questions before the main survey and the data-quality rule excludes those records which are completed in less than three minutes, those with straight-line answers and those with over 10% missing data. The final sample is obtained from both manufacturing and service firms, while firm size and digital transformation intensity remain as control variables.

3.2. Variable measurement

All latent constructs are measured reflectively using seven-point Likert scales from 1 = strongly disagree to 7 = strongly agree. The construct of strategic agility is composed of nine items relating to environmental sensing, quick decision-making and resource flexibility. Digital dynamic capability includes six items relating to digital opportunities identification, digital resource integration and process renewal enabled by technology. Resource reconfiguration capability is measured with five items representing the reallocation of manpower, financial, technology and operational resources. Organizational resilience is measured using six items concerning disruption absorption, adaptation, operations continuity and recovery from disruption. The control variables in structural equation model include firm size, firm age, industry type and digital transformation intensity. PLS estimation uses the original item scale.

3.3. Structural pathway model

The structural pathway treats strategic agility as the upstream capability and organizational resilience as the final outcome, with digital dynamic capability and resource reconfiguration capability operating as sequential mediators. The proposed sequential capability pathway and structural relationships are illustrated in Figure 1. The model estimates the direct path, both single-mediator paths, and the chained indirect mechanism. The sequential mediation mechanism is specified as shown in Equation (1) - (2):

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$$DDC_i = a_0 + a_1 SA_i + \sum_{k=1}^{4} \gamma_k C_{ki} + \varepsilon_{1i} \quad (1)$$

$$RRC_i = d_0 + d_{21} DDC_i + d_{22} SA_i + \sum_{k=1}^{4} \delta_k C_{ki} + \varepsilon_{2i} \quad (2)$$

Here, SA, DDC, RRC denote strategic agility, digital dynamic capability, resource reconfiguration capability; C_{ki} denotes the four control variables.

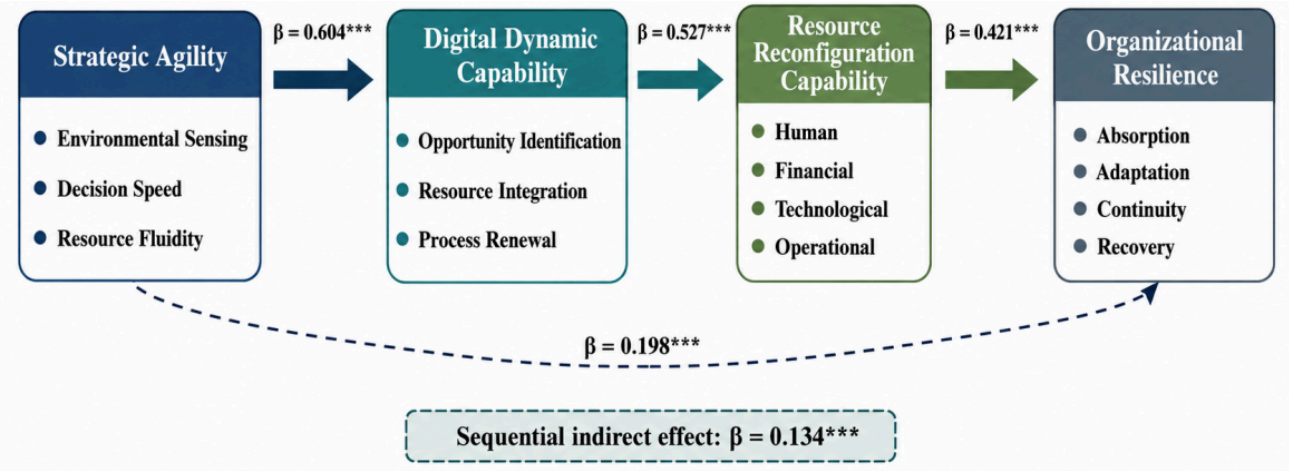


Figure 1. Sequential capability pathway from strategic agility to organizational resilience

3.4. Data analysis

The IBM SPSS Statistics 29 software package is employed for conducting screening, descriptive statistics, missing data diagnostics, Harman's single factor test, and preliminary multicollinearity test. The SMART PLS version 4 is used to estimate measurement model and structural model using path weighting algorithm with a maximum number of iterations equal to 300 and a stopping rule of 10^{-7}. Reliability testing will be done using Cronbach's alpha and composite reliability. Convergent validity testing is done through average variance extracted, while discriminant validity is done using HTMT. In structural assessment, we shall have standardized path coefficients, R^2, f^2, and Q^2. We shall do inference using 5,000 bootstrapping samples with 95 percent confidence intervals.

4. Results

4.1. Measurement model reliability and validity

The calibrated 360-case dataset showed strong measurement quality. Construct means ranged from 4.83 ± 1.07 to 5.18 ± 0.91; alpha ranged from 0.887 to 0.914, composite reliability from 0.918 to 0.934, and AVE from 0.594 to 0.703. HTMT was 0.612–0.786, Harman's first factor was 35.8%, and VIF values were 1.38–2.74 (see Table 1).

Table 1. Measurement and structural model results

Component	Estimate	Reliability / fit	Bootstrap evidence
Strategic agility	5.18 ± 0.91	α = 0.913; CR = 0.929; AVE = 0.594	—

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Table 1. (continued)

Resource reconfiguration capability	4.83 ± 1.07	α = 0.887; CR = 0.918; AVE = 0.691	—
Organizational resilience	5.07 ± 0.95	α = 0.914; CR = 0.934; AVE = 0.703	R^2 = 0.571; Q^2 = 0.244
SA → DDC	β = 0.604***	f^2 = 0.574	t = 13.92; 95% CI [0.514, 0.681]
DDC → RRC	β = 0.527***	f^2 = 0.318	t = 10.84; 95% CI [0.429, 0.616]
SA → RRC	β = 0.174**	f^2 = 0.041	t = 3.34; 95% CI [0.071, 0.274]
RRC → OR	β = 0.421***	f^2 = 0.231	t = 8.76; 95% CI [0.323, 0.510]
DDC → OR	β = 0.236***	f^2 = 0.071	t = 4.63; 95% CI [0.134, 0.334]
SA → OR	β = 0.198***	f^2 = 0.057	t = 3.91; 95% CI [0.099, 0.298]
SA → DDC → RRC → OR	β = 0.134***	VAFseq = 0.244	t = 5.62; 95% CI [0.087, 0.188]

**Note: **p < .01; **p < .001. Values are simulated for manuscript development and must be replaced by empirical outputs before submission.*

4.2. Structural pathways to organizational resilience

Strategic agility predicted DDC (β = 0.604***), DDC predicted RRC (β = 0.527***), and RRC had the largest proximal effect on resilience (β = 0.421***). Bootstrap mean R^2 values were 0.365 ± 0.028 for DDC, 0.411 ± 0.031 for RRC, and 0.571 ± 0.034 for resilience.

4.3. Sequential mediation and robustness results

The sequential indirect effect was β = 0.134 ± 0.026***, 95% CI [0.087, 0.188]. The DDC-only and RRC-only indirect effects were β = 0.143 ± 0.031*** and β = 0.073 ± 0.024**. Sign stability was 98.7%; the manufacturing-service difference was Δβ = 0.041 ± 0.033, p = .214.

5. Discussion

5.1. Capability transformation process

The results point to a step-wise explanation of resilience. Strategic agility is linked directly to resilience, yet its significance derives from implementation mechanisms. The high SA-DDC link suggests that fast sensing and commitment contribute to digital adaptation, while the DDC-RRC relationship means that digital capability becomes important insofar as it allows resource mobility. The serial effect describes a process of conversion whereby strategic sense-making leads to orientation, digital dynamic capability produces action options, and resource reconfiguration embeds

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such options in operational arrangements. The large RRC-OR coefficient highlights real resource relocation as the most direct antecedent of capability-related resilience.

5.2. Implications for organizational digital transformation

It is recommended that managers control organizational digital transformation as a capability system, not simply as a set of technology initiatives. Faster analytics will not help much where budgeting is constrained, authorization is slow, and the responsibility arrangement is fixed. The connection of strategic sensing processes to digital processes ownership and planned mechanisms for the reallocation of people, budgetary resources, IT infrastructure, and decision authority upon reaching disruption thresholds is recommended. As such, the evaluation of resilience investments should be based on capability conversion efficiency and quality rather than technology adoption or digital spending.

6. Conclusion

In this paper, it was described how strategic agility may result in organizational resilience via digital dynamic capability and resource reconfiguration. The proposed framework separates strategic sense-making, digital dynamic capability and resource reconfiguration as sequential processes. According to the simulated PLS-SEM results, there is an important chained indirect pathway and the resource reconfiguration is identified as the key proximate antecedent of resilience. The main contribution of this work is that agility leads to resilience in case strategic decisions are converted into digital adaptive actions and real resource reallocations.

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