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Review

# Factors influencing high-tech startup business model innovation in China: A systematic literature review

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**Abstract:** Business model innovation (BMI) has garnered substantial academic and corporate attention in recent decades. Researchers have not yet agreed on the most complicated BMI practices in the high-tech startups (HTS). Despite being the second-biggest economy in the world today, China has done little research on the practice of business model innovation in China's high-tech startups. This study addresses the factors that impact the business model innovation of high-tech startups in China. Our study aims to fill the research gap by visualising and analysing, using systematic literature review (SLR) analyses and reviewing 36 in-depth articles, from 688 academic literature sources. Relevant publications from Scopus, Springer, ScienceDirect, Web of Science, IEEE Xplore, and the JDM e-library expose the current research status from 2013 to December 2023 without bias. We conducted a literature-based investigation to identify essential insights on the BMI factors in the literature and derived a high-tech startup's BMI critical factor. Our study shows that three main factors affect the innovation of business models in high-tech startups in China. The findings raise managers', entrepreneurs', and executives' knowledge of corporate resource bricolage and cognitive style constraints in business model innovation and their pros and cons. The findings will help Chinese academics understand enterprises' institutional environment and resource bricolage as final suggestions and proposals for corporates, regulators, and policymakers are presented.

**Keywords:** high-tech startups; BMI; quality management; factors; China; SLR

## 1. Introduction

In recent decades, significant academic, and corporate focus has been on business model innovation (BMI). According to the literature, business models have evolved into a multidimensional analytical framework that illustrates a company's core components and operating logic as e-commerce has grown. The business model is a framework that outlines the interconnected activities of a company extending beyond its core operations to generate and gain value (Amit and Zott, 2001). The business model, in this context, refers to the actual strategy implemented by the organisation. It is a collection of complementary resources that facilitate the commercialisation of the firm's main products (Velu and Stiles, 2013). Business model innovation encompasses a more comprehensive transformation compared to product or process innovation. This transformation entails changing the customer value proposition, value creation, and value capture (Markides, 2006; Velu and Stiles, 2013). Therefore, the extent of business model innovation may have a distinct impact on the longevity of a company compared to innovation in products or processes. It is necessary to analyse the extent of innovation in the business model by going beyond the limits of

the firm and investigating how partner enterprises with complementary assets can impact the survival of the firm. Although there is a substantial body of literature on leveraging complementary assets for product and process innovation, the study of business model innovation remains unexplored (Teece, 2006).

Start-ups often have a reputation for being inventive and adaptable in their execution of operations. However, statistics show that approximately nine out of ten startups ultimately fail, with eight failing within 18 months (Griffith, 2014; Roth, 2016). According to Silva et al. (2023), startup entrepreneurship fails because of financing issues, resource shortages, and competitive markets. A high-tech startup is a business organisation that has operated for less than five years, employs fewer than 10 people, and focuses on manufacturing a substantial amount of complex technological products (Öndas and Akpinar, 2021). Organisational activity in the management of innovative high-tech startups involves using managerial tools and methods to achieve specific goals. This includes establishing a hierarchical system within the team that coordinates actions both vertically and horizontally within the startup structure. Team roles are clear in the execution of tasks, where individual qualities of group members are utilised. China is becoming a dominant player in the high-tech export sector, as evidenced by this trend (Dornberger and Zeng, 2009).

The number of high-tech start-ups is flourishing. However, researchers have found that many new enterprises experience failure and collapse during the initial phases, with the majority failing within less than five years. Researchers have yet to systematically reveal the causes of this failure (Akter and Iqbal, 2020). However, insufficient business model innovation was their downfall (Anwar and Ali Shah, 2020). Many empirical studies have shown that business model innovation can help high-tech startups navigate volatile markets and address challenges related to limited resource integration capabilities and underdeveloped internal innovation mechanisms (Franco et al., 2021). The study of BMI caused an exploration of various factors that impact business model innovation in the Chinese context. Chinese high-end equipment manufacturers have the potential to enhance their competitiveness and performance by effectively managing their business model innovation. These startups can gain a lasting competitive edge by implementing well-planned strategies (Tian et al., 2019). Thus, business model innovation is crucial to the long-term viability of startups. Studying how startups can use business model innovation to gain a sustainable competitive advantage is vital to China's economic transformation. The value of technology is greatly diminished if it has not undergone commercialisation. Commercialising a product or service with two business models will probably affect revenue and profit. Competitors may outperform a company that cannot innovate its business strategy (Chesbrough, 2010).

Chinese enterprises have increasingly adopted IT to develop and differentiate in recent years. With a high client base, modern technologies, especially the web, help companies reach more people at lower cost. In China, corporations innovate largely using Big Data or digital platforms. Yu'E Bao and Xiaomi are prime examples. Xiaomi sells mostly online, while Yu'E Bao innovates using Big Data (BMI Lab, 2024). This startup founded its business model on offering an inexpensive, efficient smartphone. Introducing this smartphone brought about a significant innovation in the industry. This value proposition targets the Chinese worldwide market, particularly

low-income people (Fischer and Simon, 2016). The result of this is an increase in brand loyalty. Yu'E Bao uses Big Data, unlike Xiaomi. Yu'E Bao, a money-market fund, predicts client behavior/creditworthiness using Alibaba Big Data.

These two cases highlighted how new technology may boost your business. It can increase your business and open new doors. Innovation can change your business model, though. Thus, factor adaptability must be considered in terms of innovation. Therefore, business model innovation is crucial to long-term success, and businesses face challenges in innovating their business models. There are obstacles and opportunities for these entrepreneurs in China, and more notably, in Zhejiang, the Business model innovation, a province renowned for its vibrant digital hubs and innovative ecosystems. As extant scholarly literature provides a wealth of information on the driving factors of BMI dispersed across various fields and sources, we addressed this issue by conducting a literature-based analysis of scholarly publications, bringing together available insights, and merging them.

Given the limited research on business model innovation and the risk of failure for startups without a suitable business model, our systematic literature review aimed to provide a comprehensive description and visualisation of the business model innovation process for startups. Additionally, we sought to identify the factors that influence business model innovation in China. The study supports the recommended merging research approach by aggregating and integrating knowledge on BMI driving factors. Also, it provides a handy knowledge collection of the driving factors of BMI for high-tech startups. SLR research question was asked to produce more apparent results. What are the critical factors influencing BMI for high-tech startups? Clear the research question helps readers understand the factors that affect the business model innovation of high-tech startups in China. The authors also describe the BMI, the theoretical lenses of the BMI for High-tech Startups used in their research, and the research gaps and weaknesses.

The research continues to achieve these goals. The following section will detail the process and method used to collect secondary data and assess publications. The findings of the literature analysis are then presented, forming the foundation for inferring the general BMI procedure in the following section. The study has been divided into four components by the researchers: The method is covered in Section 2, along with the mapping of the SLR, search terms, PRISMA, data sources, and data gathering. Section 3 covers the results and a discussion of the secondary data analysis. Ultimately, the investigation concludes in Section 4.

## 2. Materials and methods

### 2.1. Systematic literature review

In this section, the researcher used an SLR to maximise publication value. A single SLR research question was asked to produce more apparent results. Through our study, we need to find the answer to the main question: what are critical factors that affect the business model innovation of high-tech startups in China? This question aims to find the critical factors that affect High-tech startups in BMI.

This study addresses the questions using Kitchenham and Charters (2007) SLR principles. SLR involves planning, conducting, and reporting the review. Each stage

comprises identifying research questions, developing a review protocol, identifying inclusion and exclusion, identifying the search strategy and study selection process, providing quality assessment, and synthesising and extracting data.

A review method should be created for SLR because it outlines the steps. Kitchenham and Charters (2007) designed the review method to minimise study bias. Research questions were developed first for this SLR's evaluation. It includes research background, strategy, study selection, quality evaluation, data extraction, and data source synthesis.

## 2.2. Source data

### 2.2.1. Inclusion and exclusion criteria

Inclusion and exclusion were noted to ensure the chosen studies apply to the ongoing research. Targeted research was published in English-language journals, workshops, articles, conferences, and book chapters from 2013 to December 2023. This period's publications were chosen for several reasons: This review of previous BMI studies aims to provide a complete understanding (Luo and Bai, 2021). Many studies have examined BMI after 2013, and the critical works on this topic reviewed business model innovation for high-tech start-ups until 2023. Therefore, this study is a systematic compilation, evaluation, and synthesis of studies from the past decade. This study's evaluation criteria are presented in **Table 1**. Each article was screened using study inclusion and exclusion criteria. Inclusion criteria were based on article content, timing, and language. Only journal-published articles with empirical data were analysed. The analysis only included English-language articles. Article reviews, book chapters, book series, conference proceedings, manuscripts in languages other than English, and duplicate articles were rejected. The inclusion and exclusion criteria are given in Table 1.

**Table 1.** Evaluation criteria for inclusion and exclusion of the study.

| Criteria | Inclusion | Exclusion |
|---|---|---|
| Language | English | Other languages |
| Year of publication | 2013–2023 | before 2013 |
| content | Directly related to business model innovation | Other content |
| Document type | Workshop papers, articles, conference papers, and book chapters | Other |
| Source type | Journal and book | Other |
| Publication state | Final | Article in press |

### 2.2.2. Search strategy

This study searched well-known web databases for high-tech business model innovation articles, including Scopus, Springer, ScienceDirect, Web of Science, IEEE Xplore, and the JDM e-library. The databases provide timely, high-impact publications. Webster and Watson advised authors to submit to various journals (Watson and Webster, 2020). Before an automated search, choose the terms to extract relevant publications (Bandara, 2011). This study searched for relevant papers using "business model innovation," "BMI," "start-up," "high-tech," and ("critical factors"

or "factors,"). This study traced several studies' citations using a backward-forward search (Levy and Ellis, 2006). The forward search and discovery of the articles cited in the first chosen papers used "Google Scholar." Manually checking the systematic literature review ensured its completeness and relevance (Webster and Watson, 2002). The articles were organized, findings were used, and duplicate research was eliminated using Mendeley and MS Excel.

### 2.2.3. PRISMA and study selection process

Preferred reporting items for systematic reviews and meta-analyses (PRISMA). Statement and its extensions are a collection of evidence-based guidelines that aim to promote transparent and comprehensive reporting of systematic reviews (SRs). Scientists have created a comprehensive collection of rules to help writers accurately describe different knowledge synthesis methods, such as systematic reviews, scoping reviews, and review protocols (Sarkis-Onofre et al., 2021). These standards ensure that all components of this sort of research are reported accurately and transparently. The PRISMA statement assists authors in accurately detailing their actions, discoveries, and plans through the use of a review method.

This strategy aims to identify articles evaluating SLR, and 688 studies were found through automatic keyword searches. After removing duplicates, Mendeley identified 418 remaining studies. Each study was provided with specific criteria for inclusion and exclusion. Based on their abstracts and conclusions, 158 papers were irrelevant at this stage, and this step included non-review papers (Kitchenham and Charters, 2007). Here, we manually searched each study for additional studies. Only 260 studies remained after 109 manual searches were removed. After applying quality rating criteria to 151 manual search publications, 36 were primary research, and 115 were discarded. **Figure 1** depicts its identification, screening, and eligibility phases (exclusion and inclusion criteria). We then assessed the chosen paper's quality, explaining how they ensured objectivity. The authors also discussed data analysis and validation. Finally, they explained how they got the analysis data.

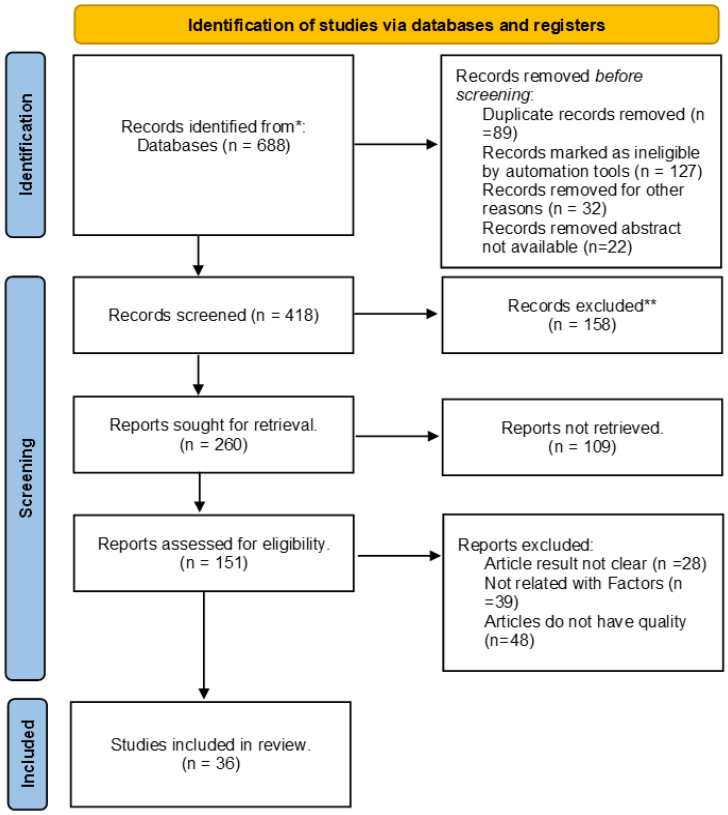


**Figure 1.** PRISMA flow diagram represent the study selection process.

### 2.2.4. Data synthesis and extraction

The researcher developed a form to collect information and ensure accurate material recording. We carefully read each publication before using Mendeley and an Excel spreadsheet to weed out material that was not pertinent. The data collection form was created using the recommendations from Liang and Turban (2011). The framework includes several BMI for HTS research components. It comprises several parts, including the research theme, theories, methodologies, and outcome measurements. Study ID, author, study title, publication date, issue addressed, source, thesis, research theme, technique, and research method were the columns used to extract the data from the current review. These traits were identified based on the objectives and research questions, as shown in **Table 2**.

**Table 2.** Data synthesis and extraction.

| Articles extracted | Context |
|---|---|
| ID of the study | Article identity |
| Author | Authors name |
| Study title | Title of article that appears in the search engine |
| Publication date | Year of published article: 2013–2023 |
| Issue addressed | Journal, conference, book |
| Theory | The theory adopted by the author |
| Research theme | Description of studies domain example BMI, HTS |
| Research method | Example, experiment, case study survey |

The required information was extracted and synthesised by scanning the full text of each primary study to provide an analysis of a variety of BMI for HTS-related issues, including date of publication, publishing sources overview, methodological approaches used in previous studies, a factor that affects, and the theoretical foundations of BMI for HTS studies.

## 3. Results and discussion

### 3.1. Temporal overview

The period covered by the review's studies was from 2013 to December 2023. The number of publications in this field of BMI for HTS increased noticeably from 2013 to 2023, with most studies in this field published in 2022. **Figure 2** lists the publication year of each article cited in this evaluation.

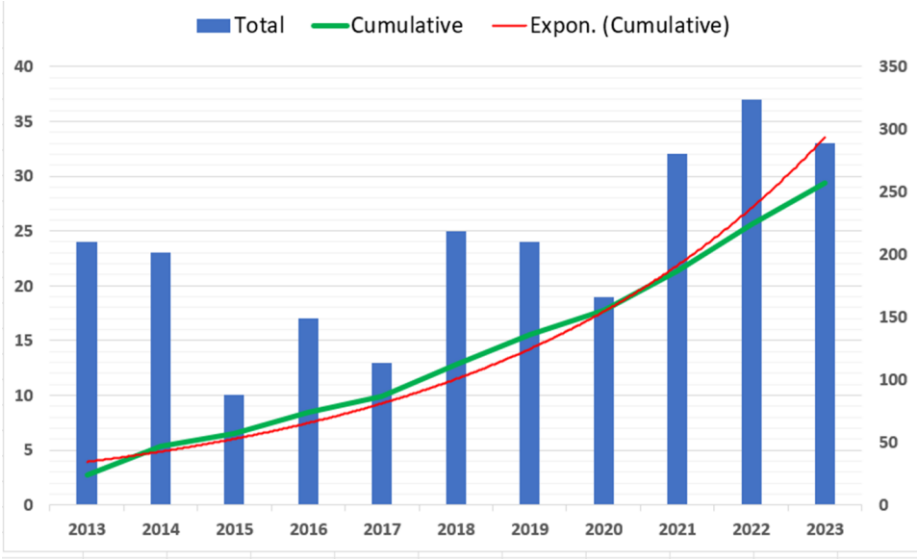


**Figure 2.** Primary study's temporal view.

#### 3.1.1. Top publisher

**Figure 3** shows that publishing academic articles about business model innovation depends on the platform concentrating on Chinese publishers. The highest publisher citation is technology analysis and strategic management, the second is IEEE Transactions on Engineering Management with 29, while the minimum cited publisher is Technology in Society with 0 citations, all from Chinese academic sources.

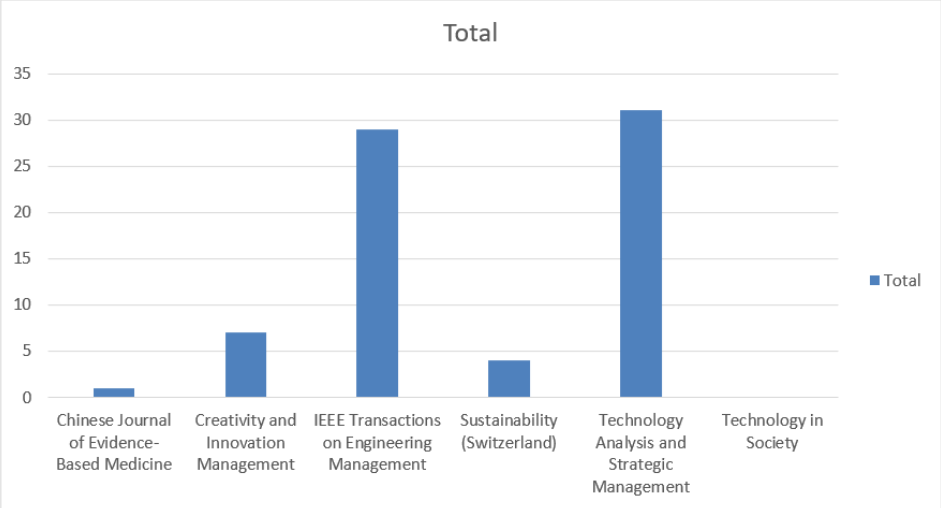


**Figure 3.** Business Model Innovation, academic article citation distribution by publisher platform.

### 3.1.2. Top cited articles

The most cited article title is "The role of top management team diversity in shaping the performance of business model innovation: A threshold effect." The second cited article title is "The fit between value proposition innovation and technological innovation in the digital environment: implications for performing startups." The third article, "Entrepreneurial networks, effectuation, and business model innovation of startups: The moderating role of environmental dynamism," has seven citations, as shown in **Table 3**.

**Table 3.** Top cited articles for BMI and BMI for startups.

| Title | Total citation |
|---|---|
| The role of top management team diversity in shaping the performance of business model innovation: a threshold effect. | 33 |
| The fit between value proposition innovation and technological innovation in the digital environment: Implications for the performance of startups. | 29 |
| Entrepreneurial networks, effectuation and business model innovation of startups: The moderating role of environmental dynamism. | 7 |
| Business model innovation and performance of startups: The moderating role of external legitimacy. | 2 |

### 3.1.3. Citation analysis, with the authors

The process of doing a bibliographic review of authors and citations utilising secondary data from the web of science involves the following steps: The chosen analysis method is citation analysis, with the author being the unit of analysis. The criteria comprise a maximum limit of 25 authors per document, a minimum need of 5 records per author, and no minimum quantity for citations per author. Of the total 3294 authors, only 36 satisfy these criteria. We determine the total strength of citation links between the 36 authors and choose the authors with the highest total link strength. While some authors in the network are not connected, the largest group of connected things consists of 32 authors. The results, illustrated in **Table 4**, display this collection of interconnected elements. The analysis reveals that the top authors are Vinit Parida, who has 17 documents and 927 citations with a total link strength of 157, Thomas

Clauss, who has 9 documents and 852 citations with a total link strength of 98, Sascha Kraus, who has 11 documents and 813 citations with a total link strength of 85, and Antonio Ghezzi, who has 9 documents and 724 citations with a total link strength of 70. Heiko Gebauer, Victor Tiberius, Alejandro G. Frank, Nancy Bocken, David Sjödin, and Pejvak Oghazi are distinguished authors who have made major contributions to the network. Their relative document counts, citation numbers, and link strengths are noteworthy.

**Table 4.** Top ten authors from bibliographic review of authors and citations.

| ID | Author | Documents | Citations | Total link strength |
|---|---|---|---|---|
| 1 | Parida, Vinit | 17 | 927 | 157 |
| 2 | Clauss, Thomas | 9 | 852 | 98 |
| 3 | Kraus, Sascha | 11 | 813 | 85 |
| 4 | Ghezzi, Antonio | 9 | 724 | 70 |
| 5 | Gebauer, Heiko | 6 | 718 | 92 |
| 6 | Tiberius, Victor | 6 | 507 | 35 |
| 7 | Frank, Alejandro G. | 5 | 490 | 52 |
| 8 | Bocken, Nancy | 13 | 424 | 51 |
| 9 | Sjödin, David | 8 | 408 | 103 |
| 10 | Oghazi, Pejvak | 5 | 358 | 54 |

### 3.1.4. Country's citation and total link strengths

The selected analysis type is citation, focussing on counters as the unit of analysis. The specifications comprise a cap of 25 nations per document, a minimum number of 5 documents per country, and no obligatory citation requirement for a country. Among the 94 countries, 55 satisfy these criteria. The total citation link strength with other nations is determined for each of the 55 countries, and the ones with the highest total link strength are chosen. The research, shown in **Table 5**, uncovers the leading country in terms of documents, citations, and total link strength: Italy is in the lead with 162 documents and 3999 citations, resulting in a total link strength of 2000. England follows with 164 documents and 3472 citations, resulting in a total link strength of 1752. Germany is in third place with 152 documents and 3286 citations, resulting in a total link strength of 1582. Noteworthy countries such as Finland, Sweden, Netherlands, France, USA, People's Republic of China, and Denmark have made major contributions to the network. They have shown this by their respective document counts, citation numbers, and link strengths.

**Table 5.** Top 10 countries' citation number and total link strengths from a bibliographic review of country's citation.

| ID | Country | Documents | Citations | Total link strength |
|---|---|---|---|---|
| 1 | Italy | 162 | 3999 | 2000 |
| 2 | England | 164 | 3472 | 1752 |
| 3 | Germany | 152 | 3286 | 1582 |
| 4 | Finland | 79 | 2958 | 1374 |

**Table 5.** (*Continued*).

| ID | Country | Documents | Citations | Total link strength |
|---|---|---|---|---|
| 5 | Sweden | 109 | 2955 | 1576 |
| 6 | Netherlands | 90 | 2823 | 1121 |
| 7 | France | 75 | 2605 | 1076 |
| 8 | USA | 92 | 2202 | 759 |
| 9 | P.R. China | 226 | 1747 | 1526 |
| 10 | Denmark | 68 | 1430 | 778 |

## 3.2. Review of knowledge gaps

Systematic literature reviews promote knowledge advancement and highlight areas for future research with the most significant impact. An issue or research problem can be summarized through literature reviews, and it can set research agendas, identify gaps, or discuss a topic. Literature reviews can benefit theory development (Torraco, 2005). In these circumstances, a literature review can help establish a new conceptual model or theory and trace the growth of a study field (Snyder, 2019).

The contradictory findings in empirical literature regarding the impact of strategic leadership on performance variance can be attributed to different techniques, variable interpretations, and contextual factors. Empirical research suggests that performance discrepancies can be attributed to the influence of the external environment on strategic leadership and performance. Thus, the external environment may moderate the association. Performance effects of strategic leadership and organisational change are mixed. This inconsistency may be attributed to changes in concept definitions, strategic leadership, and organisational change's mediating impact on performance. Scholars also disagree on the causal link between strategic leadership and performance because performance is a multifaceted entity conceptualised and measured differently. Research has not investigated the joint effect of strategic leadership, the external environment, and organisational change on performance. This research argues that strategic leadership may not impact performance because of the external environment and organisational development.

Despite investing the second most in research and development (R&D), China has not been a major technology pioneer, but Chinese companies have used process, business model, and customer experience advances to their advantage. Xiaomi phones do not have innovative hardware, but customers appreciate the regular software updates. Tencent's WeChat may look like a WhatsApp clone, but it lets users accomplish various things that other messaging applications cannot (Fischer and Simon, 2016). Again, true disruption (though not yet successful outside China). A Beijing University chaired professor criticized this emphasis on "made for China" because some returning young Chinese scientists wish to "continue their advisor's work". Researchers soon experience a two-speed change because of business model disruption in China. First, cost-competitive Chinese enterprises will continue to be displaced. Second, rising entrepreneurs will drive disruptive business model innovation in less-familiar Chinese economic areas. Western firms face a new challenge. Process changes and government trade actions can mitigate displacement, and cost advantages are transient sources of competitiveness, but disruption is more

difficult. It requires a real transformation in incumbent companies, which is notoriously tough (Fischer and Simon, 2016).

**Table 6** summarises 36 studies and their gaps to guide the development of ideas. Empirical research must fill knowledge gaps.

**Table 6.** Findings, limitations, and a gap from the 36 articles summarised from SLR.

| No | References | Finding (factor, framework) | Limitation/gap |
|---|---|---|---|
| 1 | (Wu et al., 2018) | Demonstrates the regulative, normative, and cognitive legitimacy influence business model innovation and aligns with the institutional environment in China | Omit institutional environment moderating |
| 2 | (Xue et al., 2019) | Organisational learning ability, consumer demand, entrepreneurial spirit, and website performance significantly affect the business model innovation of small and micro travel agencies (SMTA) on the Internet + era | The sample size for research on the travel agency industry in China is limited at a regional level. They are not high-tech startups. |
| 3 | (Zhang et al., 2022) | dynamic capabilities (sensing, seizing, and reconfiguring) and business model innovation (value proposition, value creation, and value capture) are crucial for disruptive innovation. | A single case study (ByteDance) and the specific context of the Chinese internet industry. |
| 4 | (Zhou et al., 2022) | Two BMI dimensions, pioneering (self-efficacy, hope, cognition, and structural dimensions are crucial for corporate innovation), and Perfect (structural dimensions of hope, optimism, relationships, and supply chain are essential) | not mention cognitive style or moderator (institutional environment). |
| 5 | (Zhang et al., 2023) | External legitimacy affects business model innovation and startup performance differently. Regulative and normative legitimacy severely affect startup performance and innovation in novelty-based business models. In contrast, normative legitimacy positively affects innovation and startup performance in an efficiency-based business model. Cognitive legitimacy positively controls innovation and startup performance in the novelty-based business model. | The reliability of data collection, not to mention the high-tech startups, is significant. |
| 6 | (Guo et al., 2018) | Functional and tenure diversity within the top management team (TMT) exhibits noticeable threshold effects on the correlation between BMI (novelty and efficiency) and corporate performance. | Startups and institutional environment not provided. |
| 7 | (Xu et al., 2023) | Entrepreneurial networks and effectuation enhanced BMI for startups when combined. Second, bricolage mediated entrepreneurial networks and effectuation into BMI.<br>Third, environmental uncertainty reduced the bricolage-BMI correlation. | The institutional environment as moderators between resources and BMI should be explored. |
| 8 | (Jian and Hongxia, 2023) | Innovation performance positively correlates with efficiency- and novelty-oriented business models and technology development and acquisition. Technological innovation mode mediates business models and innovation performance, while technological regimes moderate these relationships differently. | Not to mention startups. |
| 9 | (Jiang et al., 2023) | From new ideas to long-term stakeholder support, original business models involve gaining varied knowledge, spotting unique opportunities, and applying multidisciplinary thinking. Refining, testing, and verifying real-life business models helps achieve sustainability. Dynamic, iterative development requires entrepreneurial cognition and cross-domain knowledge integration. | The lack of consideration for external influences such as the institutional environment, sampling, and case selection bias affects only six startup enterprises. |
| 10 | (Wang et al., 2022) | Entrepreneurial learning and bricolage positively influence performing small and medium-sized enterprises, mediating this relationship between business model innovation. The interaction between entrepreneurial learning and bricolage further enhances business model innovation and entrepreneurial performance | Qualitative methods affect generalizability. |
| 11 | (Minatogawa et al., 2018) | Twelve BMI factors are categorised into cognitive, managerial, environmental, and relational categories. | Some factors influencing business model innovation are still debated and have not yet been identified. |

**Table 6.** (*Continued*).

| No | References | Finding (factor, framework) | Limitation/gap |
|---|---|---|---|
| 12 | (Zhang et al., 2018) | Exploratory orientation positively impacts new venture growth, with business model innovation mediating this relationship and Internet embeddedness acting as a moderator. | sample size, China regional, Data collection reliability, |
| 13 | (Zhao et al., 2022) | In Chinese cold chain logistics enterprises, the main risk factors for business model innovation are management, technical, and environmental risks. Risk management negatively impacts innovation, while business efficiency positively correlates with financial performance. Technical and management risks are positively correlated, and ecological risks positively impact technological risks but have an insignificant effect on management risks. | Case studies limit the generalizability. |
| 14 | (Milei, 2022) | Business model innovation (BMI) varies between startups and established companies because of different barriers: startups struggle with resource constraints, capability gaps, and uncertainty yet face fewer structural and cognitive barriers than established companies. Established companies often transform mature business models because of external changes, while startups change their models to meet market demands. Parallel models exist alongside original ones for strategic agility, and greenfield models are built anew, free from existing constraints. | There is insufficient detail on how resource and capability deficiencies and cognitive barriers affect different business model innovations; they only study business models for transformation. |
| 15 | (Van Den Heuvel et al., 2020) | External factors like customer needs, regulations, partner collaborations, market dynamics, and technological advances significantly influence business model innovation (BMI). Internally, dedicated decision-makers, the company's social impact vision, and technology usage either drive or hinder BMI, with flat hierarchies promoting innovation and technological limitations acting as obstacles. | The sample size in the mobility industry is small. The relationship between different influencing factors was not involved. |
| 16 | (Chen, 2023) | Innovation culture and policies synergistically boost BMI in emerging economies, with innovation culture mediating the impact of key capabilities (architecture, reputation, and innovation) on BMI outcomes and innovation policy acting as a moderator to enhance this indirect effect through greater support. | Not to mention startups. |
| 17 | (Liao et al., 2023) | Political and market legitimation motives enhance knowledge management capabilities (KMC), positively impacting business model innovation (BMI). Market motives amplify this effect, while political motives moderate it non-linearly, with only moderate levels benefiting BMI through KMC | Sample size, China's regional measurement cannot cover all aspects of the legitimacy. |
| 18 | (Wu et al., 2024) | Entrepreneurial bricolage enhances business model innovation (BMI), boosting entrepreneurial performance. BMI fully mediates the relationship between entrepreneurial bricolage and performance. Market orientation strengthens the impact of both entrepreneurial bricolage on BMI and the indirect effect of bricolage on entrepreneurial performance through BMI. | The generalizability is limited because of the sample size of Hubei Province. The institutional environment serves as a moderator, not to mention. |
| 19 | (Long et al., 2022) | Cognitive style affects information management through two primary views: a continuum from analysis to intuition (single process) and independent systems. Key dimensions include intuition-analysis and adaption-innovation. Expert entrepreneurs with more vital entrepreneurial goals use intuitive methods to find possibilities, especially in unpredictable circumstances. Risk preference and situational variables complicate the association between cognitive style and entrepreneurial performance. | High tech startups not included. |
| 20 | (Florek-Paszkowska et al., 2021) | Business innovation and success in various organizations and environments are affected by many interconnected factors, such as agility, resilience, digital transformation, and human and non-human elements. | Not to mention China's high-tech startups, detailed cases, and process descriptions of practical applications are insufficient. |

**Table 6.** (*Continued*).

| No | References | Finding (factor, framework) | Limitation/gap |
|---|---|---|---|
| 21 | (Wang and Kimble, 2016) | Bosch is used to investigate how industry, technology, system, and market affect business model innovation. Bosch differentiates its after-sales service with Europe's technological advantages to overcome technological restrictions. Bosch's expansion is limited by China's unfriendly laws for independent repair shops. Bosch's business model innovation can capitalise on the big, price-sensitive consumer market and 4S store unhappiness. | A single case is not fully generalizable; data sources may have certain biases. |
| 22 | (Wang et al., 2023) | Entrepreneurial bricolage enhances new product development (NPD) performance through creative resource use in new ventures. Founding team diversity boosts this effect, while high team involvement in decision-making can diminish efficiency. | The sample size limited. |
| 23 | (Hou et al., 2022) | Entrepreneurial bricolage (EB) impacts business model innovation (BMI), promoting an innovative organisational climate and enhancing employees' creative self-efficacy. Creative self-efficacy mediates the relationship between organisational-level EB/BMI and individual-level employee creativity, showing the cross-level effects of EB through BMI and creative self-efficacy. | Not considered cognitive style;<br>Direct measurement of modeling variables was not possible. |
| 24 | (Guo et al., 2022) | Value proposition innovation is positively associated with digital startup performance by launching new products and services, targeting new consumers and markets, and establishing new consumer relationships. Value creation innovation acts as a mediator between value proposition innovation and digital startup performance. Value capture innovation also mediates the relationship between value proposition innovation and digital startup performance. | Sample size for China region not mentioned in High tech startups. |
| 25 | (Luo and Bai., 2021) | High growth potential and internal R&D drive BMI in developing markets, while solid infrastructure and technological access support it in developed markets. Common barriers include regulatory and technological challenges and competitive pressures. Start-ups often partner with established firms and governments. For BMI to sustain its advantage, it must adapt to environmental changes and competitive landscapes, leverage existing ecosystems, and integrate new technologies. | The sample size does not mention the innovation of business models and the institutional environment in emerging market countries. |
| 26 | (Zhang, 2019) | Chinese journalism start-ups have explored innovative business models in China's particular political and social context. State media policy, the market, and technology are the three main driving forces behind the business model. | Case studies and the focus on Chinese journalism start-ups limit the general. |
| 27 | (Xu et al., 2024) | Entrepreneurial networks have a positive impact on startup BMI, with both causation and effectuation mediating this relationship. Environmental dynamism strengthens the effectuation link but does not significantly affect the causation pathway. | The sample size includes Chinese startups, without mentioning high-tech startups, entrepreneurial bricolage as a mediator, and institutional environment as moderators that affect business model innovation. |
| 28 | (Hu et al., 2020) | CSR positively influences BMI and has a positive effect on OL. OL, which partially mediates the relationship between CSR and BMI, also positively influences BMI. | Do not mention the institutional environment as moderators.<br>Neglect the investigation of internal factors through which CSR affects BMI. |

**Table 6.** (*Continued*).

| No | References | Finding (factor, framework) | Limitation/gap |
|---|---|---|---|
| 29 | (Li et al., 2023) | Policy incentives enhance high-tech startups' innovation, performance, and capacities. Policies' perception, usefulness, and usability contribute to the growth of innovation in startups. Policy adaptation mediates policy perception and innovation. Makerspaces change policy perception-adaptation relationships. | The sample size in the China region is only concerned with policy. |
| 30 | (Hou et al., 2022) | Executive cognitive ability (ECA) positively influences BMI in start-ups, with entrepreneurial bricolage (EB) mediating this relationship by creatively using limited resources. Environmental dynamism moderates both the ECA-BMI relationship and the mediating role of EB, enhancing ECA's impact on BMI in dynamic settings. | It is worth noting the role of cognitive style as an independent variable and the influence of the institutional environment as a moderator. |
| 31 | (Yan et al., 2020) | Top management team (TMT) boundary-spanning behavior positively influences BMI by acquiring external resources and information, while bricolage promotes creative use of existing resources. Bricolage mediates TMT boundary-spanning behavior and BMI, showing that TMT boundary-spanning behavior impacts BMI partly through bricolage. | There is no mention of the institutional environment and cognitive style. |
| 32 | (Millman and Li, 2017) | Entrepreneurship in Zhejiang, China, has grown significantly because of institutional transformations and government support, shaping an entrepreneurial environment with various policies. | A single province limits the generalizability. |
| 33 | (Guo et al., 2017) | Efficiency- and complementarity-centered strategies boost IoT mobile app value retention. IoT mobile apps lose value with lock-in models. Only high venture capital investment intensity positively affects novelty-centered e-business model value retention. Only low venture capital investment intensity positively affects efficiency-centered e-business models and value retention. | Disregard any influence or impact that the institutional environment may have. |
| 34 | (Zhang et al., 2018) | Chinese high-tech firms have a higher survival rate regarding patents, innovation efficiency, and export and import activities. More extensive and older technology-intensive firms have a lower probability of exit. The number of granted patents serves as a measure of a company's innovation efficiency, which improves survival chances. Import and export activities significantly enhance firm survival through knowledge spillovers and increased innovation efficiency. | Sample size (Zhongguancun, Beijing) may limit generalizability. Avoid mentioning startups |
| 35 | (de Visser and Faems, 2015) | CEOs' cognitive styles significantly affect innovation. Intuitive CEOs favor exploration, whereas analytical ones want development. This influences R&D allocation: Development-focused CEOs prioritise development, while exploration-focused CEOs prioritise exploration. Companies that invest more in development excel at incremental but not radical innovation. Higher R&D intensity boosts radical innovation. Although market factors do not affect innovation performance, software companies excel at incremental innovation. | Do not mention cognitive style as an independent variable or business model innovation as a dependent variable. |
| 36 | (Zhang et al., 2020) | Innovation significantly reduces the exit risk of high-tech start-ups. Innovation enhances total factor productivity and average productivity per labor unit. State-owned enterprises benefit more from government subsidies, which reduce risk rates and support innovation activities. | Not to mention high-tech startups. |

### 3.3. Business model innovation driving factors

Considering the underlying forces behind business model innovation is crucial to comprehend its emergence and evolution. Scholars contend that these drivers primarily exist in a company's internal and external environments (Clauss, 2016). Internally, the changes in business models used by new businesses depend more on managerial knowledge and skills. First, the abilities and experiences of the founders are crucial for business model innovation (Velu and Jacob, 2014). According to research, the business model choices made by new businesses are influenced by the founders' educational background, professional history, and confidence (Zhao et al., 2021). For instance, entrepreneurs with backgrounds in engineering or science are more likely to innovate business models driven by technology. In contrast, those with backgrounds in management or economics are more focused on customers' needs and market potential.

The employment experiences of entrepreneurs can influence how they think about business models. Large companies may favour economies of scale, whereas entrepreneurs of freelance businesses prefer flexibility (Bignotti and Le Roux, 2020). Entrepreneurs' sense of self-worth influences their ability to innovate. Self-assured entrepreneurs may underestimate dangers, whereas those who are insecure may overuse models (Ahlin et al., 2014). Business owners must adjust their models to environmental changes (Mezger, 2014). Second, emerging enterprises can benefit from the successful business models of established businesses. This knowledge aids start-ups in developing new business strategies and avoiding errors (Kumar and Srivastava, 2020). Through case studies, industry publications, exhibitions, etc., new businesses can research the business models of other organizations, selectively copy those models, and then modify them to fit their specific needs (Berends et al., 2016). Additionally, emerging businesses must form strategic alliances to acquire complementary resources to fill competence gaps and develop fresh business models (Ritala et al., 2018). New companies can receive financial support, knowledge, distribution channels, platforms, suppliers, and other critical resources from partners like investors, big businesses, suppliers, and technology providers (Lee et al., 2012).

Start-ups are more vulnerable to dynamism in the environment on the outside. On the one hand, technical changes can spur new businesses to develop business models for technology commercialization (Saemundsson and Candi, 2014). Wang and Kimble (2016) looked at external factors that compelled enterprises to change their business models from the original ideas for new ventures. Yu and Wang (2021) stated that these shifts are more intricate than entrepreneurs only attempting to increase productivity or contend with the competition. On the other side, new businesses may be forced to modify their models in response to market competition due to competitor business model advances. New ventures must monitor competitors' moves as industry competition heats up and respond appropriately by streamlining procedures, updating prices, changing sales channels, etc. Understanding the driving factors of business model innovation is essential for grasping its origin and development. Scholars contend that these drivers primarily exist in a company's internal and external environments (Clauss, 2016). The changes in business models of new businesses rely heavily on managerial knowledge and skills. First, the abilities and experiences of the

founders are crucial for business model innovation (Velu and Jacob, 2014). According to research, the business model choices made by new businesses are influenced by the founders' educational background, professional history, and confidence (Zhao et al., 2021). Business models driven by technology are more likely to be innovated by entrepreneurs with engineering or science backgrounds. In contrast, those with backgrounds in management or economics are more focused on customers' needs and market potential. Wang and Kimble (2016) looked at factors that compelled enterprises to change their business models from the original ideas for new ventures, as shown in **Table 7**; there, the main external and internal critical factors.

**Table 7.** Business model innovation internal and external driving factors from literature review.

| Internal factors | External factors |
|---|---|
| Managerial cognition and capabilities (Zhou et al., 2021; Qian et al., 2012; Roessler et al., 2022) | Technological disruptions (Montermann, 2019; Soluk et al., 2021) |
| Founders' educational background (Li et al., 2022; Zhou et al., 2019) | Competitors (Bucherer et al., 2012; Xavier and Pereira, 2023) |
| Work experience (Keiningham et al., 2020; Li et al., 2022) | Institutional environment (Xavier and Pereira, 2023; Tian et al., 2019; Yang et al., 2023) |
| Self-efficacy (Santoso et al., 2018; Wei et al., 2020) | External investors (Luong et al., 2017; Zheng et al., 2021) |
| New businesses learn (Berends et al., 2016; Zhao et al., 2021) | Major Customers (Keiningham et al., 2020; Silva et al., 2020) |
| Strategic alliances (Bouncken and Fredrich, 2016a; Bouncken and Fredrich, 2016b) | Position In Incubators (Isabelle, 2016; Roessler and Velamuri, 2015) |
| Organisational characteristics (Buliga et al., 2016; Xue et al., 2019) | |
| Organizational Culture(Bashir and Verma, 2019; Nunes et al., 2022) | |
| Resource bricolage (Hou et al., 2022; Xu et al., 2023; Yan et al., 2020) | |

## 3.4. Critical factors influence BMI in high-tech startups

Several variables influence the innovation of business models in China. First, some researchers have characterised the development of new business models as an effort to take advantage of chances made available by cognitive development. To adapt to environmental changes in customer demand, business, competitors, and market competition, institutions like HTS in China have reinvented their business models because of globalisation. Third, according to HTS, resource bricolage is shown to help develop new business models (see **Table 8**).

**Table 8.** Three main factors that affect the BMI for HTS in China from SLR.

| Factors | References | Content |
|---|---|---|
| Institutional environment | (Donbesuur et al., 2020; Wang and Zhou, 2021) | The results show that institutional environment specificity and institutional environment enforceability enhance the complementary effect of organisational and technological innovation on the international performance of SMEs. |
| | (Steinhauser, 2019) | In this regulated context, the institutional environment plays a critical role in the sustainability of business models. |
| Cognitive | (Hou et al., 2022) | Results showed that new venture executives' cognitive ability significantly positively affects business model innovation by mediating with entrepreneurial bricolage. |
| | (Snihur and Zott, 2020) | Delineates the nature of cognitive imprinting and explains how mental imprints reinforce structural imprints in the context of business model innovation. |

**Table 8.** (*Continued*).

| Factors | References | Content |
|---|---|---|
| Resource bricolage | (Yan et al., 2020) | Bricolage has a significantly positive effect on business model innovation, and bricolage plays a significant intermediary role between top management team boundary-spanning behaviour and business model innovation. |
| | (Yu and Wang, 2021) | As a resource orchestration process, entrepreneurial collaboration can significantly enhance a new venture's strategic flexibility and growth capability. Moreover, the effectiveness of this strategy depends on the availability of alternative resources. |

The systematic literature study assessment identified all driving variables elements, including Institutional Environment, Cognitive, and Resource Bricolage, as three primary determinants affecting BMI for high-tech startups in China. We explain briefly each one of them:

1) Cognitive style

The study's independent variable, cognitive style, refers to how people perceive and interpret information and use that understanding to guide their behaviour (i.e., thinking, feeling, and acting) (Cools and Van Den Broeck, 2007). Based on prior research, business model experts have discovered cognitive obstacles that impede BMI. The successful generation of innovative ideas is sustained if the company can challenge the dominant logic of the existing business model (Massa and Hacklin, 2020). The researchers examined the relationships that have been proposed between managers' cognitive styles and how they view workable strategies (Churchill and Lewis, 1983). According to them, a manager's cognitive style impacts their perception of a viable business plan. The mental research style examines how managers and upper management affect a company's strategy. As in many other studies, the data in this one were analysed at the level of the individual manager. This study bears similarities to prior research on the creation and validation of the cognitive style indicator (CoSI) performed by Cools and Van Den Broeck, (2007). Researchers have looked at cognitive styles concerning a variety of concepts, such as personality (Goldsmith, 1984), effect (Tullett, 1997), ability (Riding and Agrell, 1997), and cognitive strategies (Sadler-Smith and Badger, 1998). According to Hayes and Allinson, (1994), organisations can use cognitive types for hire, task and learning performance, internal communication, career guidance and counseling, team composition and team building, training and development, and conflict management.

2) Resource bricolage

Other consequences of resource bricolage have been studied by certain scholars, mainly how RB affects knowledge production. Researchers have proposed, for instance, that bricolage's concrete, improvisational actions can gain experiential knowledge (Ferneley and Bell, 2006), that bricolage actions can produce know-how (Andersen, 2008), and that bricolage can create new knowledge by combining disparate knowledge stocks (Boxenbaum and Rouleau, 2011). In this way, bricolage could produce new knowledge that helps startups be innovative by overcoming the inertia of resources (Andersen, 2008).

In a highly competitive and unstable environment, SMEs are turning to bricolage as an innovation method that supports their efforts in value creation, value proposition, and value acquisition (Zott and Amit, 2010). resource bricolage (RB) is a way for startups to combine resources (Cui and Pan, 2015). Under resource restrictions, RB

offers sufficient help for startups to innovate their business models (Banerjee and Campbell, 2009). According to Baker and Nelson (2005), resource bricolage connects executive cognitive aptitude for business model innovation. On the one hand, businesses can create new value propositions, assist companies in extending their market reach, and integrate new resources through bricolage (Yan et al., 2020).

3) Institutional environment

According to North (1990), institutional environments include the country's or region's laws, policies, regulations, culture, and social conventions that are the foundation for organizational and individual behaviour. Business model innovation and the continual interaction between corporate organisations and institutional environments are intricately linked, as Su et al. (2020) highlighted. Based on this, Li et al. (2023) proposed that business model innovation is a multidimensional process from an institutional perspective. In this process, businesses try to conform to the existing socialised institutional environment by changing transaction systems and developing new transaction norms to produce and capture value. In support of this claim, Steinhauser (2019) argued that the interaction of numerous institutional environmental factors leads to the emergence of business model innovation. Additionally, Egan (2022) emphasised the crucial significance of the policy environment, noting that such an environment gives high-tech startups the tools they need to deal with resource limitations during their formative stage.

For the first time, Peng (1997) acknowledged the significance of institutions in emerging economies. He suggested institutional reforms were the primary cause of China's rapid economic growth, using China as an example. Establishing and enhancing market institutions, such as property rights and the rule of law, had a positive institutional spillover on China's economic development.

The institutional environment in China is constantly improving as reform and opening-up progress, but it is still in need of change and adaptation and is very ambiguous and complicated (Fan et al., 2018). In their study, Peng and Chen (2010) highlight how institutional theory may effectively explain the reasoning behind Chinese enterprises' behavioral choices in a transitional economy. China's regions currently range in economic growth, and as a result of regionally variable government policies and industrial support patterns, businesses operating there face dramatically different institutional environments (Chung et al., 2016). According to Wu et al. (2016), China's institutional environment is distinct from other institutional environments because of the institutions' regional remoteness, ambiguity, and incompleteness. China's imperfect laws, inconsistent policy implementation, and immature market processes are all examples of institutions that are not yet fully formed. Institutional uncertainty is mainly caused by incremental and trial-and-error reforms made during economic transitions and policy instability brought on by changes in government leadership. The disparities in institutional environments between Chinese provinces are reflected in the regional distance of institutions. The institutional environment is a crucial component impacting the external activities and strategic decisions of new enterprises since government intervention and China's emerging market mechanisms coexist during the transition phase (Wang et al., 2021). Therefore, a firm strategy study cannot overlook the effects of different institutional contexts in the Chinese context. New businesses must modify their plans to consider the regional

institutional settings (Yang et al., 2019). It is vital to research how institutional surroundings affect new ventures' entrepreneurial attitudes to deepen pertinent theories and provide practical consequences, given the specific context of China's institutional change.

The Chinese government has two roles in an environment with lots of regulations. First off, it replaces or significantly augments the "market allocation of resources." The government promotes business model innovation by providing entrepreneurs with policy resources, such as market access, cash, and talent through effective resource safeguarding. Second, the government acts as the creator and defender of market regulations, ensuring that startups operate on an even playing field. Ensuring profits on innovation encourages the development of new business models. Increased entrepreneurial activity across society results in market homogenization in high-norm environments. Startups need to be adept at spotting market changes and hidden possibilities to avoid direct competition. They can vary their value co-creation processes, creatively meet market demands, and realize business model innovation by promoting heterogeneous innovation. Entrepreneurs are better equipped to gain entrepreneurial knowledge and experience in a high-cognition environment. This strengthens their capacity for business model innovation, stokes their enthusiasm for innovation, and inspires their willingness to take calculated risks.

Zeng et al. (2019) discusses how consumed environmental awareness and the institutional environment have a moderating effect on the impact of corporate environmental responsibility on investment efficiency. The study samples used in this paper are data samples from 2011 to 2016 for Chinese listed firms. China's economy has increased after almost 40 years of reform and opening up, taking the nation from one where people were fighting for survival to the second-largest economy in the world.

According to other research, business model innovation, and the discipline's entrepreneurial bricolage, cognitive style, and institutional environments are related (Guo et al., 2016). However, Zott and Amit (2010) contend that business model innovation can be accomplished by using novel opportunities and innovating transaction content, structure, and governance. Many studies have used subjective techniques to assess startups' business model innovation success (Dopfer, 2018; Zhang et al., 2023). Several arguments support the use of subjective business model measures, providing some rationale for using subjective BMI measures about any relationship between the independent, dependent, and firm performance variables. As a result, to develop a comprehensive theoretical model that encompasses the Chinese institutional context, Chinese institutional environment, cognitive styles, resource bricolage, and business model innovation. It is the goal to understand how high-tech startup leaders, based on their cognitive types, innovate business models by integrating resources into the Chinese entrepreneurial scene.

## 3.5. Proposing business model innovation driving model

Bandura's book The Social Foundations of Thought and Action: A Social Cognitive Theory, was released (Bandura, 1986). According to the theoretical perspective of social cognitive theory, human functioning should indeed be viewed as

the product of a dynamic analysis (Schunk and Pajares, 2009). The findings with their behaviour confirm and alter their environments and the personal factors they possess, which inform and change subsequent behaviour (Valley et al., 2022; Yakut, 2019). This is the basis for Bandura's concept of reciprocal determinism, which considers (a) personal factors such as cognition, affect, and physiological events, (b) behaviour, and (c) environmental factors to create conversations that result in a triadic reciprocally determined outcome (Johnstone and Hooper, 2016) (see **Figure 4**). Bandura renamed his social 'cognitive' theory to distinguish it from popular social learning theories of the time and to emphasize the importance of cognition in people's ability to construct reality, self-regulate, encode information, and perform behaviours (Zhou and Brown, 2017).

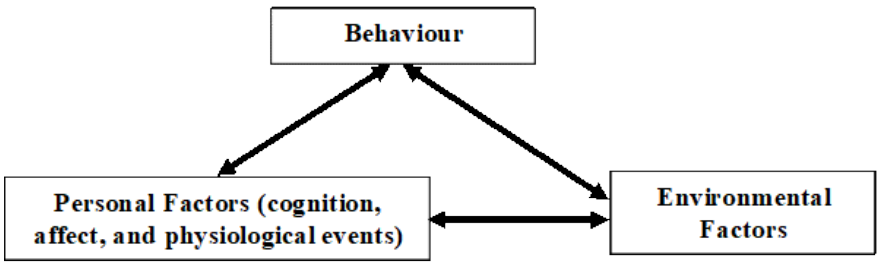


**Figure 4.** The reciprocal triadic relationship in Social Cognitive Theory.

Source: Johnstone and Hooper, 2016.

Adopting Bandura's reciprocal determinism establishes a comprehensive theoretical model encompassing four dimensions: the prevailing Chinese institutional environment, executives' cognitive styles, resource bricolage, and business model innovation (Bandura, 1986). The aim is to understand deeply how high-tech startup executives, depending on their cognitive styles, drive business model innovation by integrating resources within the contemporary Chinese entrepreneurial landscape. From a cognitive standpoint, the study dissects the varied cognitive styles of executives, such as analytic and innovative, and investigates how these cognitive distinctions influence their strategies for resource integration (Massa and Hacklin, 2020). On the behavioural front, the research explores how executives innovate their business models by strategically assembling and capitalizing on resources (Johnstone and Hooper, 2016). From an outcome perspective, the study assesses the effects of executives' cognitive approaches and their resource bricolage strategies on business model innovation. In conclusion, as illustrated in **Figure 5**, this study provides a micro-level analysis, illuminating the internal mechanisms by which executives advance corporate business model innovation through resource bricolage in the contemporary Chinese entrepreneurial context based on their cognitive styles. This result extends theoretical knowledge of the interaction between the entrepreneurial environment and new business model development and provides insightful advice for high-tech companies' management strategies.

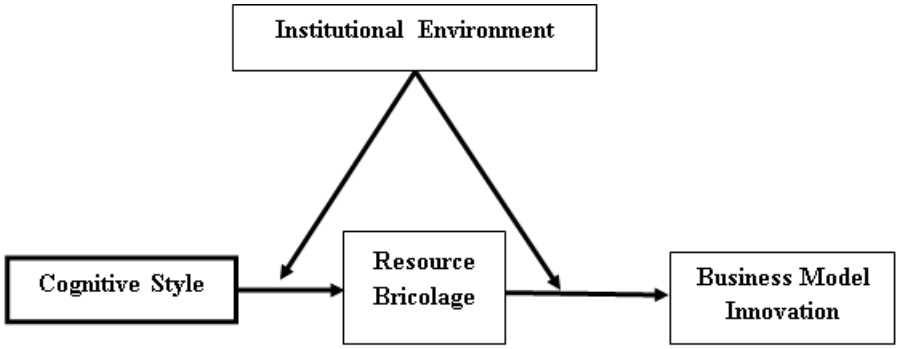


**Figure 5.** Conceptual model of the business model innovation.

Source: Authors' creation from a literature review.

## 4. Conclusion

Business model innovation (BMI) has garnered substantial academic and corporate attention in recent decades. Despite being the second-biggest economy in the world today, China has done little research on the practice of business model innovation concerning Zhejiang high-tech startups. Data from 688 academic literature were collected through SLR analyses of 36 articles. The period covered by the review's studies was from 2013 to December 2023. The number of publications in this field of BMI for HTS increased noticeably from 2013 to 2023, with most studies in this field published in 2022. Top cited article (The role of top management team diversity in shaping the performance of business model innovation: a threshold effect) higher citation, and publishing academic article about the business model innovation depends on the platform concentrating Chinese publisher, the highest publisher citation it is (technology analysis and strategic management).

We conducted a literature-based investigation to identify essential insights on the BMI factors in the literature and derived a high-tech startup's BMI critical factor from the findings. Our study shows that three main factors affect the innovation of business models in high-tech startups in China. The findings educate managers, entrepreneurs, and executives on the merits and cons of corporate resource bricolage and cognitive style constraints in business model innovation. The findings will help Chinese academics understand enterprises' institutional environment and resource bricolage as final suggestions and proposals for corporates, regulators, and policymakers are presented. The first limitation is that secondary data collection is only in English. Given the number of academic journals, it is unlikely that every applicable scientific publication will be included. Many factors affect the innovation of the business model, but our study only concentrates on the critical factors because it is limited to high-tech startups. This study is the first to analyse BMI for HTS resilience using SLR. It is necessary to continue studying the strength of the startups related to BMI-HTS. The report identifies critical areas for improvement and future research to assist governments and businesses in developing adaptable HTS networks.

**Data availability statement:** The data presented in this study are available on request from the corresponding author.

**Conflict of interest:** The authors declare no conflict of interest.

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