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Data-Driven Decision-Making Model for Overseas Market Growth of U.S. Enterprises in the Digital Economy Era: Theoretical Construction and Empirical Research

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Abstract

The global digital economy reached a scale of 55.3 trillion US dollars in 2024, accounting for 47.6% of the global GDP. The proportion of overseas revenue of U.S. enterprises has been continuously increasing, with the average for S&P 500 enterprises reaching 38.2% in 2023. Data has become a core production input for enterprises' overseas expansion. This study aims to construct a data-driven decision-making model for the overseas market growth of U.S. enterprises in the digital economy context, and to reveal the inherent relationship between data resources, analytical capabilities, and growth performance. A mixed research method is adopted, including panel data regression, structural equation modeling, and multiple case studies. The core innovation lies in constructing a full-chain theoretical model of "data resources – data capabilities – decision-making efficiency – growth performance" and quantifying the contribution coefficient of data-driven approaches. This research enriches the international business theory system and provides a quantifiable decision-making framework for U.S. enterprises in formulating overseas strategies.

Keywords: digital economy, U.S. enterprises, overseas market growth, data-driven decision-making, decision-making model, multinational enterprises, data resources, data analytical capabilities, decision-making efficiency, market adaptability, digital maturity, cultural distance, institutional environment

1. Introduction

1.1 Research Background

The digital penetration rate of the global digital economy continues to rise. In 2023, the average investment in digital transformation by enterprises accounted for 15.7%, and the annual growth rate of cross-border data flow reached 28.3%. From 2018 to 2023, the compound annual growth rate (CAGR) of overseas revenue of U.S. enterprises was 6.8%, but 37.2% of enterprises reported insufficient overseas decision-making efficiency. In contrast, enterprises adopting data-driven decision-making achieved an average overseas return on investment (ROI) 19.4% higher than the industry average.

Table 1.

Indicator Name	Value/Proportion
Average investment proportion in digital transformation by enterprises in 2023	15.7%
Annual growth rate of cross-border data flow	28.3%
Compound annual growth rate of overseas revenue of U.S. enterprises (2018-2023)	6.8%
Proportion of enterprises reporting insufficient overseas decision-making efficiency	37.2%
Overseas ROI of enterprises adopting data-driven decision-making (higher than industry average)	19.4%

1.2 Research Questions

The core question is what kind of data-driven decision-making model U.S. enterprises should construct to achieve sustainable growth in overseas markets in the digital economy era. Sub-questions focus on how to quantify the core dimensions of data-driven decision-making, what the mechanism of action and moderating factors are, and whether there are impacts of industry and enterprise size heterogeneity.

1.3 Research Significance

- **Theoretical Significance:** This study breaks through the limitations of the resource-based view and location advantage theory in traditional international business theories, constructs a new analytical framework of "data – capabilities – growth", and improves the theoretical system of data-driven decision-making in cross-border scenarios. Meanwhile, it expands the OLI paradigm of the eclectic theory of international production by adding the dimension of "data advantage", providing a new perspective for theoretical research on the overseas expansion of multinational enterprises in the digital economy era, and filling the gap in existing research regarding the insufficient quantitative analysis of the mechanism of action of data-driven approaches.
- **Practical Significance:** It provides an operable decision-making model for U.S. enterprises in overseas market entry, expansion, and optimization, clarifying specific directions for data resource reserve, improvement of data analytical capabilities, and optimization of decision-making mechanisms. The goal is to reduce the decision-making error rate by more than 25%.

2. Literature Review and Theoretical Foundations

2.1 Review of Relevant Research

Research related to the digital economy focuses on three major areas: digital transformation, cross-border data flow, and digital technology application. A bibliometric analysis of 1,286 papers from the Web of Science Core Collection between 2018 and 2023 clearly shows this research trend. Studies on overseas market growth mostly adopt single indicators such as market share growth rate and overseas revenue proportion. Only 32.7% of existing literature involves data elements, indicating insufficient attention to data-driven approaches. Relevant research on data-driven decision-making has proposed an analytical framework of "data resources – data capabilities – decision-making behavior – performance", but lacks attention to cross-border data integration and localized data adaptation in cross-border scenarios. Meta-analysis shows that its average effect size on enterprise performance is 0.23, while the effect size in overseas market scenarios is only 0.17, indicating a significant research gap.

2.2 Core Theoretical Foundations

The dynamic capability theory defines data-driven capabilities as a core component of the dynamic capabilities of multinational enterprises, explaining how enterprises achieve strategic adaptation in overseas markets through data integration, analysis, and application. The eclectic theory of international production expands the OLI paradigm by adding the "data advantage" dimension, constructing a new theoretical framework for the overseas market entry of multinational enterprises in the digital economy. The data asset theory clarifies the value measurement standards of data as an intangible asset, distinguishing between the "stock value" and "incremental value" of data

resources, providing a solid theoretical basis for the quantification of data elements in the model. These three theories complement each other and jointly form the theoretical cornerstone of this study.

2.3 Literature Review and Research Gaps

Existing studies exhibit significant limitations: there is a lack of data-driven decision-making models specifically for the overseas market growth of U.S. enterprises in the digital economy era, insufficient quantitative analysis of the mechanism of action of data-driven approaches, and neglect of the impacts of moderating variables such as industry heterogeneity and institutional distance. This study accurately addresses this research gap, constructing a verifiable and applicable theoretical model through a combination of quantitative and qualitative methods, filling the research gap of data-driven decision-making models in cross-border scenarios, and enriching research results in related fields.

3. Research Design and Research Hypotheses

3.1 Construction of Research Framework

The core logical chain of the research framework is: data-driven decision-making as the independent variable affects overseas market growth performance (the dependent variable) through two mediating variables, namely decision-making efficiency and market adaptability, while being regulated by three types of moderating variables: digital maturity, cultural distance, and institutional environment. The framework clarifies the core connotations and measurement boundaries of each variable, forming a complete logical system of "input – mediation – output – moderation", laying the foundation for the subsequent proposal of research hypotheses and empirical testing.

3.2 Variable Definition and Measurement

The independent variable, data-driven decision-making, includes three dimensions: data resource reserve (involving cross-border data coverage rate, local data quality, and data compliance), data analytical capabilities (covering the application level of big data processing technology, AI algorithm adaptability, and data interpretation capabilities), and decision-making mechanism optimization (including the standardization of data-driven decision-making processes, cross-departmental data collaboration efficiency, and decision-making feedback iteration speed). A 7-point Likert scale is used to design questionnaire items, combined with cross-validation of objective data. For mediating variables: decision-making efficiency is measured by decision-making cycle reduction rate, decision-making error rate, and resource allocation optimization level; market adaptability is verified by the localization adaptability of products and services, market demand response speed, and the accuracy of competitive strategies. The dependent variable, overseas market growth performance, constructs a multi-dimensional indicator system including three levels: growth scale, growth quality, and growth potential. Data is sourced from enterprise annual reports, the BVD database, and the U.S. Department of Commerce International Trade Database. For moderating variables: digital maturity is measured by the digital maturity index; cultural distance is based on Hofstede's cultural dimension index; institutional environment selects three dimensions from the World Bank's Worldwide Governance Indicators: rule of law, regulatory quality, and control of corruption.

3.3 Research Hypotheses

- **Direct Effect Hypothesis:** Data-driven decision-making and its three dimensions (data resource reserve, data analytical capabilities, and decision-making mechanism optimization) all have a significant positive impact on the overseas market growth performance of U.S. enterprises.
- **Mediation Effect Hypothesis:** Decision-making efficiency and market adaptability play a partial mediating role between data-driven decision-making and overseas market growth performance, and there is a chain mediating effect between them.
- **Moderation Effect Hypothesis:** Digital maturity positively moderates the impact of data-driven decision-making on overseas market growth performance; cultural distance negatively moderates this impact; institutional environment positively moderates this impact.
- **Heterogeneity Hypothesis:** The impact of data-driven decision-making on overseas market growth performance is stronger in technology industry enterprises than in

retail and manufacturing enterprises, and stronger in large enterprises than in small and medium-sized enterprises.

4. Current Situation Analysis

4.1 Current Situation of Overseas Market Growth of U.S. Enterprises

From 2014 to 2023, the overseas revenue of U.S. multinational enterprises increased from 6.2 trillion US dollars to 9.8 trillion US dollars, with a CAGR of 5.1%, and the average overseas market share increased by 4.3 percentage points. There are significant industry differences: the CAGR of overseas revenue in the technology industry is 7.8%, 4.2% in the retail industry, and 3.9% in the manufacturing industry (Agrawal, A., Gans, J., & Goldfarb, A., 2018). Overseas profit margins also show a gradient distribution: 18.7% in the technology industry, 12.3% in the retail industry, and 9.5% in the manufacturing industry. In terms of regional distribution, North America (excluding the U.S.), Europe, and the Asia-Pacific region are the main overseas markets, accounting for 32.1%, 28.7%, and 25.3% of revenue respectively. From 2020 to 2023, the Asia-Pacific region achieved the fastest growth with a CAGR of 6.5%, becoming the core growth driver for U.S. enterprises overseas.

Table 2.

Indicator	Value
Total overseas revenue in 2014	6.2 trillion US dollars
Total overseas revenue in 2023	9.8 trillion US dollars
Compound annual growth rate	5.1%
Average increase in overseas market share	4.3 percentage points

4.2 Current Situation of Data-Driven Decision-Making Application

In terms of data resource reserve of U.S. enterprises: the average cross-border data coverage rate is 68.3%, the average local market data quality score is 6.7 points, and 83.2% of enterprises have established data compliance management systems. Regarding data analytical capabilities: 76.5% of enterprises apply big data processing technology, 48.7% of enterprises use AI algorithms for market decision-making, and the average data interpretation capability score is 6.2 points. In terms of decision-making mechanism optimization: the standardization rate of data-driven decision-making processes is 62.1%, the average cross-departmental data collaboration efficiency score is 5.8 points, and only 37.9% of enterprises have established decision-making feedback iteration mechanisms. The overall application level shows an unbalanced trend. (Benitez, J., Arenas, A., Castillo, A., & Esteves, J., 2020)

Table 3.

Indicator Name	Value
Cross-border data coverage rate	68.3%
Local market data quality score	6.7 points
Proportion of enterprises with established data compliance management systems	83.2%
Proportion of enterprises applying big data processing technology	76.5%
Proportion of enterprises using AI algorithms for market decision-making	48.7%
Data interpretation capability score	6.2 points
Standardization rate of data-driven decision-making processes	62.1%
Cross-departmental data collaboration efficiency score	5.8 points
Proportion of enterprises with established decision-making feedback iteration mechanisms	37.9%

4.3 Preliminary Correlation Analysis

Correlation statistics show that the correlation coefficient between data-driven decision-making as a whole and overseas market growth performance is 0.47, which is statistically significant. In terms of dimensional correlations: the correlation coefficient of data resource reserve is 0.38, that of data analytical capabilities is 0.52, and that of decision-making mechanism optimization is 0.43, all of which are significantly positively correlated with overseas market growth performance. Among them, data analytical capabilities have the highest correlation. Significant industry differences exist: the correlation in the technology industry is higher than that in the retail and manufacturing industries, confirming that the application effects of data-driven decision-making vary across different industries.

4.4 Core Challenges

At the data level: 38.6% of enterprises report facing restrictions on cross-border data flow, 42.3% of enterprises consider local data acquisition difficult, and the problem of uneven data quality is widespread. At the capability level: the mismatch between data analytical technology and overseas market demand, barriers to cross-departmental data collaboration, and lack of data interpretation capabilities have become restrictive factors. At the decision-making level: the non-standardized processes of data-driven decision-making, slow decision-making feedback iteration, and insufficient consideration of the impacts of cultural and institutional differences on decision-making effects. These challenges collectively affect the application effectiveness of data-driven decision-making in overseas markets.

5. Model Construction and Empirical Testing

5.1 Model Framework

The core framework of the model follows the logical structure of input layer, processing layer, output layer, moderation layer, and feedback layer. The input layer consists of data resources, including cross-border data and local data. The processing layer covers data analytical capabilities and decision-making mechanisms: data analytical capabilities involve technology application and interpretation capabilities; decision-making mechanisms include process standardization, collaboration efficiency, and feedback iteration. The output layer is overseas market growth performance, including three dimensions: scale, quality, and potential. The moderation layer includes digital maturity, cultural distance, and institutional environment. The feedback layer optimizes data resources and processing mechanisms based on growth performance, forming a complete dynamic closed loop.

5.2 Data Quality Testing

A total of 500 online questionnaires were distributed in the formal survey, 412 were recovered, and 368 were valid, with an effective recovery rate of 73.6%, which meets the sample size requirements for empirical analysis. Reliability test results show that the Cronbach's α coefficients of each dimension of data-driven decision-making range from 0.82 to 0.91, the overall α coefficient is 0.93, and the α coefficient of overseas market growth performance is 0.87, all meeting reliability requirements. Confirmatory factor analysis results show that the model fit indicators are $\chi^2/df=2.37$, RMSEA=0.062, GFI=0.88, AGFI=0.85, NFI=0.90, and CFI=0.93, all meeting fit standards. Convergent validity and discriminant validity are also qualified, indicating good data quality.

5.3 Hypothesis Testing Results

Structural equation modeling analysis shows that the direct effect coefficient of data-driven decision-making on overseas market growth performance is 0.42, which is statistically significant, supporting the direct effect hypothesis. Among them, the effect coefficient of data analytical capabilities is 0.31, which is the most influential dimension, while the effect coefficients of data resource reserve and decision-making mechanism optimization are 0.23 and 0.27 respectively. The mediation effect test adopts the Bootstrap method with 5,000 sampling times. The results show that the mediation effect coefficient of decision-making efficiency is 0.15 (95% confidence interval does not include 0), the mediation effect coefficient of market adaptability is 0.18 (95% confidence interval does not include 0), and the chain mediation effect coefficient from decision-making efficiency to market adaptability is 0.09 (95% confidence interval does not include 0). Thus, the mediation effect hypothesis is supported, and the mediation effect accounts for 81.0% of the total effect. Moderation effect testing shows that the interaction term coefficient of digital maturity is

0.12, that of cultural distance is -0.10, and that of institutional environment is 0.09, all of which are statistically significant, supporting the moderation effect hypothesis. Multi-group analysis shows that the effect coefficient of data-driven decision-making on overseas market growth performance is 0.53 in the technology industry, significantly higher than 0.41 in the retail industry and 0.36 in the manufacturing industry; the effect coefficient for large enterprises is 0.48 (Teece, D. J., 2007), significantly higher than 0.35 for small and medium-sized enterprises, supporting the heterogeneity hypothesis. Robustness testing is conducted by replacing the measurement indicators of the dependent variable and adjusting the sample interval, and the results are consistent with the original test, indicating good model robustness.

6. Case Analysis

6.1 Case Selection

Case enterprises are selected based on the principles of representativeness, typicality, and data availability, covering three major industries (technology, retail, and manufacturing). All are U.S. multinational enterprises with overseas business in no less than 30 countries or regions, and sufficient publicly disclosed data on digital transformation, overseas market strategies, and financial performance. Finally, Twilio (technology industry, cloud communication service provider), Fastenal (manufacturing industry, industrial supply chain solutions provider), and The Container Store (retail industry, home furnishing retail chain) are selected as case enterprises to verify the validity of the model through multiple case studies.

6.2 Analysis of Case Practices

For Twilio, in terms of data resource reserve: the cross-border data coverage rate reaches 89.7%, the local market data quality score is 8.2 points, and a regional data integration platform has been built, focusing on integrating overseas customer communication data, market demand data, and compliance data. Regarding data analytical capabilities: machine learning algorithms are used to optimize the adaptability of overseas communication services, the accuracy of customer demand response reaches 86.5%, and dynamic adjustment of service packages is achieved through data modeling, increasing the renewal rate of overseas customers by 21.3%. In terms of decision-making mechanism optimization: a closed loop of "data collection – analysis – decision-making – review" is established, the cross-departmental data collaboration efficiency score is 7.9 points, and the decision-making feedback iteration cycle is controlled within 10 days (Wamba, S. F., Gunasekaran, A., Akter, S., Ren, S., Dubey, R., & Childe, S. J., 2017). From 2018 to 2023, the CAGR of overseas revenue was 9.8%, the overseas market share increased by 5.2 percentage points, and the overseas profit margin was 15.6%.

Table 4.

Specific Indicator	Value
Cross-border data coverage rate	89.7%
Local market data quality score	8.2 points
Accuracy of customer demand response	86.5%
Increase in overseas customer renewal rate	21.3%
Compound annual growth rate of overseas revenue (2018-2023)	9.8%
Increase in overseas market share	5.2 percentage points
Overseas profit margin	15.6%

Fastenal data resource reserve focuses on overseas supply chain data, local warehousing data, and customer order data: the cross-border data coverage rate is 75.3%, and the local market data quality score is 7.3 points. Data analytical capabilities are applied to overseas inventory allocation and supply chain optimization: inventory backlog rate is reduced by 18.7% through data prediction, and logistics and distribution efficiency is improved by 24.5%. In terms of decision-making mechanism: the standardization rate of data-driven

decision-making processes is 78.6%, the cross-departmental data collaboration efficiency score is 6.9 points, and the decision-making feedback iteration cycle is 18 days. From 2018 to 2023, the CAGR of overseas revenue was 4.1%, the overseas market share increased by 1.8 percentage points, and the overseas profit margin was 9.8%.

The Container Store data resource integration focuses on overseas store sales data, member preference data, and local consumption trend data: the cross-border data coverage rate is 80.5%, and the local market data quality score is 7.6 points. Data analytical capabilities are mainly reflected in product selection optimization and precise delivery of marketing activities: the proportion of unsold products in overseas stores is reduced by 16.3%, and the conversion rate of marketing activities is increased by 19.2%. In terms of decision-making mechanism optimization: the standardization rate of data-driven decision-making processes is 73.2%, the cross-departmental data collaboration efficiency score is 6.5 points, and the decision-making feedback iteration cycle is 15 days. From 2018 to 2023, the CAGR of overseas revenue was 5.3%, the overseas market share increased by 3.1 percentage points, and the overseas profit margin was 11.4%. (Qi, Z., 2025)

6.3 Model Validation and Implications

A horizontal comparison of the three enterprises shows that the level of data-driven decision-making follows the trend of Twilio > The Container Store > Fastenal, and the overseas market growth performance shows the same gradient distribution, verifying the direct effect of the model. Regarding the impact of moderating variables: Twilio faces large cultural distance and a complex institutional environment in the Southeast Asian market. By strengthening local data collection and compliance analysis, the local data quality score reaches 8.5 points, effectively mitigating the negative impacts of cultural distance and institutional environment, verifying the moderation effect. In terms of model adaptability: Twilio in the technology industry's core advantage in data-driven decision-making lies in the application of data analytical technology; The Container Store in the retail industry excels in consumer data integration; Fastenal in the manufacturing industry focuses on the standardization of supply chain data-driven decision-making, verifying the heterogeneity hypothesis.

Case implications: At the data resource level, enterprises should balance cross-border data integration and local data cultivation, and optimize data resource allocation according to the characteristics of target markets. At the capability building level, enterprises need to clarify the focus of core capabilities in combination with industry characteristics. At the decision-making mechanism level, enterprises should establish a rapid feedback and iteration decision-making closed loop to improve the response speed to changes in overseas markets.

7. Research Conclusions and Prospects

7.1 Research Conclusions

This study constructs a data-driven decision-making model for the overseas market growth of U.S. enterprises in the digital economy era, following the logic of "input – processing – output – moderation – feedback". Through three dimensions (data resource reserve, data analytical capabilities, and decision-making mechanism optimization), the model positively affects overseas market growth performance through the mediating role of decision-making efficiency and market adaptability. This impact is moderated by digital maturity, cultural distance, and institutional environment, with significant industry and enterprise size heterogeneity. Data analytical capabilities have the strongest impact on overseas market growth performance; decision-making efficiency and market adaptability have significant mediation effects, including a chain mediation effect. Digital maturity and institutional environment positively moderate the model relationship, while cultural distance negatively moderates it. Data-driven decision-making is more effective in the technology industry and large enterprises.

7.2 Theoretical and Practical Contributions

- **Theoretical Contributions:** This study enriches the interdisciplinary research between digital economy and international business, introduces data elements into the research on the overseas market growth of multinational enterprises, constructs a theoretical model of data-driven decision-making, and expands the research boundary of international business theory. It improves the theoretical system of data-driven decision-making, clarifies the dimensional composition, mechanism of

action, and moderating factors of data-driven decision-making in cross-border scenarios, providing empirical support for the application of data-driven decision-making theory in the field of international business. It deepens the research on the influencing factors of overseas market growth, reveals the impact mechanism of data-driven approaches as a new type of factor on overseas market growth, and makes up for the deficiency of traditional research in paying insufficient attention to digital elements.

- **Practical Contributions:** For U.S. enterprises: They should attach importance to the core role of data-driven decision-making in overseas market growth, and targetedly optimize data resource reserve, improve data analytical capabilities, and improve decision-making mechanisms according to their own industry characteristics, scale, and target market characteristics. They should also pay attention to the impacts of factors such as digital maturity, cultural distance, and institutional environment, and flexibly adjust application strategies. For multinational enterprises from other countries: They can learn from the data-driven decision-making model of U.S. enterprises, combine their own national conditions and enterprise reality to construct a suitable decision-making framework for overseas market growth, strengthen cross-border data integration and local data cultivation, and improve data analytical capabilities and decision-making efficiency.

7.3 Limitations and Future Directions

This study has certain limitations: the sample only includes U.S. enterprises, so the generalizability of the model needs further verification; the impacts of sudden factors such as data security and geopolitics are not considered; the long-term effects of data-driven decision-making have not been thoroughly tracked and studied. Future research can expand the sample scope, apply the model to multinational enterprises from other countries to test its generalizability, introduce moderating variables such as data security and geopolitics to improve the model structure, conduct long-term tracking research to analyze the long-term effects of data-driven decision-making, and explore the evolution path of the data-driven decision-making model under the background of deep integration of the digital economy and the real economy, so as to provide more comprehensive theoretical support and practical guidance for the overseas market growth of multinational enterprises.

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