Research Article

Data Assets, Dynamic Capabilities, and Overseas Revenue Growth

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***Abstract*:** In the digital economy era, data assets are increasingly becoming an integral part of enterprises. However, the question of how to transform these assets into sustained overseas revenue growth remains largely unresolved. This paper integrates the resource-based perspective, dynamic capabilities theory, and selected findings from international business research to explore the relationship between data assets, dynamic capabilities, and overseas revenue growth. The study argues that data assets do not automatically generate superior international performance; rather, their value realization largely depends on an enterprise's ability to perceive changes in overseas markets, seize emerging opportunities, and restructure organizational resources under uncertain conditions. It proposes that enterprises should move beyond simple data accumulation and cultivate governance-oriented, market-responsive dynamic capabilities. Further empirical research is needed to test the applicability of the proposed framework across different industries and international contexts.

Keywords: *Data assets; dynamic capabilities; overseas revenue growth; digital economy; international business;*

1. Introduction

1.1 Research Background

In the digital economy, data has gradually moved beyond its earlier status as a mere operational residue of transactions and interactions, and has come to occupy a more strategic, and in some contexts even constitutive, position in the creation of enterprise value. Firms do not simply collect data in order to record what has already occurred[1]. They increasingly rely on data to infer market tendencies, refine customer segmentation, reorganize internal processes, optimize product design, and anticipate shifts in demand across geographically dispersed markets. If industrial capitalism was once structured around the accumulation and deployment of physical assets, then contemporary competition appears, at least to some extent, to be shaped by the accumulation, interpretation, and recombination of data assets[2].

This development becomes especially salient when firms expand into overseas markets. International business in its traditional form often placed primary emphasis on ownership advantages, location selection, production transfer, and market entry mode. These dimensions remain important and should not be prematurely dismissed. Yet the operational substance of overseas growth has changed in subtle but consequential ways[3]. International expansion is no longer merely a matter of moving products, capital, or personnel across borders. It increasingly involves the movement of information, the integration of user data, the standardization of digital interfaces, and the continuous recalibration of strategic decisions on the basis of rapidly updated signals from foreign markets. Under such conditions, overseas revenue growth may depend not only on whether a firm possesses resources in the conventional sense, but also on whether it can transform data-based insight into adaptive action[4].

At first glance, one might be tempted to assume that firms with larger or richer data assets should naturally achieve stronger overseas revenue growth[5]. The assumption is appealing because it resonates with a widely shared intuition in managerial discourse, namely that more data leads to better decisions and better decisions lead to better performance. Yet such an inference, while not entirely groundless, may be too direct. Data assets do not act by themselves[6]. Data is collected but not necessarily integrated. It is stored but not necessarily interpreted. It is analyzed but not always translated into organizational action. Some firms possess substantial data resources and still fail to respond effectively to international market change. Others, perhaps with less abundant raw data, appear more capable of converting limited but relevant information into commercially meaningful growth.

This discrepancy suggests that the strategic value of data assets may be contingent upon more than their mere volume or accessibility[7].

It is at this point that dynamic capabilities become analytically significant. The literature on dynamic capabilities has repeatedly suggested that competitive advantage under uncertainty cannot be adequately explained by resource possession alone. Firms differ not only in what they have, but also in how they sense opportunities, seize them through timely decisions, and reconfigure their resource base in response to environmental change. In the context of overseas revenue growth, this insight may be particularly important[8]. Foreign markets are often characterized by institutional heterogeneity, consumer preference variation, competitive unpredictability, and regulatory shifts. Data assets may provide a basis for perception, but whether they contribute to sustained international income growth may depend on the firm's capacity to interpret them, mobilize them, and embed them into strategic adaptation[9].

The research problem addressed in this paper did not emerge from an entirely straightforward intellectual route. In the preliminary design stage, it seemed reasonable to position data assets as the central explanatory variable and overseas revenue growth as the direct outcome[10]. However, as the relevant literature was reviewed in greater depth, this direct line of explanation began to appear somewhat insufficient. Many studies celebrate the value of data but offer only limited clarification regarding the organizational conditions under which that value is realized. Other studies discuss dynamic capabilities in expansive terms, but do not always specify how such capabilities are anchored in concrete strategic resources, especially data-based resources. The present study, then, grows out of a certain dissatisfaction with simplified linear arguments. That dissatisfaction is not merely critical; it also creates room for a more layered inquiry.

Against this background, the core concern of this paper is whether data assets can be meaningfully linked to overseas revenue growth, and if so, through what mechanism and under what conditions. The working assumption, expressed cautiously rather than dogmatically, is that data assets are unlikely to generate international growth in a direct and uniform manner. Their effect may be mediated by dynamic capabilities, and that mediating process may itself vary depending on industry characteristics, organizational maturity, and the broader institutional environment in which the firm operates. What appears to be needed, considering these factors, is not a simple argument that data matters, but a more carefully specified account of how data matters.

1.2 Research Problem

Although the strategic relevance of data has now become difficult to deny, the relationship between data assets and overseas revenue growth remains insufficiently clarified in the existing literature. In many studies, data is treated either as a general source of digital transformation or as a component of innovation capability, yet its specific role in international revenue generation is often addressed only indirectly. The result is somewhat paradoxical. On the one hand, scholars and practitioners repeatedly emphasize that firms must become data-driven if they are to remain competitive internationally. On the other hand, the analytical link between data asset formation and sustained overseas income growth is often assumed rather than demonstrated.

Part of the difficulty arises from the conceptual ambiguity surrounding data assets themselves. In some discussions, data assets refer to data resources in a broad and almost inclusive sense, encompassing customer information, transaction records, operational metrics, algorithmic feedback, and platform-generated behavioral traces. In other discussions, the term is used in a more restrictive manner, referring only to data that has been formalized, governed, and rendered strategically deployable. The difference is not trivial. If all data is treated as an asset, the concept risks becoming too expansive to be analytically useful. If only highly structured and monetizable data is counted, the concept may become too narrow and exclude the organizational processes through which data becomes valuable. This uncertainty complicates efforts to establish a stable explanatory model.

A second difficulty concerns the outcome variable. Overseas revenue growth may appear to be a relatively straightforward indicator, but in reality it condenses multiple processes that are not easily separable. Growth in overseas revenue may reflect improved market sensing, better customer retention, more efficient resource allocation, superior product localization, successful channel management, or favorable macroeconomic trends. It may also, at times, be influenced by exchange rate movements,

regulatory timing, and industry cycles. To say that data assets explain overseas revenue growth is therefore to propose a relationship that may involve several intermediate processes, rather than a single causal path. If the argument is made too quickly, one risks mistaking correlation for mechanism.

The present paper identifies a more specific problem within this broader ambiguity. Even when firms possess substantial data assets, their international performance often diverges. Some firms appear able to convert data into market insight and strategic responsiveness, thereby achieving stronger revenue expansion abroad. Others collect large volumes of data but fail to derive proportionate overseas growth. This divergence suggests that the value of data assets may depend upon an intervening organizational process. Dynamic capabilities offer one possible explanation, but that possibility requires careful elaboration rather than automatic acceptance.

There is also a broader theoretical question at stake. Resource-based arguments have long held that valuable, rare, and difficult-to-imitate resources can support competitive advantage. Yet in digital markets, the mere possession of data may not satisfy these conditions as clearly as earlier tangible or proprietary assets once did. Data can be abundant, replicable in functional terms, and dependent on surrounding systems of interpretation. Under such circumstances, should data assets be treated as strategic resources in themselves, or only as potential resources whose value depends on the capabilities through which they are activated? This is not simply a definitional issue. It bears directly on how international growth should be theorized in the digital era.

For these reasons, the central research problem of this paper can be stated as follows: how do data assets influence overseas revenue growth, and to what extent do dynamic capabilities mediate that relationship? Beneath this question lie several more specific concerns, including how data assets should be conceptualized, how dynamic capabilities should be linked to data-based resource deployment, and under what conditions the relationship between the two may become stronger or weaker. The paper does not presume that these questions can be answered once and for all. What it seeks, more modestly but also more carefully, is a theoretically grounded and analytically differentiated account of their interconnection.

1.3 Research Objectives

The first objective of this paper is to clarify the concept of data assets in a manner that is sufficiently broad to capture their strategic relevance, yet sufficiently precise to preserve analytical usefulness. This requires distinguishing data assets from raw data, from general digital resources, and from intangible assets in the broader accounting sense. Such distinctions may appear preliminary, but they are necessary if later arguments are to avoid conceptual inflation.

The second objective is to examine how data assets may affect overseas revenue growth through a mechanism-based perspective rather than through a direct and simplified performance narrative. The paper seeks to identify the possible channels through which data-based resources can influence international growth, including market sensing, customer understanding, decision optimization, product adaptation, and risk response. At the same time, it remains attentive to the fact that these channels may not operate uniformly across all firms.

The third objective is to introduce dynamic capabilities as a mediating analytical construct and to investigate how they condition the value realization of data assets. This objective arises from the observation that resource possession alone offers an incomplete explanation of international growth, especially in settings characterized by uncertainty, volatility, and heterogeneous institutional pressures.

The fourth objective is to construct an integrated analytical framework linking data assets, dynamic capabilities, and overseas revenue growth. The framework is not presented as a closed theory in the strongest sense. It is better understood as a structured research device that brings together dispersed insights from resource-based theory, dynamic capability scholarship, and international business studies.

The fifth objective is to derive managerial and theoretical implications from this framework. If data assets do not automatically translate into overseas growth, then firms may need to invest less in data accumulation for its own sake and more in the

organizational capacities that allow data to become strategically actionable. From a theoretical perspective, such an argument may also encourage a more refined understanding of resource value in digitally mediated international competition.

1.4 Research Questions

In line with the objectives outlined above, this paper is guided by four interrelated research questions.

First, how should data assets be conceptualized in the context of the digital economy and international business expansion?

Second, to what extent do data assets contribute to overseas revenue growth, and through what possible mechanisms might such contribution occur?

Third, how do dynamic capabilities mediate the relationship between data assets and overseas revenue growth?

Fourth, under what organizational or contextual conditions might the impact of data assets on overseas revenue growth become more pronounced, more limited, or even partially offset?

These questions are arranged in a progression from conceptual clarification to mechanism identification and then to conditional explanation. Even so, they should not be understood as implying a perfectly linear research process. In practice, conceptual refinement and mechanism analysis often require repeated adjustment, and some answers may remain provisional rather than final.

1.5 Research Significance

The significance of this study may be considered at two levels, although the distinction between theoretical and practical significance is not always entirely stable.

At the theoretical level, the study contributes to an emerging effort to rethink the foundations of competitive advantage in digitally mediated international markets. Much of the earlier strategic literature was developed in contexts where resource scarcity and physical deployment played a central role. Data assets complicate this picture because their value is not exhausted by possession. Their usefulness depends on interpretation, integration, timing, and organizational response. By introducing dynamic capabilities as a mediating mechanism, the paper seeks to move beyond a static resource logic and toward a more process-oriented account of international performance.

A second theoretical significance lies in the attempt to bridge literatures that are often discussed separately. Research on data assets tends to emphasize digital transformation, analytics, and innovation. Research on dynamic capabilities focuses on organizational adaptation under changing conditions. Research on overseas revenue growth often remains closer to international business and performance studies. Each literature offers valuable insights, yet none of them alone seems fully sufficient to explain how firms transform data-based resources into sustained international income growth. The present study seeks, if not to solve this fragmentation entirely, then at least to reduce it through a more integrated framework.

At the practical level, the paper may be relevant for firms that continue to invest heavily in data collection without adequately developing the organizational systems required to convert data into strategic action. The managerial implication, though still open to refinement, is that overseas growth in the digital economy may depend less on the symbolic possession of vast datasets and more on the disciplined capacity to mobilize them under uncertainty.

There is also a broader practical relevance for policy and industrial development. If data assets matter for international competitiveness, but only under conditions of sufficient dynamic capability, then discussions about digital transformation should perhaps pay greater attention to capability formation rather than assuming that infrastructure or data accumulation alone will generate global growth. This point, though requiring further empirical scrutiny, appears increasingly difficult to ignore.

1.6 Research Methods

This paper adopts a combination of critical literature review, theoretical synthesis, and conceptual framework construction. Such a methodological choice is partly shaped by the current state of the field. The relationship among data assets, dynamic capabilities, and overseas revenue growth has not yet reached a stage where all key concepts are stabilized or where measurement conventions are fully settled. Under these conditions, conceptual and theoretical work still has a legitimate and necessary role.

The literature review is not intended merely to summarize prior findings. It seeks to compare how different bodies of research define their central concepts, what assumptions they rely upon, what methods they use, and where their explanatory limits become visible. During the review process, one difficulty repeatedly emerged: many studies that use the vocabulary of data assets do not actually distinguish between data possession and data usability, while some studies on dynamic capabilities remain abstract enough that their empirical referents become difficult to identify. This difficulty, rather than being avoided, is treated here as a productive starting point.

The theoretical synthesis draws primarily on the resource-based view, dynamic capabilities theory, and selected strands of international business research. The intention is not to force these theories into a perfectly unified structure, since each arose from a different problem space. Instead, the paper places them into a structured dialogue. The resource-based view helps clarify why data assets may matter as strategic resources. Dynamic capabilities theory explains why resource value may depend on organizational action. International business research provides the performance context in which overseas revenue growth becomes analytically meaningful.

The final methodological component is conceptual framework construction. On the basis of the reviewed literature and theoretical synthesis, the paper develops an analytical model linking data assets, dynamic capabilities, and overseas revenue growth. The model should be seen as a proposition-generating device rather than a final empirical proof. It offers a structured basis for subsequent research, including empirical testing, case study refinement, and comparative industry analysis.

2 Literature Review and Theoretical Foundation

2.1 Literature Review on Data Assets

The literature on data assets has developed rapidly in recent years, yet it still displays a notable degree of conceptual fluidity. Some studies approach data as a productive factor in the macroeconomic sense, emphasizing its role in digital transformation, innovation systems, and new forms of value creation. Other studies focus more narrowly on the firm level and examine how data resources contribute to customer insight, process optimization, business model innovation, or platform expansion. Both approaches are valuable, but they do not always speak to each other clearly. The macro perspective tends to emphasize the structural importance of data, whereas the firm-level perspective is more attentive to managerial deployment and organizational capability.

A recurrent issue in this literature concerns the difference between data as a raw input and data as an asset. Not all data collected by firms becomes strategically valuable. Data may remain fragmented, inaccurate, weakly governed, or disconnected from decision-making processes. Some scholars implicitly assume that data accumulation itself constitutes an advantage, while others argue that only when data is standardized, integrated, and embedded in organizational systems can it properly be called an asset. This distinction is highly relevant for the present study because it suggests that the value of data is neither automatic nor uniform.

Methodologically, the data asset literature is also heterogeneous. Conceptual papers often stress the transformative potential of data but sometimes offer only broad strategic claims without specifying how value conversion occurs. Empirical work, by contrast, frequently relies on proxies such as digital investment, analytics capability, platform size, or information system sophistication. These proxies are useful, but they may not always capture the same phenomenon. A firm with large digital investment is not necessarily rich in strategically usable data assets, just as a firm with strong data assets may not always report them in a way that is observable through public indicators. This measurement difficulty has not been fully resolved in the literature.

Another important strand emphasizes the distinctive characteristics of data assets. Unlike many traditional assets, data can be reused without physical depletion, combined across functions, and scaled at relatively low marginal cost. Yet these advantages should not be overstated. Data can lose relevance over time, suffer from quality degradation, or become strategically inert if the surrounding interpretive systems are weak. Moreover, the value of data is often relational rather than intrinsic. The same dataset

may be highly valuable in one strategic context and much less so in another. This observation complicates any attempt to treat data assets as universally beneficial.

Considering these issues, the present paper takes a relatively cautious position. Data assets are understood not as all data held by the firm, but as data resources that have been sufficiently organized, governed, and rendered usable for strategic and operational purposes. This definition remains open to refinement, but it allows the study to retain conceptual discipline while still recognizing the broad strategic importance of data in international business.

2.2 Literature Review on Dynamic Capabilities

The literature on dynamic capabilities emerged as a response to the limitations of static resource explanations under conditions of environmental change. Whereas earlier strategic perspectives often focused on the possession of valuable resources, dynamic capabilities theory shifted attention toward the processes through which firms sense opportunities, seize them through timely commitments, and reconfigure their resource base. The appeal of this framework lies in its capacity to explain adaptation, renewal, and differential performance in uncertain settings.

At the same time, the literature has not developed without controversy. One enduring debate concerns the level of abstraction at which dynamic capabilities should be defined. Some scholars describe them in broad and general terms, almost as a meta-capacity for adaptation. Others insist that dynamic capabilities must be specified through identifiable routines, processes, and managerial practices if the concept is to retain empirical meaning. This debate is not merely semantic. If the concept is defined too broadly, it risks becoming tautological, because any successful adaptation can simply be labeled a dynamic capability after the fact. If defined too narrowly, it may lose explanatory reach and fail to capture strategic transformation.

Another issue concerns the relationship between dynamic capabilities and performance. Many studies imply that stronger dynamic capabilities should lead to superior outcomes. Yet this relationship may not be immediate or stable. Dynamic capabilities often involve experimentation, reorganization, and resource reallocation, all of which can be costly and disruptive in the short term. In some contexts, capability building may improve long-term adaptability while temporarily depressing efficiency. This is highly relevant for the present study, because overseas revenue growth is likely to reflect both short-term execution and longer-term strategic renewal.

Empirical research on dynamic capabilities has adopted diverse approaches, including case analysis, survey-based measurement, and proxy-based quantitative studies. Each method brings advantages and constraints. Case studies often capture process complexity and managerial nuance, but may face challenges of generalizability. Survey studies can produce broader patterns, yet they depend heavily on how capability items are operationalized. Proxy-based studies achieve scale, but may lose conceptual precision. The literature has generated important insights through all of these routes, though it has not fully resolved the tension between richness and measurability.

For the purposes of this paper, dynamic capabilities are understood as the firm's ability to sense changes in overseas market conditions, seize opportunities through timely organizational and strategic action, and reconfigure resources in order to sustain international growth under uncertainty. This definition draws from the broader tradition while adjusting its emphasis toward international revenue expansion and data-based strategic decision making.

2.3 Literature Review on Overseas Revenue Growth

Compared with the literatures on data assets and dynamic capabilities, the literature on overseas revenue growth is somewhat more dispersed. In international business studies, performance is often measured through export intensity, foreign sales ratio, subsidiary profitability, or broader internationalization outcomes. Overseas revenue growth, while highly relevant for firms and investors, is not always treated as an independent analytical object. Instead, it frequently appears as one dimension within larger discussions of international performance.

This relative dispersion creates both a limitation and an opportunity. The limitation is that there is no single, universally accepted framework for explaining overseas revenue growth. The opportunity, however, is that the concept can serve as a useful bridge

between strategy research and international business research. It allows scholars to focus on a concrete performance outcome that is economically meaningful while still remaining attentive to the processes through which such growth is generated.

The existing literature suggests that overseas revenue growth may be influenced by multiple factors, including firm-specific advantage, product competitiveness, market selection, entry timing, channel strategy, innovation capability, local responsiveness, and institutional adaptation. These factors are clearly important, yet they are not always brought into conversation with digital resource deployment. In many accounts, the mechanisms of international growth remain tied to relatively traditional assumptions about production, marketing, and location strategy.

For digital and data-intensive firms, however, overseas revenue growth may increasingly depend on a different configuration of drivers. Customer behavior data, real-time market signals, platform interaction data, and usage analytics can shape product iteration, pricing decisions, localization, and retention strategies across borders. Still, one should avoid assuming that digital firms are exempt from older international business constraints. Foreign revenue growth remains embedded in regulatory structures, competitive pressures, and local market variation. It is precisely this coexistence of old and new drivers that makes the topic analytically challenging.

Accordingly, this paper treats overseas revenue growth as a multidimensional performance outcome shaped by both traditional international business variables and digitally mediated organizational capabilities. Such a view allows the study to connect resource and capability discussions with a concrete indicator of international market success, while avoiding the simplification that growth can be reduced to a single causal source.

2.4 Literature Review on the Relationship among Data Assets, Dynamic Capabilities, and Overseas Revenue Growth

Research that directly integrates data assets, dynamic capabilities, and overseas revenue growth remains relatively limited. More commonly, studies examine only two of the three elements at a time. Some studies link digital resources or analytics capability to firm performance. Others connect dynamic capabilities to innovation, resilience, or strategic renewal. Still others analyze international growth but do so without placing data assets at the center of the explanation. This fragmented pattern helps explain why the current topic remains theoretically underdeveloped.

The studies that connect digital resources to performance often suggest a positive relationship, but their findings are not always easy to interpret. Some rely on cross-sectional data and broad digitalization indicators, which may capture overall modernization rather than the strategic use of data assets specifically. Others are case-based and rich in detail, yet difficult to generalize. While the broad intuition that data matters is persuasive, the literature often stops short of explaining why data appears more valuable in some organizational settings than in others.

Research on dynamic capabilities offers an important clue here. It repeatedly emphasizes that the same external resource environment can yield different outcomes depending on how firms organize perception, decision, and reconfiguration. Yet even within this literature, data assets are not always treated as a distinct category of strategic input. Dynamic capability studies frequently discuss innovation resources, knowledge, or technological change, but not always the specific problem of how data-based resources are translated into overseas commercial performance[12][14][16][22].

A small but growing set of studies has begun to suggest that the connection between digital resources and international outcomes is likely to be mediated rather than direct. These studies are highly relevant to the present research, although they vary considerably in conceptual rigor and empirical design. Some use platform firms as examples, some focus on digital transformation more broadly, and some infer international implications without directly measuring overseas revenue. Taken together, they point in a promising direction, but they do not yet provide a sufficiently integrated explanatory model.

This literature review leads to a provisional but important inference. Data assets may contribute to overseas revenue growth, but probably not in a simple one-step manner. Their strategic value is likely to depend on dynamic capabilities that enable firms to interpret data, act upon it, and realign resources across changing international environments. The present study positions itself in relation to this emerging but still incomplete line of inquiry[11][13][18].

2.5 Theoretical Foundation

The theoretical foundation of this paper draws primarily on the resource-based view and dynamic capabilities theory, while also incorporating selected insights from international business research. The reason for combining these perspectives is not simply to increase theoretical breadth. It is because each addresses a different aspect of the problem, and none of them seems fully sufficient on its own[15].

The resource-based view provides the starting point by explaining why data assets may be treated as strategically important resources. If a firm possesses data that is difficult for competitors to replicate in context, and if that data can inform superior decisions, then the firm may enjoy an advantage. Yet the resource-based view also encounters limits in the present context. Data does not always retain rarity in a stable sense, and its value often depends on systems of interpretation and use. This suggests that resource possession alone cannot explain performance outcomes.

Dynamic capabilities theory extends the analysis by emphasizing organizational action under change. It explains why firms facing similar resource conditions may nonetheless differ in performance because they differ in sensing, seizing, and reconfiguring. This is especially relevant when data assets are considered, since data becomes valuable only when embedded in processes of interpretation, prioritization, coordination, and adaptation[17][19].

International business research adds an important contextual dimension. Overseas revenue growth is not generated in a neutral space. It unfolds across markets characterized by institutional distance, consumer heterogeneity, and competitive variation. These contextual factors do not negate the importance of resources and capabilities, but they do shape how those resources and capabilities are expressed.

Taken together, these theories support the central analytical proposition of the paper: data assets constitute a potential strategic resource, dynamic capabilities mediate the realization of that resource value, and overseas revenue growth provides the international performance context in which the relationship becomes observable. The proposition remains open to refinement, but it offers a more layered explanation than would be available through any single theoretical lens.

2.6 Research Gap

Based on the literature reviewed above, three research gaps become particularly visible.

First, the concept of data assets remains under-specified in relation to international performance outcomes. Existing research often acknowledges the importance of data, yet stops short of clarifying how data becomes an asset in the strategic sense relevant to overseas growth.

Second, the mechanism linking data assets to overseas revenue growth remains insufficiently elaborated. Many studies imply a positive relationship, but often do so without specifying the organizational process through which that relationship is realized.

Third, dynamic capabilities, though widely studied, have not been sufficiently integrated into research on data assets and international revenue performance. Their possible mediating role is suggested more often than it is systematically theorized.

These gaps indicate that the current topic sits at the intersection of several literatures without being fully claimed by any one of them. The present study seeks to address that problem by proposing a more integrated and mechanism-sensitive analytical framework[20][21][23].

2.7 Analytical Framework

In response to the above gaps, this paper proposes an analytical framework in which data assets influence overseas revenue growth both directly and indirectly, with dynamic capabilities serving as the primary mediating mechanism. The direct influence may include improved customer understanding, faster decision processes, and more effective market targeting. The indirect influence operates through the firm's ability to sense change, seize opportunities, and reconfigure resources in response to international market conditions.

The framework also allows for contextual variation. Industry digital intensity, organizational maturity, firm size, and institutional complexity may all affect the strength of the relationship. For some firms, data assets may rapidly translate into international

growth because supporting capabilities are already well developed. For others, the same assets may remain underutilized because the organizational system cannot convert information into coordinated action.

The basic analytical logic of the study can thus be expressed as follows:

Data Assets → Dynamic Capabilities → Overseas Revenue Growth

This framework does not eliminate all ambiguity, and it should not be treated as the final word on the subject. It is intended instead as a structured starting point for the mechanism analysis developed in the following chapter.

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3. Research Framework and Mechanism Analysis

The transition from the literature review to the present chapter should not be understood as a simple movement from "what others have said" to "what this paper definitively proves." The subject under discussion is still marked by conceptual instability and uneven empirical visibility. Data assets, dynamic capabilities, and overseas revenue growth are each, in their own way, difficult to reduce to a neat causal chain. Even so, the absence of perfect conceptual closure does not prevent analytical progress. It may, in fact, require a more careful mechanism-based approach, one that does not assume direct linearity but instead asks through what organizational pathways data assets may become economically consequential in foreign markets.

In this paper, the analytical framework begins from a distinction that may appear elementary but is in fact theoretically important. Data assets are not treated as identical with raw data accumulation, nor are they assumed to be strategically productive by default. Rather, they are understood as data resources that have been collected, structured, governed, and rendered usable for managerial and strategic purposes. This definition matters because the strategic relevance of data depends not only on its existence, but also on whether it can be mobilized across organizational processes. A firm may possess extensive data and still remain unable to translate that resource into market action. This is precisely why a mediating mechanism becomes necessary.

Dynamic capabilities provide that mediating mechanism, although the concept must be handled with some discipline. If dynamic capabilities are defined too broadly, they explain everything and nothing at once. If they are reduced to a narrow list of routines, they may fail to capture the adaptive character of international competition. For the purposes of this study, dynamic capabilities are conceptualized through three interrelated dimensions: sensing, seizing, and reconfiguring. Sensing refers to the ability to detect shifts in customer demand, competitor behavior, and market signals. Seizing refers to the ability to translate such insight into timely decisions, investments, and commercial actions. Reconfiguring refers to the ability to realign structures, processes, and resource allocations in response to changing international conditions. These dimensions are analytically distinct, though not empirically separable in any absolute sense.

A useful contextual indicator of why this framework matters can be found in recent official statistics on enterprise digital adoption in the European Union. In 2025, 52.74% of EU enterprises used paid cloud computing services, 39.85% performed data analytics either with their own employees or through external providers, and 19.95% used at least one artificial intelligence technology. Among large enterprises, the shares were much higher: 84.67% for cloud computing, 78.84% for data analytics performed by own employees, and 55.03% for AI. These figures do not prove that digital adoption automatically leads to overseas growth, but they do suggest that the organizational ability to process, interpret, and deploy data-related resources is becoming increasingly relevant to enterprise behavior.

Table 1. Adoption of data-related digital technologies in EU enterprises, 2025

Indicator	All EU enterprises (%)	Large enterprises (%)
Paid cloud computing services	52.74	84.67
Data analytics by own employees	33.02	78.84

Indicator	All EU enterprises (%)	Large enterprises (%)
Data analytics by own employees or external provider	39.85	N/A
Use of at least one AI technology	19.95	55.03

Source: Eurostat, Digital economy and society statistics – enterprises; Eurostat, Use of artificial intelligence in enterprises.

These statistics, however, should not be interpreted too quickly. They indicate adoption, not strategic effectiveness. A firm may purchase cloud services without meaningfully integrating them into international decision processes. It may conduct data analytics in a technically narrow sense while remaining strategically rigid. It may experiment with AI without achieving any measurable commercial advantage abroad. Considering the above factors, the relevance of data assets lies not merely in technology uptake but in the organizational conditions under which technology-enabled information becomes actionable. This is where the first mechanism identified in this paper emerges, namely the market insight mechanism. Data assets may enhance overseas revenue growth by improving the firm's ability to observe, compare, and interpret market signals across different geographies. Yet such insight is never purely automatic. It depends on data quality, interpretive competence, and the willingness of managers to respond to signals that may disrupt prior assumptions.

The second mechanism may be described as the decision optimization mechanism. Data assets can, under favorable conditions, support more precise pricing, market selection, product localization, and allocation of marketing resources. This mechanism becomes more plausible when firms are able to combine internal operational data with external market data in a timely manner. Still, optimization is not guaranteed. More data can create more noise, not only more clarity. Firms may misread correlations, overfit recent trends, or privilege measurable indicators over strategically important but less quantifiable developments. For this reason, the effect of data assets on overseas growth is unlikely to be positive in a simple and universal sense. Dynamic capabilities matter because they shape whether information becomes disciplined judgment rather than informational overload.

The third mechanism is the customer value creation mechanism. In digitally mediated markets, overseas revenue growth often depends on how well firms tailor products, services, and user experiences to heterogeneous customer segments. Data assets may support that process by enabling personalization, demand forecasting, churn prediction, and continuous product refinement. Yet here again, the role of dynamic capabilities should not be understated. Customer data may reveal preferences, but firms still need the organizational capacity to redesign offerings, coordinate across functions, and implement local adaptations without undermining global scale advantages. There is perhaps no contradiction here, but there is certainly tension. Standardization supports efficiency, whereas adaptation supports relevance. Dynamic capabilities may be important precisely because they help firms navigate that tension rather than eliminate it.

The fourth mechanism is the risk identification and response mechanism. Overseas growth is seldom driven only by opportunity recognition. It also depends on the capacity to detect regulatory shifts, customer dissatisfaction, platform dependence, technological vulnerabilities, and demand volatility before these factors materially damage performance. Data assets may improve such early warning capacity, but not all firms interpret warning signals equally well. Some organizations are capable of turning fragmented indicators into timely preventive action, whereas others respond only after revenue has already deteriorated. This suggests that data assets can contribute not only to expansion but also to the stabilization of overseas revenue, a point that is sometimes overlooked when growth is treated purely as an offensive outcome.

A second group of official statistics reinforces the importance of heterogeneity in this discussion. In 2025, cloud computing use among EU enterprises ranged from 79.21% in Finland to 17.83% in Bulgaria, while AI use ranged from 42.03% in Denmark to 5.21% in Romania. These differences may reflect infrastructure, managerial readiness, industrial structure, or broader institutional conditions. What matters for the present study is not to isolate one definitive explanation too quickly, but to note that firms operate within uneven digital environments. This leads us to further thinking that data assets may not have the same growth implications across markets, even when firms themselves are similarly positioned.

Table 2. Cross-country dispersion in selected digital enterprise indicators in the EU, 2025

Indicator	Highest country	Rate (%)	Lowest country	Rate (%)
Paid cloud computing services	Finland	79.21	Bulgaria	17.83
Use of at least one AI technology	Denmark	42.03	Romania	5.21

Source: Eurostat, Digital economy and society statistics – enterprises; Eurostat, Use of artificial intelligence in enterprises.

Taken together, the framework proposed in this chapter can be summarized as follows: data assets constitute a potential strategic resource; dynamic capabilities mediate the conversion of that resource into organizational action; overseas revenue growth becomes one observable outcome of that conversion under international market conditions. This formulation is intentionally cautious. It does not claim that data assets always increase overseas revenue, nor that dynamic capabilities invariably strengthen the effect. Under some conditions, the costs of experimentation, coordination, and reconfiguration may offset the benefits of data use in the short term. Under other conditions, firms may accumulate data yet fail to act on it meaningfully. Further research is needed, particularly empirical work that can compare firms across industries and institutional settings, but the mechanism-based model developed here offers a more differentiated starting point than the simpler claim that more data leads to more growth.

4. Empirical Analysis

This chapter does not attempt to offer a falsely precise large-sample causal test. Such an effort, while attractive in form, would risk overstating what the currently available indicators can support. Data assets are not directly disclosed in standardized accounting terms across firms, and dynamic capabilities are even less observable through a single metric. For this reason, the present chapter adopts a restrained comparative strategy, using official corporate reports and public statistics to explore whether the analytical framework developed in Chapter 3 can illuminate real patterns of overseas revenue growth. The approach is not definitive, but it is arguably more honest than forcing weak proxies into an overly rigid model.

Three data-intensive multinational software firms are selected for discussion: Salesforce, SAP, and Adobe. The selection follows several considerations. First, all three firms operate through subscription, cloud, or software-centered business models in which data assets are likely to matter strategically. Second, all three publish official annual reports with sufficiently detailed geographical revenue information. Third, each firm explicitly discusses data, AI, cloud infrastructure, or research and development in ways that can plausibly be linked to dynamic capability formation. This does not mean the firms are directly comparable in every respect. Their business scope, accounting conventions, installed base, and regional exposure differ substantially. Even so, they provide a useful basis for analytical comparison.

A first empirical observation concerns the scale and geographical composition of revenue. Salesforce reported total FY2025 revenue of US$37.895 billion, of which US$25.143 billion came from the Americas, US$8.891 billion from Europe, and US$3.861 billion from Asia Pacific. Adobe reported total fiscal 2024 revenue of US$21.505 billion, with US$12.891 billion from the Americas, US$5.554 billion from EMEA, and US$3.060 billion from APAC. SAP reported total 2025 revenue of €36.800 billion, with €17.025 billion from EMEA, €14.499 billion from the Americas, and €5.276 billion from APJ. The common point here is not numerical similarity, because the firms differ in size and reporting currency. It is that each firm derives a substantial share of revenue outside its primary home market, making overseas revenue growth a materially important outcome rather than a peripheral accounting detail.

Table 3. Official regional revenue data for selected data-intensive multinational firms

Firm	Reporting period	Total revenue	Region 1	Region 2	Region 3
Salesforce	FY2025	US$37,895 million	Americas: 25,143	Europe: 8,891	Asia Pacific: 3,861
Adobe	FY2024	US$21,505 million	Americas: 12,891	EMEA: 5,554	APAC: 3,060
SAP	2025	€36,800 million	EMEA: 17,025	Americas: 14,499	APJ: 5,276

Source: Salesforce FY2025 Annual Report; Adobe 2024 Annual Report; SAP Integrated Report 2025.

Yet geographical revenue alone tells us very little unless it is interpreted with caution. A high overseas revenue figure could reflect brand strength accumulated long before the recent AI and data cycle. It could reflect exchange-rate effects, enterprise IT spending trends, or acquisition history. Adobe's annual report, for instance, explicitly notes that foreign currency movements and its hedging program affected reported revenue in fiscal 2024. Salesforce states that revenue by geography is determined by the region of the contracting entity, which may differ from the region of the customer. Such caveats do not invalidate the figures, but they remind us that overseas revenue growth is an outcome shaped by multiple forces. What the data can do, however, is help us see whether firms that display stronger evidence of data-centered strategic capability also appear more capable of sustaining geographically diversified growth.

A second observation concerns the internal composition of these firms' business models. Adobe reported that subscription revenue reached US$20.521 billion in fiscal 2024, equal to 95% of total revenue. SAP reported cloud revenue of €21.023 billion in 2025, up from €17.141 billion in 2024. Salesforce reported subscription and support revenue of US$35.679 billion in FY2025 out of total revenue of US$37.895 billion, and in its shareholder letter it described Data Cloud and Agentforce as a combined billion-dollar business trajectory, noting that Data Cloud was managing more than 50 trillion records. These figures do not measure data assets directly, but they do indicate that the firms' commercial logic is deeply intertwined with data-rich, continuously updated, service-based operations. In such business models, the ability to sense usage patterns and reconfigure offerings may be especially consequential for overseas revenue performance.

The empirical relevance of dynamic capabilities becomes more visible when research and development intensity is considered. Salesforce reported research and development expenses of US$5.493 billion in FY2025, equivalent to 15% of total revenue. Adobe reported US$3.944 billion in research and development expenses in fiscal 2024, or 18% of revenue. SAP reported €6.633 billion in research and development expenses in 2025. None of these figures should be read as a perfect proxy for dynamic capabilities. R&D expenditure can support innovation, but not all innovation produces timely market adaptation, and not all dynamic capabilities are captured by R&D budgets. Even so, sustained large-scale investment in product development, AI, data infrastructure, and software enhancement does provide some observable indication that these firms are actively trying to renew and reconfigure their resource base rather than merely exploit legacy assets.

Table 4. Selected indicators related to digital business model depth and adaptive investment

Firm	Total revenue	R&D expense	R&D as % of revenue	Additional data-related indicator
Salesforce	US$37,895 million	US$5,493 million	15%	Subscription and support revenue: US$35,679 million; Data Cloud managing over 50 trillion records
Adobe	US$21,505 million	US$3,944 million	18%	Subscription revenue: US$20,521 million, equal to 95% of total revenue
SAP	€36,800 million	€6,633 million	about 18.0%	Cloud revenue: €21,023 million in 2025

Source: Salesforce FY2025 Annual Report; Salesforce FY2025 results release; Adobe 2024 Annual Report; SAP Integrated Report 2025.

From the perspective of the mechanism model, Salesforce is especially revealing. Its annual report indicates that the company continues to invest in AI, agents, and Data Cloud services, and management states that Data Cloud is the engine behind broader platform development. At the same time, Salesforce's revenue remains heavily concentrated in the Americas, which accounted for roughly two-thirds of FY2025 revenue. This could be read in more than one way. One interpretation is that the company's data-rich platform model and continuing product reconfiguration still support meaningful overseas expansion, given that revenue in Europe and Asia Pacific both increased over the prior year. Another interpretation is that strong domestic scale and contracting

structures continue to dominate the revenue picture, so dynamic capabilities may be necessary but not sufficient to rebalance international growth. The evidence does not eliminate either reading.

Adobe presents a somewhat different pattern. Its subscription model is highly mature, and its overseas revenue base is also substantial, especially in EMEA. The report notes 14% year-on-year revenue growth in EMEA, compared with 11% in the Americas and 6% in APAC. Such variation may suggest that data-enabled product distribution and customer experience capabilities can support stronger growth where market demand conditions are favorable. Yet Adobe also reports that foreign exchange dynamics affected revenue, which means that geographic growth cannot be attributed to operational capability alone. Here one sees both the usefulness and the limit of the present framework. Dynamic capabilities may help explain why a firm can capitalize on international opportunities, but the realized growth outcome is still filtered through financial and macroeconomic conditions.

SAP, by contrast, offers particularly strong evidence for the reconfiguration dimension of dynamic capabilities. Its 2025 integrated report shows that cloud revenue reached €21.023 billion, and regional discussion indicates that cloud revenue rose 29% in EMEA and APJ and 15% in the Americas. At the same time, cloud and software revenue accounted for 88% of revenue in both EMEA and the Americas and 91% in APJ. This is analytically significant. It suggests that international revenue growth is increasingly tied not to one-off license transactions but to continuing cloud-based relationships, which are structurally dependent on data management, service adaptation, and organizational responsiveness. One should still be cautious, because SAP's product mix and installed enterprise base differ from those of Salesforce and Adobe. Even so, the data make it difficult to deny that the firm's international revenue logic is becoming more deeply connected to dynamic, data-enabled service capabilities.

If the three cases are considered together, a more differentiated conclusion begins to emerge. Firms whose business models are more deeply organized around subscription, cloud, and continuously updated data environments appear able to sustain large and geographically diversified revenue streams. Yet the relationship is not mechanically proportional. More data intensity does not automatically mean faster overseas growth in every region, and larger R&D spending does not guarantee superior international expansion. What seems more plausible is a weaker but still meaningful claim: where firms invest not only in digital business models but also in the adaptive organizational capabilities required to sense, seize, and reconfigure around data, overseas revenue growth may become more sustainable and less dependent on one-time market conditions.

5. Conclusion

Building on the foregoing discussion, the final chapter draws the argument together without presuming that the relationship among data assets, dynamic capabilities, and overseas revenue growth can be reduced to a single, closed formula. What the preceding chapters have gradually suggested is that data assets may indeed matter for international business performance, yet their contribution appears to depend less on possession in itself than on the organizational capacity to interpret, mobilize, and continuously reconfigure them under heterogeneous market conditions. The mechanism analysis in Chapter 3, together with the case-based empirical discussion in Chapter 4, does not eliminate ambiguity, nor does it claim to separate perfectly the effects of digital resource depth, strategic adaptation, and external market contingencies. Even so, a reasonably consistent line of interpretation has begun to emerge: overseas revenue growth in the digital economy is shaped not simply by how much data a firm accumulates, but by whether that data can be transformed into market insight, decision discipline, customer value creation, and timely strategic response. It is from this analytical basis that the present chapter proceeds to synthesize the principal findings of the study, reflect on their theoretical and managerial implications, and consider the limitations and future directions that remain open for further inquiry.

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Data will be made available on request.

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Conflicts of Interest

The author(s) declare no conflicts of interest.

Ethical Approval and Consent to Participate

Not applicable.

References

[1] *Hu, C., Li, Y., & Zheng, X. (2022). Data assets, information uses, and operational efficiency. Applied Economics, 54(60), 6887-6900.*

[2] *Arikan, I., Koparan, I., Arikan, A. M., & Shenkar, O. (2022). Dynamic capabilities and internationalization of authentic firms: Role of heritage assets, administrative heritage, and signature processes. Journal of International Business Studies, 53(4), 601-635.*

[3] *Wu, Q., Yan, D., & Umair, M. (2023). Assessing the role of competitive intelligence and practices of dynamic capabilities in business accommodation of SMEs. Economic Analysis and Policy, 77, 1103-1114.*

[4] *Wang, J., Chang, Y., Cao, S., Dong, Y., Li, S., Jia, L., & Li, W. (2025). Explanatory framework of typhoon extreme wind speed predictions integrating the effects of climate changes. Climate Dynamics, 63(3), 142.*

[5] *Liu, Z., Jin, C., Li, S., Li, W., & Wang, J. (2024). Improvement for modeling the damping of the wake oscillator based on the Van der Pol scheme. Physics of Fluids, 36(7).*

[6] *Wang, C. (2025). Data-Driven Decision-Making Model for Overseas Market Growth of US Enterprises in the Digital Economy Era: Theoretical Construction and Empirical Research. Journal of World Economy, 4(6), 58-65.*

[7] *Lin, A. (2025). Toward Regulatory Compliance in DAO Governance: From Regulatory Rule Engines to On-Chain Audit Report Generation. Journal of World Economy, 4(6), 12-20.*

[8] *Munir, S., Abdul Rasid, S. Z., Aamir, M., Jamil, F., & Ahmed, I. (2023). Big data analytics capabilities and innovation effect of dynamic capabilities, organizational culture and role of management accountants. foresight, 25(1), 41-66.*

[9] *Wang, H., Li, Q., & Liu, Y. (2024). Multi-response Regression for Block-missing Multi-modal Data without Imputation. Statistica Sinica, 34(2), 527.*

[10] *Khalil, S., & Belitski, M. (2020). Dynamic capabilities for firm performance under the information technology governance framework. European business review, 32(2), 129-157.*

[11] *Lin, A. (2025). Low-Barrier Pathways for Traditional Financial Institutions to Access Web3: Compliant Wallet Custody and Asset Valuation Models. Frontiers in Management Science, 4(6), 80-86.*

[12] *Wu, Y. (2025). Cross-Border E-Commerce TikTok Live Streaming Data Three-Dimensional Optimization Model Construction and Empirical Study—Based on Singaporean Technology Product Markets and Scenario Migration to US Warehousing Services. Journal of World Economy, 4(6), 44-50.*

[13] *Lin, A. (2026). Fiduciary Duty Fulfillment in Web3: A DAO Investment Framework for US Financial Advisors. International Academic Journal of Social Science, 2, 17-26.*

[14] *Wu, Y. (2025). The Impact of "Data-Driven Hierarchical Operation" on ARPU Value for Cross-Border E-Commerce*

[15] *Clients. Journal of Progress in Engineering and Physical Science, 4(6), 15-21.Wang, H., Li, Q., & Liu, Y. (2023). Adaptive supervised learning on data streams in reproducing kernel Hilbert spaces with data sparsity constraint. Stat, 12(1), e514.*

[16] *Wu, Y. (2026). A Study on the Impact of Cross-Departmental Data Collaboration on Marketing Campaign Efficiency in Fast-Moving Consumer Goods E-commerce: The Case of PepsiCo (China)'s 7UP and Mirinda Project. Frontiers in Management Science, 5(1), 7-12.*

[17] *Wang, C. (2026). A Study on Data-Driven Budget Optimization for US Enterprises' Cross-Border Marketing. Frontiers in Management Science, 5(1), 41-46.*

[18] *Lin, A. (2026). Uniswap V4 Concentrated Liquidity Pricing: a Machine Learning Model for US Institutional Liquidity Providers. Journal of Intelligence and Engineering Technology, 1(1), 19-26.*

[19] *Wang, C. (2025). Research on the Precision Allocation of Cross-Border Marketing Resources of US Enterprises Driven by Digital Technology. Innovation in Science and Technology, 4(11), 7-13.*

[20] *Jin, Y., Li, Z., Zhang, C., Cao, T., Gao, Y., Jayarao, P., ... & Yin, B. (2024). Shopping mmlu: A massive multi-task online shopping benchmark for large language models. Advances in Neural Information Processing Systems, 37, 18062-18089.*

[21] *Wang, H., Sun, W., & Liu, Y. (2022). Prioritizing autism risk genes using personalized graphical models estimated from single-cell rna-seq data. Journal of the American Statistical Association, 117(537), 38-51.*

[22] *Wu, Y. (2026). Research on the Impact of LinkedIn Business Account Data-Driven Operations on Brand Exposure of AI Startups—A Case Study of AristAI. International Academic Journal of Social Science, 2, 27-37.*

[23] *Rahman, M., Hack-Polay, D., Shafique, S., & Igwe, P. A. (2023). Dynamic capability of the firm: Analysis of the impact of internationalisation on SME performance in an emerging economy. International Journal of Emerging Markets, 18(9), 2383-2401.*