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Digital Platform Strategy and Competitive Positioning in Cloud-Based Software Ecosystems

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Abstract

This study aimed to examine how digital platform strategy contributes to competitive positioning in cloud-based software ecosystems by identifying the strategic capabilities, ecosystem mechanisms, and market differentiation practices through which cloud software firms create and sustain competitive advantage. This qualitative study was conducted using an exploratory-descriptive design. The participants consisted of 18 managers, founders, product strategists, cloud solution architects, business development specialists, and digital strategy experts from Tehran who had direct professional experience in cloud-based software ecosystems. Participants were selected through purposive sampling, and data collection continued until theoretical saturation was achieved. Data were collected through semi-structured interviews focused on platform strategy, value proposition, ecosystem orchestration, technological capability, customer retention, governance, and competitive positioning. Interviews were transcribed verbatim and analyzed using inductive thematic analysis with the assistance of NVivo software. Credibility was enhanced through repeated review of transcripts, peer checking of selected codes, member checking, and continuous comparison of emerging themes with participants' narratives. The thematic analysis indicated that competitive positioning in cloud-based software ecosystems is shaped by the alignment of eight core strategic dimensions: platform value proposition, ecosystem orchestration, technological scalability, competitive differentiation, customer lock-in and retention, platform governance, market expansion strategy, and data-driven competitive advantage. The most central inferred finding was that sustainable competitive positioning does not emerge from technological capability alone; rather, it is produced when customer-centered value, scalable cloud architecture, ecosystem coordination, trust-building, data analytics, and differentiation mechanisms operate as an integrated strategic system. The findings also suggested that niche specialization, interoperability, localization, pricing flexibility, user experience, partner integration, and continuous innovation strengthen the defensibility of cloud-based software platforms. The study concludes that digital platform strategy is a multidimensional and dynamic process through which cloud-based software firms transform technological capabilities into sustainable competitive advantage. Firms that align value proposition, technological scalability, ecosystem governance, and market differentiation are more likely to achieve a durable position in competitive cloud software markets.

Keywords: *Digital platform strategy; competitive positioning; cloud-based software ecosystems; platform governance; ecosystem orchestration; technological scalability; digital transformation.*

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1. Introduction

The acceleration of digital transformation has fundamentally altered the basis of competition in software markets, shifting the strategic focus of firms from stand-alone product development toward platform-based value creation, ecosystem orchestration, and cloud-enabled scalability. In traditional software markets, competitive advantage was often built around proprietary functionality, licensing models, product differentiation, and internal development capability. In contemporary cloud-based software ecosystems, however, competition increasingly occurs through digital platforms that connect users,

developers, partners, data flows, complementary services, and infrastructure resources within continuously evolving technological environments. Cloud-based platforms allow firms to deliver software as a service, rapidly update features, personalize user experiences, scale infrastructure according to demand, and integrate with broader digital ecosystems. As a result, platform strategy has become a central mechanism through which cloud software firms define their value proposition, coordinate ecosystem actors, manage technological resources, and establish defensible competitive positions in dynamic markets. The growing strategic importance of digital ecosystems has been emphasized in recent studies showing that firms increasingly rely on interconnected digital resources, ecosystem partnerships, and technological advancements to create competitive advantage rather than depending exclusively on internal assets or isolated innovation processes [1-3].

Cloud-based software ecosystems are characterized by modularity, interoperability, continuous deployment, data-intensive service models, and networked value creation. These ecosystems are not merely technical infrastructures; they represent strategic arenas in which firms compete to become indispensable intermediaries between customers, complementors, developers, and service providers. In such environments, software platforms gain value when they attract complementary actors, support integrations, reduce transaction costs, and increase the efficiency of digital operations for users. The platform firm is therefore required to operate simultaneously as a technology provider, ecosystem coordinator, market strategist, and governance authority. This multidimensional role is especially important because cloud platforms continuously mediate interactions among different stakeholders and depend on trust, reliability, security, scalability, and service quality. Research on cloud computing in supply chain management has shown that cloud technologies can transform coordination, information exchange, and operational responsiveness, thereby influencing the structure of next-generation enterprise systems [4]. Similarly, studies on smart product-service systems indicate that competitive advantage increasingly emerges through value creation mechanisms that combine digital functionality, service integration, and customer-centered innovation [5].

The emergence of cloud-based platforms has also transformed the logic of strategic positioning. In conventional markets, positioning could often be achieved through product attributes, brand reputation, price, or distribution access. In platform-based ecosystems, competitive positioning is more complex because customers evaluate platforms not only according to current features but also according to ecosystem depth, integration potential, data capabilities, security standards, switching costs, and future innovation capacity. A platform that is technically functional but weakly integrated into the customer's workflow may remain vulnerable to replacement. Conversely, a platform that becomes embedded in organizational routines, connects with complementary systems, supports third-party services, and generates actionable data can create durable customer dependence. From a resource-based perspective, digital resources become strategically valuable when they are organized, deployed, and combined in ways that improve agility, differentiation, and long-term firm performance [6]. This argument is consistent with the broader view that digital transformation strategies can enhance business agility and generate competitive edge when firms align technological adoption with strategic objectives, organizational capabilities, and market needs [7].

A key feature of cloud-based software ecosystems is that competitive advantage is increasingly dependent on architectural and infrastructural choices. Cloud-native development, microservices architecture, API-based integration, and scalable deployment models allow software firms to adapt faster to changing customer demands and expand their services without proportional increases in operational complexity. Modern enterprise development increasingly emphasizes cloud-native architecture, microservices, and standardized service interfaces such as OData, which support modularity, interoperability, and flexible digital service design [8]. These architectural features are strategically significant because they influence how quickly a platform can introduce new features, integrate with external applications, support multiple customer segments, and maintain performance under growth conditions. Thus, technological capability becomes inseparable from competitive positioning. A firm cannot credibly position itself as a scalable, enterprise-ready, or ecosystem-oriented platform if its technical architecture cannot support reliability, integration, security, and continuous evolution.

The strategic relevance of cloud infrastructure has become even more pronounced with the rapid industrialization of artificial intelligence and data-driven services. Contemporary digital platforms increasingly depend on cloud infrastructure not only for software delivery but also for analytics, automation, machine learning, and

intelligent service personalization. Research on "Big AI" has highlighted the dependence of artificial intelligence development on cloud infrastructure and the industrialization of AI capabilities through large-scale computational resources [9]. This development has important implications for cloud-based software ecosystems because platforms that can combine cloud scalability with data analytics and AI-enabled personalization may strengthen their market position by offering smarter, more adaptive, and more automated services. At the same time, the growth of agentic AI is beginning to reshape the economics of enterprise software by changing the classic buy-or-build decision and creating new strategic questions about software customization, automation, and platform dependence [10]. These shifts suggest that platform strategy must account not only for present software functionality but also for future technological trajectories that may redefine enterprise software adoption and competition.

The competitive landscape of platform markets is also shaped by concentration, market power, and regulatory concerns. Platform economies often produce strong network effects, economies of scale, data advantages, and infrastructural dependencies, all of which may contribute to asymmetric competition between dominant platforms and smaller firms. Studies of the online economy and platform capitalism have shown that competition in digital markets cannot be understood through traditional market boundaries alone, because platform firms may exercise influence through control over infrastructure, data, access conditions, and ecosystem participation [11, 12]. Concerns about Big Tech and European digital markets further demonstrate that platform power has become a central issue in digital economic governance, especially when dominant firms control essential digital gateways and shape the conditions of market participation [13]. In the cloud era, antitrust debates have also shifted toward the infrastructural role of cloud providers, raising questions about dependency, interoperability, competition, and the strategic power of firms that control core computational resources [14]. These debates are highly relevant to cloud-based software ecosystems because competitive positioning is influenced not only by firm-level strategy but also by the broader structure of digital markets.

At the same time, platformization does not occur uniformly across sectors. Sectoral dynamics, customer expectations, regulatory environments, and ecosystem maturity all shape how digital platforms develop and compete. For example, platformization in agriculture has been associated with oligopolistic dynamics, indicating that sector-specific digital platforms may reproduce concentration patterns while reorganizing relationships among producers, technology providers, and data intermediaries [15]. Similarly, studies of software-defined vehicle ecosystems reveal how digital transformation can restructure entire industrial ecosystems by changing the relationship between software, hardware, mobility services, and platform governance [16]. These examples show that cloud-based software ecosystems should not be examined as generic technological markets alone. Rather, they should be analyzed as strategic systems embedded in particular organizational, industrial, and institutional contexts. For software firms, this means that competitive positioning requires an understanding of customer segments, local market conditions, ecosystem partners, regulatory expectations, and the evolving technological architecture of the industry.

The relationship between platform strategy and competitive advantage is also closely connected to innovation ecosystems. Regional and organizational innovation ecosystems provide the conditions through which firms access knowledge, talent, partnerships, infrastructure, and complementary capabilities. Research on regional innovation ecosystems in the digital age has shown that cities and regions can cultivate digital innovation by aligning institutions, firms, technologies, and policy environments [17]. This is important for cloud-based software firms because their competitive capacity is often shaped by access to skilled developers, digital infrastructure, enterprise customers, venture capital, and collaborative networks. Digital ecosystem studies further suggest that firms can strengthen competitiveness by mapping technological advancements, identifying ecosystem actors, and aligning digital capabilities with strategic opportunities [2]. Therefore, the competitive positioning of cloud-based software platforms depends not only on the internal resources of the firm but also on the quality of the surrounding innovation ecosystem and the firm's ability to occupy a meaningful role within that ecosystem.

Business model transformation is another critical dimension of digital platform strategy. Cloud-based software firms typically operate through subscription models, freemium entry strategies, usage-based pricing, enterprise contracts, and service bundles. These models require firms to manage recurring revenue, customer retention, onboarding costs, churn risk, and lifetime value. Studies of digital technology adoption in industrial firms

show that digital transformation can reshape business models by changing value creation processes, customer relationships, operational models, and strategic decision-making [18]. In cloud-based software markets, this transformation is particularly visible because the shift from product sales to service subscriptions changes how firms generate revenue and maintain customer relationships. Competitive positioning therefore depends on the ability to create a value proposition that customers continue to perceive as useful over time. The platform must repeatedly justify renewal, expansion, and deeper integration into customer operations. In this context, customer success, analytics, service quality, and continuous improvement become strategic instruments rather than merely post-sale support activities.

The evolution of cloud platforms also highlights the role of strategic learning and dynamic capabilities. In rapidly changing digital markets, competitive advantage depends on the capacity to sense technological shifts, seize emerging opportunities, and reconfigure organizational resources. Dynamic capability theory has been used to explain how firms operating under disruptive innovation conditions maintain competitiveness through leadership, adaptation, and capability renewal [19]. This perspective is highly applicable to cloud-based software ecosystems because platform firms must continuously adjust their offerings in response to changing customer expectations, competitor moves, technological developments, and ecosystem feedback. The success of Microsoft's cloud computing service transformation illustrates how strategic repositioning, enterprise focus, cloud infrastructure investment, and business model adaptation can enable a major technology firm to compete effectively in cloud services [20]. Such examples demonstrate that platform strategy is not a one-time positioning decision but an ongoing process of adaptation, learning, and strategic renewal.

Strategic positioning may also be affected by mergers, acquisitions, alliances, and ecosystem expansion activities. In platform markets, firms may acquire complementary capabilities, enter partnerships, divest non-core activities, or integrate external services to strengthen their ecosystem position. Research on efficient mergers and acquisitions in enterprise systems has shown that acquisition and divestment activities can support strategic renewal when they are managed through clear integration logic and long-term organizational learning [21]. For cloud-based software firms, ecosystem expansion may occur through partnerships with consultants, developers, resellers, infrastructure providers, financial service providers, or enterprise technology vendors. Supply chain finance platforms, for example, demonstrate how platform-based coordination can generate competitive advantage by integrating financial flows, information flows, and business relationships [22]. These forms of platform-mediated coordination reveal that competitive advantage often emerges from the ability to connect actors and resources across organizational boundaries.

The rise of artificial intelligence also adds a new layer to platform competition. Dominant designs in artificial intelligence are beginning to influence how firms organize innovation, technical standards, service expectations, and competitive differentiation [23]. For cloud-based software platforms, AI-related dominant designs may shape customer expectations regarding automation, prediction, personalization, natural-language interaction, and intelligent decision support. Firms that fail to integrate emerging AI capabilities may gradually lose relevance, while firms that adopt them without strategic coherence may create complexity without durable advantage. The co-evolution of technology, market demand, regulation, and organizational capabilities is therefore central to understanding platform strategy. Recent work on China's co-evolution dynamics further suggests that digital competitiveness often develops through reciprocal interactions between firms, institutions, technologies, and market environments [24]. This reinforces the idea that cloud-based software ecosystems should be studied as adaptive systems rather than linear markets.

Despite the growing literature on platform economies, cloud computing, digital ecosystems, and competitive advantage, there remains a need for more focused inquiry into how firms formulate and implement digital platform strategy within cloud-based software ecosystems. Existing studies have examined platform capitalism, digital transformation, cloud infrastructure, ecosystem innovation, business model transformation, and digital resources, but the specific mechanisms through which cloud-based software firms align platform value proposition, technological capability, ecosystem orchestration, and competitive positioning require further conceptual and empirical development. This gap is particularly important in emerging digital markets, where software firms may face strong competition, limited customer trust, infrastructure constraints, regulatory ambiguity, and pressure from global technology providers. In such settings, firms must develop platform strategies that are technologically scalable,

commercially viable, locally relevant, and ecosystem-oriented. Understanding these strategic mechanisms can help clarify how cloud-based software firms create sustainable advantage in markets where technology changes rapidly and customer expectations continuously evolve.

The aim of this study is to examine how digital platform strategy contributes to competitive positioning in cloud-based software ecosystems by identifying the strategic capabilities, ecosystem mechanisms, and market differentiation practices through which cloud software firms create and sustain competitive advantage.

2. Methodology

This study was conducted using a qualitative research design with an exploratory-descriptive approach to examine digital platform strategy and competitive positioning in cloud-based software ecosystems. The qualitative design was selected because the phenomenon under investigation involves strategic decision-making, ecosystem participation, platform governance, value co-creation, and competitive differentiation, all of which require an in-depth understanding of managerial experiences and expert interpretations. The study population consisted of managers, founders, product strategists, software ecosystem specialists, digital transformation consultants, and senior experts working in cloud-based software companies and platform-oriented technology firms in Tehran. Participants were selected through purposive sampling based on their direct professional experience with cloud platforms, software-as-a-service business models, platform-based competition, digital ecosystem management, or strategic positioning in technology markets. The inclusion criteria were having at least five years of professional experience in the software or cloud computing sector, holding a managerial, strategic, technical leadership, or consulting position, and having direct involvement in decisions related to platform strategy, product-market positioning, ecosystem partnerships, customer acquisition, or competitive analysis. Individuals who lacked direct experience in cloud-based software ecosystems or were unable to participate in a complete interview were excluded from the study. Data collection continued until theoretical saturation was achieved, meaning that additional interviews no longer produced substantially new categories or conceptual insights. In total, 18 participants from Tehran took part in the study. The final sample included senior managers, platform product managers, software entrepreneurs, cloud service consultants, business development specialists, and digital strategy experts, which provided a diverse and information-rich basis for analyzing strategic patterns in cloud-based software ecosystems.

Data were collected using a semi-structured interview protocol developed in accordance with the objectives of the study and the theoretical concepts of digital platform strategy, cloud-based software ecosystems, competitive positioning, ecosystem governance, value proposition design, and platform-based business models. The interview protocol was designed to allow participants to explain their experiences, perceptions, and strategic interpretations in detail while also ensuring consistency across interviews. The main interview questions focused on how cloud-based software firms define their platform strategy, how they position themselves against competitors, how they create and capture value within digital ecosystems, how partnerships and complementors influence competitive advantage, and how technological capabilities, scalability, interoperability, pricing models, customer lock-in, data-driven services, and platform governance contribute to strategic differentiation. Follow-up questions were used when necessary to clarify responses, obtain examples, and explore emerging themes more deeply. Before the main interviews, the interview protocol was reviewed by academic experts in strategic management and information systems to assess content validity, clarity, and relevance. A pilot interview was also conducted with one expert in the cloud software industry, and minor revisions were made to improve the sequencing and wording of the questions.

In addition to the semi-structured interview protocol, a demographic and professional information form was used to collect background information from the participants, including age, gender, educational level, professional position, years of work experience, organizational role, and area of expertise in cloud-based software ecosystems. This information was used only to describe the characteristics of the participants and to support interpretation of the data in relation to their professional backgrounds. Field notes were also used during and immediately after each interview to record contextual observations, key impressions, non-verbal cues, and preliminary analytical reflections. Where participants permitted, interviews were audio-recorded to ensure accurate transcription and analysis. Each interview lasted approximately 45 to 75 minutes and was conducted in a private and convenient setting, either face-to-face or through secure online communication platforms, depending on participant availability. All participants were informed

about the purpose of the study, the voluntary nature of participation, confidentiality of responses, and their right to withdraw at any stage. Written or verbal informed consent was obtained before each interview.

The data were analyzed using thematic analysis with an inductive coding approach. After each interview, the audio files were transcribed verbatim, and the transcripts were reviewed several times to achieve immersion in the data. The analysis began with open coding, during which meaningful statements, strategic concepts, repeated ideas, and experience-based insights were identified and labeled. In the next stage, similar codes were compared, refined, and grouped into subthemes based on conceptual similarity and relevance to the research objective. These subthemes were then organized into broader themes representing the main dimensions of digital platform strategy and competitive positioning in cloud-based software ecosystems. The coding process focused on identifying patterns related to platform value creation, ecosystem orchestration, competitive differentiation, technological capabilities, customer relationship strategies, scalability, data-driven advantage, pricing and subscription models, network effects, partner integration, and barriers to sustainable positioning.

NVivo software was used to organize, manage, and retrieve qualitative data systematically. The software facilitated the classification of codes, comparison of participants' responses, development of thematic categories, and documentation of analytical decisions. To enhance the credibility and trustworthiness of the findings, several strategies were applied, including prolonged engagement with the data, peer review of selected codes, comparison of emerging themes with the original transcripts, and continuous revision of the coding structure. Member checking was also used with several participants to confirm whether the extracted interpretations reflected their intended meanings. Dependability was supported by maintaining an audit trail that included interview guides, transcripts, coding notes, category development records, and analytical memos. Confirmability was strengthened by documenting the researchers' reflections and avoiding unsupported interpretations. The final themes were developed only after repeated comparison across interviews and after ensuring that each theme was grounded in sufficient evidence from the participants' narratives.

3. Findings and Results

The demographic and professional characteristics of the participants showed that the study included a diverse group of experts with direct experience in cloud-based software ecosystems and digital platform strategy. A total of 18 participants from Tehran took part in the study. Of these participants, 12 were male and 6 were female. The participants' ages ranged from 29 to 52 years, with an approximate mean age of 38.7 years. In terms of educational background, 2 participants held bachelor's degrees, 11 held master's degrees, and 5 held doctoral degrees in fields related to software engineering, information systems, industrial engineering, business administration, strategic management, and information technology management. Regarding professional roles, 4 participants were founders or chief executive officers of cloud-based software firms, 4 were product or platform managers, 3 were cloud solution architects, 3 were digital strategy consultants, 2 were business development managers, and 2 were senior managers in enterprise software companies. Their professional experience ranged from 5 to 21 years, with an approximate mean of 11.3 years. Most participants had direct involvement in platform design, SaaS product development, cloud service commercialization, ecosystem partnership management, pricing strategy, enterprise customer acquisition, or competitive analysis. This diversity of professional roles made it possible to examine the phenomenon from strategic, technical, commercial, and ecosystem-level perspectives. Theoretical saturation was reached after the sixteenth interview, and two additional interviews were conducted to confirm the stability and completeness of the extracted themes.

Table 1. Main Themes and Subthemes Extracted from the Interviews

Main theme	Subthemes	Description of extracted meaning	Frequency of participant reference
Platform value proposition	Customer problem orientation, integrated service offering, subscription-based value, continuous improvement	Participants emphasized that successful cloud-based platforms must move beyond single-function software and present a coherent value proposition that solves recurring organizational problems.	18

Ecosystem orchestration	Partner management, complementor integration, API-based collaboration, service bundling	Participants described ecosystem orchestration as the ability of platform firms to coordinate users, developers, technology partners, and service providers around a shared cloud-based infrastructure.	16
Technological scalability	Cloud infrastructure flexibility, modular architecture, interoperability, performance reliability	Participants viewed scalability as a central strategic capability because platform growth depends on supporting more users, more transactions, and more integrations without reducing service quality.	17
Competitive differentiation	Specialization, user experience, pricing flexibility, local market adaptation, data-driven services	Participants indicated that competitive positioning depends on creating visible differences that are meaningful to customers and difficult for competitors to imitate quickly.	18
Customer lock-in and retention	Switching costs, embedded workflows, customer support, customization, data migration barriers	Participants explained that retention in cloud-based ecosystems is shaped by how deeply the platform becomes integrated into customers' operational routines.	15
Platform governance	Access rules, quality control, data governance, security policies, partner standards	Participants highlighted governance as a mechanism for maintaining trust, reducing uncertainty, and protecting the long-term stability of the ecosystem.	14
Market expansion strategy	Segment selection, enterprise targeting, freemium entry, strategic alliances, vertical market penetration	Participants stated that cloud software firms need staged market expansion strategies because uncontrolled growth may weaken service quality and strategic focus.	13
Data-driven competitive advantage	Usage analytics, predictive insights, customer behavior analysis, service personalization	Participants described data as a strategic resource that enables platform firms to understand users, improve services, and differentiate offerings.	16

The results presented in Table 1 show that digital platform strategy in cloud-based software ecosystems is a multidimensional phenomenon shaped by value proposition design, ecosystem orchestration, technological scalability, competitive differentiation, retention mechanisms, governance practices, market expansion, and data-driven advantage. The strongest and most frequently emphasized themes were platform value proposition and competitive differentiation, both of which were mentioned by all 18 participants. This indicates that the experts did not view cloud-based software platforms merely as technological products, but rather as strategic systems that must clearly communicate value and occupy a defensible position in the market. Technological scalability was also strongly emphasized, with 17 participants referring to the importance of modular architecture, interoperability, and infrastructure flexibility. This finding suggests that cloud-based software firms cannot sustain competitive positioning unless their technical architecture is aligned with growth requirements. Ecosystem orchestration and data-driven competitive advantage were each mentioned by 16 participants, showing that platform success depends not only on internal capabilities but also on the ability to mobilize external actors and transform user data into strategic insight. Although platform governance and market expansion strategy had slightly lower frequencies, they remained important because participants repeatedly linked weak governance and unfocused expansion to loss of trust, operational instability, and strategic dilution.

Table 2. Strategic Capabilities Required for Platform Success in Cloud-Based Software Ecosystems

Strategic capability	Operational manifestation in cloud-based platforms	Strategic contribution to competitive positioning	Representative interpretation from participant narratives
Modular product architecture	Development of flexible software modules, independent service layers, and configurable features	Enables faster adaptation to different customer segments and reduces the cost of product expansion	Platforms that can be configured without rebuilding the entire system are more capable of responding to market change.
API and integration capability	Connection with accounting systems, payment gateways, CRM tools, enterprise systems, and third-party applications	Increases ecosystem embeddedness and makes the platform more valuable as part of a broader digital workflow	Integration capability turns the platform from an isolated product into part of the customer's operational infrastructure.
Scalability of infrastructure	Elastic cloud hosting, automated resource allocation, load management, and performance monitoring	Supports growth without proportional increases in cost or decline in service quality	Competitive advantage depends on whether the platform can grow without becoming slower, less reliable, or more expensive to maintain.
Security and compliance capability	Data protection, access control, authentication, backup systems, privacy management, and auditability	Builds trust among enterprise customers and reduces perceived risk in adopting cloud-based solutions	In cloud markets, customers often evaluate security before they evaluate advanced features.
Customer analytics capability	Monitoring usage behavior, identifying churn risk, tracking feature adoption, and analyzing customer journeys	Enables personalization, product improvement, and proactive customer retention	Data generated through platform use becomes a source of strategic learning and continuous improvement.

Continuous deployment capability	Frequent updates, rapid bug fixes, feature testing, and agile release cycles	Allows the firm to respond quickly to customer feedback and competitor moves	Cloud platforms compete through continuous evolution rather than occasional product upgrades.
Service and support capability	Onboarding, training, technical support, account management, and customer success services	Strengthens customer satisfaction and reduces the likelihood of switching to competitors	Support quality can become a positioning factor when competing products have similar technical features.
Pricing and monetization capability	Subscription tiers, freemium models, usage-based pricing, enterprise contracts, and bundled service plans	Helps the platform attract different customer segments and align revenue with customer value	Pricing flexibility allows the platform to enter the market, retain smaller users, and later capture enterprise value.

The findings in Table 2 indicate that participants understood platform success as the result of several interdependent strategic capabilities rather than a single technological advantage. Modular product architecture and API-based integration were repeatedly described as foundational capabilities because they determine how easily a cloud-based platform can adapt to different customer needs and become embedded in wider organizational workflows. Participants believed that cloud platforms with weak integration capacity are more vulnerable to replacement because they remain peripheral to the customer's operations. By contrast, platforms that connect with payment systems, customer relationship management tools, accounting software, communication systems, and enterprise applications become more difficult to replace. Scalability of infrastructure was also considered a key determinant of sustainable growth because a platform that attracts new users but fails to maintain speed, reliability, and service continuity risks damaging its market reputation. Security and compliance capability emerged as especially important in enterprise markets, where customers are often concerned about data privacy, access control, business continuity, and legal accountability. Customer analytics and continuous deployment were also identified as dynamic capabilities because they enable platform firms to learn from user behavior and rapidly convert feedback into improved features. Finally, service capability and pricing capability were described as strategic rather than merely operational issues, since both shape customer perception, adoption decisions, and long-term loyalty.

Table 3. Competitive Positioning Mechanisms Identified in Cloud-Based Software Ecosystems

Competitive positioning mechanism	Main strategic logic	Market effect	Observed implication for platform firms
Niche specialization	Focusing on a specific industry, organizational function, or customer segment	Reduces direct competition with generalist platforms and increases perceived relevance	Specialized platforms can compete effectively even against larger competitors when they deeply understand sector-specific needs.
Differentiation through user experience	Designing simple interfaces, intuitive workflows, and low-friction onboarding	Increases adoption and reduces resistance among non-technical users	Ease of use becomes a strategic advantage when customers compare several platforms with similar core features.
Local market adaptation	Adjusting language, payment systems, support models, legal requirements, and business practices to the local context	Creates trust and practical fit in markets where global platforms may not fully match local needs	Localized platforms can defend their position by understanding customer expectations better than foreign or generic competitors.
Data-based service personalization	Using customer data to recommend features, automate tasks, and improve decision-making	Increases perceived value and strengthens long-term engagement	Personalization transforms the platform from a passive tool into an intelligent service environment.
Ecosystem-based differentiation	Building partnerships with developers, consultants, resellers, and complementary service providers	Expands platform reach and increases customer dependency on the ecosystem	The platform becomes more competitive when external actors increase its functionality and market access.
Trust-based positioning	Emphasizing reliability, security, transparency, support, and long-term commitment	Reduces adoption uncertainty and strengthens credibility	In cloud ecosystems, trust can compensate for limited brand size, especially in business-to-business markets.
Price-value alignment	Offering pricing structures that correspond to customer size, usage level, and perceived benefit	Improves adoption across different segments and reduces price-based resistance	Platforms that combine flexible pricing with clear value communication are better positioned for gradual market penetration.
Innovation speed	Releasing new features, improving existing services, and responding quickly to customer requests	Signals responsiveness and technological vitality	Fast innovation helps platforms remain visible and competitive in markets where customer expectations change rapidly.

As shown in Table 3, competitive positioning in cloud-based software ecosystems is shaped by a combination of market focus, user-centered design, localization, data-based personalization, ecosystem development, trust creation,

pricing alignment, and innovation speed. Participants repeatedly emphasized that cloud-based software firms should avoid competing only through broad claims of technological superiority because such claims are often difficult for customers to evaluate. Instead, firms need to occupy a clear and meaningful position in the customer's mind. Niche specialization was identified as a particularly effective mechanism for smaller and medium-sized platform firms because it allows them to compete based on depth of understanding rather than scale alone. User experience also emerged as a major positioning factor, especially in markets where customers may lack advanced technical expertise. According to the participants' interpretations, a technically powerful platform may fail if users perceive it as complicated, slow to implement, or difficult to learn. Local market adaptation was another important mechanism, particularly for platforms operating in Tehran and similar emerging digital markets, where language, payment practices, support expectations, and regulatory conditions influence adoption decisions. Participants also highlighted that ecosystem-based differentiation can strengthen positioning by expanding the platform's perceived value through partners and complementary services. Trust-based positioning was considered essential because cloud adoption often involves concerns about security, reliability, data ownership, and service continuity. Overall, the table shows that competitive positioning is not limited to external marketing communication; it is constructed through the alignment of product design, service delivery, ecosystem relationships, pricing, trust, and continuous innovation.

Table 4. Challenges and Managerial Responses in Cloud-Based Software Ecosystems

Strategic challenge	Description of the challenge	Managerial response identified in the interviews	Expected strategic outcome
Intense platform competition	Many cloud software firms offer similar features, making differentiation difficult	Developing a sharper value proposition and focusing on specific customer segments	Stronger market identity and reduced dependence on price competition
Low customer trust in cloud services	Some customers are concerned about security, data loss, privacy, or dependency on external providers	Strengthening transparency, security communication, service-level agreements, and customer education	Increased adoption confidence and stronger customer relationships
Weak ecosystem coordination	Partners, developers, resellers, and service providers may act without consistent standards	Establishing governance rules, partner criteria, technical standards, and performance monitoring	Higher ecosystem reliability and more consistent customer experience
High customer acquisition costs	Reaching and converting business customers requires marketing, education, and sales investment	Using freemium models, referrals, content marketing, partnerships, and targeted enterprise sales	More efficient market entry and gradual conversion of users into paying customers
Difficulty in sustaining innovation	Continuous updates require technical, financial, and managerial resources	Implementing agile development, customer feedback loops, and prioritization systems	Faster response to market change and better alignment with user needs
Risk of customer churn	Customers may switch when competitors offer lower prices, better features, or easier migration	Increasing product embeddedness, improving support, offering customization, and monitoring churn indicators	Higher retention and longer customer lifetime value
Infrastructure cost pressure	Growth in users and transactions can increase hosting, maintenance, and support costs	Optimizing cloud architecture, automating operations, and aligning pricing with usage levels	Improved scalability and more sustainable profitability
Regulatory and data governance uncertainty	Ambiguity around data protection, ownership, and compliance may affect customer decisions	Creating internal data governance policies and communicating compliance practices clearly	Reduced uncertainty and improved institutional legitimacy

Table 4 demonstrates that cloud-based software ecosystems create both strategic opportunities and managerial challenges. Participants stated that one of the most important challenges is intense platform competition, particularly when many firms offer similar dashboards, automation tools, subscription models, or cloud-based service features. In such conditions, participants argued that firms should not respond only by lowering prices, because price competition may weaken profitability and reduce resources available for innovation. Instead, the preferred managerial response is to develop a clearer value proposition and focus on customer segments in which the platform can offer superior relevance. Low customer trust in cloud services was another major challenge, especially among business customers who are concerned about data security, service continuity, and dependency on external providers. The participants suggested that transparency, security communication, service-level agreements, and customer education can reduce these concerns. Weak ecosystem coordination was also highlighted as a risk because inconsistent partner behavior can damage the reputation of the central platform. Therefore, governance rules, technical

standards, and partner evaluation mechanisms were considered necessary for maintaining ecosystem quality. High customer acquisition costs and customer churn were identified as closely related challenges: platforms must invest heavily to attract users, but they also need retention mechanisms to protect this investment. Participants emphasized that embedded workflows, customization, proactive support, and churn monitoring can improve retention. Infrastructure cost pressure was another operational challenge with strategic consequences because uncontrolled technical costs can undermine profitability as the platform scales. Finally, regulatory and data governance uncertainty was described as a growing concern, requiring cloud-based software firms to adopt explicit internal policies and communicate them clearly to customers.

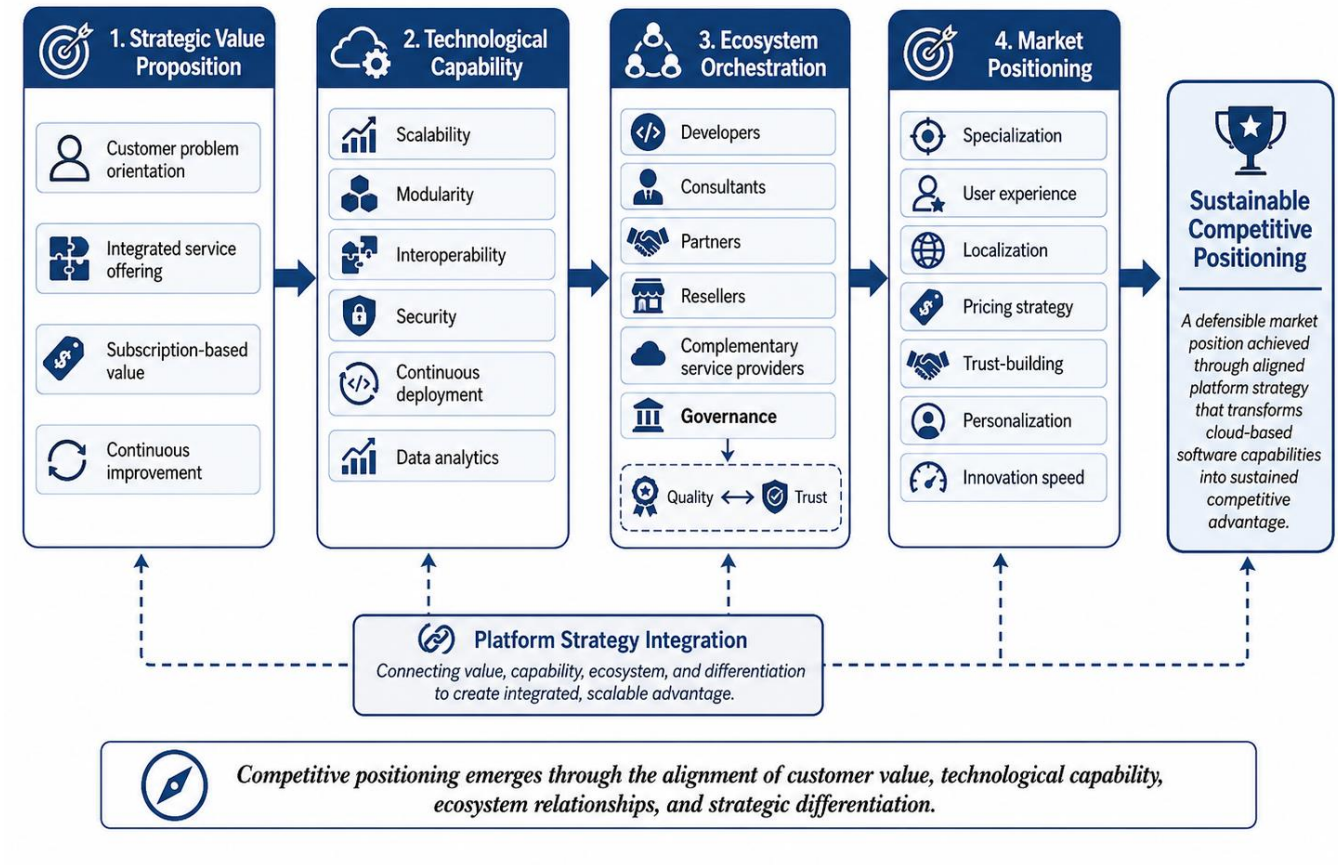

Figure 1. Conceptual Model of Digital Platform Strategy and Competitive Positioning in Cloud-Based Software Ecosystems

The conceptual model derived from the findings indicates that competitive positioning in cloud-based software ecosystems emerges from the interaction of four central layers: strategic value proposition, technological capability, ecosystem orchestration, and market positioning. At the first layer, the platform must define a clear value proposition based on customer problems, service integration, subscription-based value, and continuous improvement. This layer gives the platform its strategic purpose and explains why customers should adopt it. At the second layer, technological capability provides the infrastructure required to deliver and sustain this value. Scalability, modularity, interoperability, security, continuous deployment, and data analytics enable the platform to grow, adapt, and remain reliable. At the third layer, ecosystem orchestration extends the platform beyond the boundaries of the firm by integrating developers, consultants, partners, resellers, and complementary service providers. This layer increases the scope and depth of value creation while also requiring governance mechanisms to maintain quality and trust. At the fourth layer, competitive positioning translates internal and ecosystem capabilities into market advantage through specialization, user experience, localization, pricing strategy, trust-building, personalization, and innovation speed. The model suggests that sustainable competitive positioning is not achieved through technology alone. Rather, it is created when technological infrastructure, ecosystem relationships, customer value, and strategic

differentiation are aligned. In this sense, platform strategy functions as the connecting mechanism that transforms cloud-based software capabilities into a defensible competitive position.

The overall findings of the study show that digital platform strategy in cloud-based software ecosystems is a complex and dynamic process that depends on the simultaneous management of technology, customers, partners, data, and competitive identity. Participants consistently emphasized that cloud-based software firms should not define themselves only as providers of software tools. Instead, they should understand themselves as platform-based ecosystem actors that create value through continuous interaction with users, complementors, partners, and market institutions. The findings also reveal that competitive positioning is strongest when the platform becomes embedded in the customer's daily operations, provides reliable and scalable services, offers meaningful differentiation, and develops trust-based relationships. In this regard, cloud-based software ecosystems create a strategic environment in which firms must compete not only through product features, but also through integration capacity, ecosystem design, customer experience, data intelligence, governance quality, and adaptability. The participants' narratives suggest that firms that fail to coordinate these dimensions may experience weak differentiation, customer churn, increasing operational costs, and vulnerability to competitors. Conversely, firms that align platform value proposition, technological scalability, ecosystem orchestration, and market positioning are more likely to achieve sustainable competitive advantage in cloud-based software ecosystems.

4. Discussion and Conclusion

The present study examined digital platform strategy and competitive positioning in cloud-based software ecosystems and identified a set of interconnected strategic dimensions, including platform value proposition, technological scalability, ecosystem orchestration, competitive differentiation, customer retention, governance, market expansion, and data-driven competitive advantage. The findings indicate that cloud-based software platforms should not be understood merely as technical delivery systems or digital products, but as strategic ecosystem structures through which firms coordinate value creation, organize complementary actors, and construct defensible market positions. The strongest themes extracted from the interviews were platform value proposition and competitive differentiation, both of which were emphasized by all participants. This suggests that managers and experts in cloud-based software markets consider strategic clarity and market distinctiveness to be central requirements for platform success. This result is aligned with studies emphasizing that digital ecosystems generate competitive advantage when firms combine technological resources with strategic positioning, customer-centered value creation, and ecosystem-level coordination [1-3]. In this regard, the study supports the view that competition in digital markets is increasingly based on the ability to design integrated value systems rather than on offering isolated software functions.

One of the central findings of the study was that platform value proposition functions as the starting point of competitive positioning in cloud-based software ecosystems. Participants emphasized customer problem orientation, integrated service offering, subscription-based value, and continuous improvement as essential components of a successful platform strategy. This finding shows that cloud software firms must define their value in terms of recurring customer needs, operational integration, and long-term service relevance. Such a result is consistent with research on smart product-service systems, which argues that competitive advantage emerges when firms combine digital functionality with service-based value creation and customer-centered innovation [5]. It also corresponds with the resource-based view of digital resources, according to which digital assets become strategically meaningful only when they are organized and deployed in ways that support performance, adaptability, and value delivery [6]. Therefore, the value proposition of a cloud platform should not be reduced to technical features alone; rather, it should communicate how the platform solves persistent organizational problems, reduces complexity, and supports continuous improvement in customer operations.

The findings also showed that technological scalability is a fundamental capability for sustaining competitive positioning. Participants repeatedly referred to cloud infrastructure flexibility, modular architecture, interoperability, performance reliability, security, continuous deployment, and data analytics as strategic capabilities. This result confirms that in cloud-based software ecosystems, technology is not simply an operational resource but a source of strategic advantage. Cloud-native and microservices architectures enable firms to respond more rapidly to changing customer needs, support integration with external systems, and scale service delivery

without proportional increases in complexity. This finding is aligned with research on modern enterprise development, which emphasizes that cloud-native architectures, microservices, and standardized interfaces are central to flexible and scalable digital service design [8]. It also supports studies on cloud computing in enterprise and supply chain contexts, where cloud technologies are shown to improve coordination, information exchange, responsiveness, and system-level agility [4]. Accordingly, the present findings suggest that firms seeking competitive positioning in cloud software markets must invest in technological architectures that support both current performance and future adaptation.

Another important result was that ecosystem orchestration emerged as a major strategic mechanism. Participants described partner management, complementor integration, API-based collaboration, developer participation, reseller networks, and service bundling as central elements of platform success. This finding indicates that cloud-based software platforms gain strength when they are able to mobilize external actors around a shared technological and commercial architecture. In other words, a platform becomes more competitive when it is not only used by customers but also extended, supported, promoted, and complemented by ecosystem participants. This result is consistent with studies emphasizing that digital ecosystems create competitive advantage through technological advancements, inter-organizational collaboration, and strategic mapping of ecosystem relationships [2]. It is also supported by research on regional innovation ecosystems, which shows that digital competitiveness depends on the alignment of firms, institutions, technologies, and collaborative networks [17]. Therefore, the ability to orchestrate ecosystem relationships can be interpreted as a strategic capability that allows cloud software firms to extend their reach beyond internal organizational boundaries.

The role of platform governance was another significant finding. Participants stated that governance mechanisms, including access rules, quality control, data governance, partner standards, and security policies, are necessary to preserve trust and ensure ecosystem stability. This result is important because platform ecosystems can become vulnerable when rapid expansion is not accompanied by clear rules and accountability mechanisms. Weak governance may reduce service quality, damage customer trust, increase partner inconsistency, and weaken the platform's market position. This finding aligns with studies of platform economies and online competition, which show that digital platforms exercise strategic influence through control over access, infrastructure, data, and ecosystem participation [11, 12]. It also corresponds with debates on Big Tech, cloud infrastructure dependence, and antitrust in the cloud era, where governance, interoperability, dependency, and market power are central concerns [13, 14]. The present study extends these discussions by showing that governance is not only a regulatory or public-policy concern but also a managerial requirement for sustaining trust and competitive positioning within cloud-based software ecosystems.

The findings further indicated that competitive differentiation in cloud-based software ecosystems is achieved through specialization, user experience, pricing flexibility, local market adaptation, data-driven services, personalization, trust-building, and innovation speed. This result suggests that competitive positioning is constructed through multiple mutually reinforcing practices rather than through one dominant factor. Participants especially emphasized that smaller and medium-sized cloud platforms can compete against larger firms by focusing on niche specialization, local relevance, superior customer support, and better alignment with customer workflows. This finding is consistent with research on digital transformation strategies, which highlights the role of agility, strategic adaptation, and market responsiveness in creating competitive edge [7]. It also aligns with the study of Microsoft's cloud computing service transformation, which illustrates that strategic repositioning, cloud investment, and adaptation to enterprise needs can support competitive success in cloud markets [20]. Therefore, the findings suggest that successful competitive positioning requires firms to identify where they can create distinctive and defensible value rather than attempting to imitate the broad strategies of dominant global platforms.

Data-driven competitive advantage was also identified as a major theme. Participants explained that usage analytics, customer behavior analysis, churn prediction, feature adoption tracking, and service personalization allow cloud-based software firms to continuously learn from users and improve their offerings. This finding is consistent with the growing role of cloud infrastructure in artificial intelligence, automation, and data-intensive digital services. Research on Big AI has shown that AI development increasingly depends on cloud infrastructure and large-scale computational resources, making cloud platforms central to the industrialization of intelligent services [9]. Similarly,

research on dominant designs in artificial intelligence suggests that AI capabilities are beginning to shape innovation trajectories, competitive expectations, and the design of future digital products [23]. The present study supports these arguments by showing that data analytics is not only a technical function but also a strategic mechanism for personalization, retention, and differentiation. As cloud software platforms accumulate user data, they gain opportunities to improve service relevance, predict customer needs, and strengthen customer dependence.

Customer retention and lock-in also emerged as important aspects of competitive positioning. Participants stated that switching costs, embedded workflows, customization, customer support, and data migration barriers influence whether customers remain with a platform. This finding shows that competitive advantage in cloud-based software ecosystems is not created only at the point of customer acquisition but is reinforced through continued use, workflow integration, and service dependence. This result is aligned with studies of platform capitalism and online competition, which emphasize that digital firms often build durable market positions through network effects, data accumulation, infrastructural control, and user dependency [11, 12]. However, the present study also indicates that retention should not be understood only as restrictive lock-in. Participants emphasized support quality, customization, continuous improvement, and trust as positive retention mechanisms. This distinction is important because sustainable positioning depends not only on making it difficult for customers to leave but also on making continued use valuable, efficient, and strategically beneficial.

The findings also revealed that market expansion strategy must be carefully managed in cloud-based software ecosystems. Participants referred to segment selection, enterprise targeting, freemium entry, strategic alliances, and vertical market penetration as important mechanisms for growth. This finding suggests that uncontrolled expansion can weaken platform focus, reduce service quality, and increase operational pressure. Instead, firms need staged growth strategies that match their technological capacity, support resources, and value proposition. This result is supported by studies on business model transformation, which show that digital technologies reshape organizational value creation, customer relationships, and strategic decision-making [18]. It is also consistent with research on mergers, acquisitions, and strategic renewal, which indicates that expansion activities are most effective when guided by clear integration logic and long-term learning [21]. In cloud software ecosystems, expansion through partnerships, integrations, or acquisitions may strengthen positioning, but only when it reinforces the platform's core strategic identity.

The study also showed that cloud-based software ecosystems are influenced by broader market structures and sectoral dynamics. Participants' emphasis on localization, trust, regulatory uncertainty, and partner governance indicates that platform strategy cannot be separated from institutional and market context. This finding is aligned with research on oligopolistic platformization in agriculture, which shows that sectoral platform dynamics may reshape competitive relationships and produce new forms of dependency [15]. It is also consistent with research on software-defined vehicle ecosystems, where digital transformation reorganizes industrial relationships, technological architectures, and ecosystem governance [16]. These studies support the present finding that cloud-based software firms must adapt their platform strategies to the specific conditions of their markets, including customer readiness, regulatory expectations, infrastructure maturity, and the presence of dominant competitors.

Finally, the conceptual model derived from the findings suggests that sustainable competitive positioning emerges from the alignment of strategic value proposition, technological capability, ecosystem orchestration, and market positioning. This result is strongly consistent with dynamic capability theory, which emphasizes the importance of sensing, seizing, and reconfiguring resources under conditions of technological disruption [19]. It also corresponds with recent work on agentic AI and enterprise software, which shows that technological change is altering the economics of software adoption, customization, and platform dependence [10]. In addition, studies on co-evolutionary dynamics show that digital competitiveness develops through reciprocal interactions among firms, technologies, institutions, and markets [24]. The present study contributes to this literature by demonstrating that cloud-based software firms must continuously integrate customer value, technical scalability, ecosystem governance, and differentiation mechanisms to maintain a defensible position. Sustainable competitive advantage, therefore, is not a fixed outcome but an ongoing strategic accomplishment produced through alignment, adaptation, and ecosystem-level coordination.

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted qualitatively with 18 experts from Tehran, and although theoretical saturation was achieved, the

findings may not fully represent the experiences of cloud-based software firms in other cities, countries, or institutional environments. Second, the study relied on semi-structured interviews, and the results therefore reflect participants' perceptions, interpretations, and professional experiences rather than direct measurement of organizational performance or market outcomes. Third, the study focused on cloud-based software ecosystems broadly and did not limit the sample to one specific industry, platform type, or software category; therefore, some findings may vary across sectors such as financial technology, enterprise resource planning, education technology, health technology, or supply chain platforms. Fourth, because cloud-based software markets evolve rapidly, some strategic priorities identified in the study may change as artificial intelligence, data governance rules, infrastructure models, and customer expectations continue to develop.

Future research should examine digital platform strategy and competitive positioning in cloud-based software ecosystems using larger and more diverse samples across different regions, industries, and organizational sizes. Quantitative studies may test the relationships among platform value proposition, technological scalability, ecosystem orchestration, governance quality, customer retention, and competitive performance. Comparative studies can also investigate differences between local cloud software firms and global platform providers, especially in terms of localization, trust-building, pricing strategy, and customer dependency. Future research may also focus on specific sectors such as financial technology, logistics, education, health services, enterprise software, or artificial intelligence-enabled platforms to identify sector-specific patterns of platform competition. Longitudinal research would be particularly useful for understanding how cloud-based software platforms evolve over time and how strategic positioning changes during different stages of growth, market entry, scaling, maturity, and ecosystem expansion.

Managers of cloud-based software firms should treat platform strategy as an integrated managerial process rather than a purely technical or marketing-related activity. They should begin by defining a clear customer-centered value proposition and then align technological architecture, ecosystem partnerships, governance mechanisms, pricing models, and customer success practices around that value proposition. Firms should invest in scalable infrastructure, modular design, interoperability, security, and data analytics because these capabilities directly affect market credibility and long-term competitiveness. Managers should also strengthen ecosystem orchestration by developing clear partner standards, integration rules, and quality-control mechanisms. To improve competitive positioning, cloud-based software firms should avoid unfocused imitation of larger competitors and instead build defensible positions through specialization, local market adaptation, superior user experience, trust-building, flexible pricing, and continuous innovation. In practice, sustainable competitive advantage will be more likely when the platform becomes deeply embedded in customer workflows while continuing to deliver measurable value, reliable service, and adaptive improvement.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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