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The AI Startup Ecosystem in Japan: An Interview-Based Study

Satoshi Tomita¹, Yirui Jiang^{2,3*}, Aaron Tokunaga⁴, Tong Ling⁵

1. Asia AI Institute, Musashino University, Tokyo, Japan;
2. Faculty of Engineering and Applied Sciences, Cranfield University, MK43 0AL, UK;
3. Saïd Business School, University of Oxford, OX1 1HP, UK;
4. Aaron in Japan, LLC, Saitama, Japan;
5. Department of Economics, University of Oxford, Oxford OX1 3UQ, UK

*Correspondence author: yirui.jiang@cranfield.ac.uk; yirui.jiang@said.oxford.edu

SUMMARY

Artificial Intelligence (AI) ecosystem development has emerged as a critical indicator of national technological competitiveness, with countries worldwide pursuing distinct strategies to foster AI innovation. Japan offers a compelling case study in AI ecosystem development, distinguished by its unique dynamics between established large companies and startups and cultural approach to innovation. This research examines Japan's AI startup ecosystem through six fundamental dimensions: access to funding, entrepreneurial spirit, talent acquisition, government support, infrastructure resources, and collaboration with large companies, investigating how Japanese cultural values, institutional frameworks, and market dynamics shape AI adoption and innovation patterns. The study employs an interview-based approach, collecting primary data through semi-structured interviews with five Japanese AI startups. Through systematic coding methods and thematic analysis of primary interview data combined with secondary data from literature and industry reports, the research identifies key patterns and insights that illuminate the distinctive characteristics and challenges within Japan's AI ecosystem. The findings reveal a distinct ecosystem profile: Japanese AI startups excel in rapid commercialization through strategic corporate partnerships and pragmatic implementation, leveraging the country's robust industrial foundation and established business networks. The ecosystem demonstrates a strong market-driven orientation with substantial corporate engagement, emphasizing practical applications and diverse integration. The research indicates that successful AI ecosystem development in Japan requires a bilateral approach: capitalizing on local strengths—particularly the independent growth of startups within market mechanisms without relying on government support—while actively addressing challenges in large-scale funding, global connection, and international market expansion. Additionally, the paper explains paradoxes regarding stereotypical perspectives from six-dimensional analysis framework. These insights provide valuable frameworks for developing policy mechanisms that align with and enhance Japan's unique business environment.

Keywords:

AI ecosystem, AI startups, AI innovation, business ecosystem, interviews, Japan, startup ecosystem, technological innovation, thematic coding analysis.

Track: Entrepreneurship, International Business and International Management, Innovation

INTRODUCTION

The artificial intelligence (AI) industry is undergoing a remarkable global transformation, as regions worldwide develop distinctive ecosystems to foster AI innovation (Klinger et al., 2018; Chui et al., 2023). Within this landscape, Japan's AI ecosystem stands out as a compelling case study, distinguished by its unique blend of institutional frameworks, corporate architectures, and technological capabilities (Suzuki et al., 2002; Schaede and Shimizu, 2022). As a global technological leader, Japan has cultivated a distinctive approach to AI development and deployment that reflects its rich industrial heritage, deeply-rooted cultural values, and forward-thinking government initiatives. A prime example is the "Society 5.0" initiative, which seeks to create a human-centered, highly intelligent society through the seamless integration of cyberspace with the physical world. This initiative simultaneously advances the nation's AI ecosystem while tackling critical societal challenges (Deguchi et al., 2020). Examining Japan's AI ecosystem provides crucial insights into how different nations chart their unique paths toward AI advancement, offering valuable lessons about diverse approaches to AI adoption and innovation.

As a mature economy charting its own path in AI development while participating in the global technology ecosystem, Japan provides distinctive insights into how Asian nations approach AI ecosystem evolution (Zhang et al., 2021; Maqsood et al., 2023; Liebig et al., 2024). The Japanese model stands out through its emphasis on corporate partnerships, practical implementation strategies, and seamless integration with existing industrial capabilities (Kimura, 2019; Schaede, 2020; Arimoto, 2024). Traditional collaborative structures, especially the keiretsu networks, facilitate resource sharing and foster enduring partnerships that have proven instrumental in advancing AI development within Japan's distinctive industrial ecosystem (Lincoln and Gerlach, 1996).

This research analyzes Japan's AI startup ecosystem through six critical dimensions: access to funding, entrepreneurial spirit, talent acquisition, government support, infrastructure resources, and collaboration with large companies. This comprehensive framework enhances understanding of how Japan's unique institutional and cultural context molds AI startup development patterns, while illuminating the dynamic interaction between traditional corporate structures and emerging technological

capabilities in driving AI innovation (Oh et al., 2016; Granstrand and Holgersson, 2020; Stam and Van, 2021).

The research design encompasses systematic analysis of secondary data sources, complemented by primary data gathered through in-depth semi-structured interviews conducted with a purposive sample of Japanese AI enterprises ($n = 5$). The qualitative data corpus undergoes rigorous thematic analysis and systematic coding procedures to identify emergent patterns and derive meaningful insights into Japan's AI ecosystem dynamics across six critical dimensions.

This paper makes the following contributions:

- Presents the comprehensive analysis of Japan's AI startup ecosystem, examining how the interaction of cultural values, institutional structures, and market dynamics shapes AI innovation development;
- Situates Japan's AI ecosystem within the global landscape, contrasting it with other major technology hubs;
- Introduces an innovative six-dimensional framework for analyzing AI startup ecosystems, to understanding Japan's AI ecosystem characteristics and development patterns;
- Identifies critical success factors and challenges within the Japanese AI ecosystem through detailed analysis of primary interview data from startup founders and executives;
- Provides evidence-based policy recommendations for strengthening Japan's AI startup ecosystem, with practical implications for policymakers, corporate stakeholders, and entrepreneurs.

The paper is structured as follows: Section 2 provides a literature review examining ecosystem theory, AI ecosystem characteristics, and contemporary research on AI development in Japan. Section 3 introduces an innovative six-dimensional analytical framework developed specifically for evaluating Japanese AI startup ecosystems. Section 4 outlines the research methodology, detailing the interview protocols and analytical approaches employed. Section 5 presents a detailed analysis of the Japanese AI ecosystem across the six dimensions identified. Section 6 provides findings and discussion from value creation, value capture, value distribution, and governance. The paper concludes in Section 7 with “six paradoxes” of key findings, actionable recommendations, and promising directions for future research.

LITERATURE REVIEW

Ecosystem Theories and AI Startup Ecosystems

The study of business ecosystems has undergone significant evolution since Moore's (1993) seminal work on cooperative-competitive networks, culminating in sophisticated frameworks such as Iansiti and Levien's (2004) ecosystem health model, which measures productivity, robustness, and niche creation. This theoretical progression has yielded practical frameworks for analyzing strategic decisions and

managing complex relationships within technology sectors (Kapoor and Lee, 2013; Adner, 2017; Jacobides et al., 2018). In parallel, entrepreneurial ecosystem theory has matured through Isenberg's (2011) influential six-domain framework—encompassing policy, finance, culture, support networks, human capital, and markets—which has proven instrumental in understanding entrepreneurial environments (Brown and Mason, 2017; Autio et al., 2018).

AI business ecosystems represent a fundamental departure from traditional business ecosystems, characterized by their inherent platform dependency and data-centricity. These systems exhibit distinct characteristics: accelerated development cycles, heightened technical barriers (Iansiti and Lakhani, 2020), and the elevation of data from a support resource to a core strategic asset (Weill and Woerner, 2022).

The innovation patterns in AI ecosystems emphasize disruptive technological advancement and business model transformation, contrasting sharply with traditional ecosystems' focus on incremental improvements and product enhancement (Teece, 2021; Zott and Amit, 2022). This distinction extends to resource requirements, with AI ecosystems demanding intensive technological investment and specialized expertise rather than conventional capital assets (Adner and Kapoor, 2021). Jacobides et al. (2023) identify a strategic pivot toward economies of scope, driven by the growing need for specialized AI capabilities.

The governance landscape also differs significantly, with AI ecosystems introducing novel ethical considerations and regulatory challenges that transcend traditional governance frameworks (Cusumano et al., 2021). These distinctions necessitate a fundamental reconceptualization of ecosystem dynamics, compelling organizations to develop new capabilities and governance mechanisms suited to the AI era.

By integrating Moore's business ecosystem framework, Isenberg's entrepreneurial model, and Spigel's structural synthesis, this study examines the distinctive dynamics of AI startup ecosystems through six critical dimensions: access to funding, entrepreneurial spirit, talent acquisition, government support, infrastructure resources, and collaboration with large companies. This integrated theoretical approach provides a robust foundation for analyzing the unique characteristics of AI startup ecosystems in different national contexts.

AI Startup Ecosystem Development in Japan

The evolution of Japan's AI startup ecosystem presents a complex interaction between technological advancement, industrial development, and corporate strategy adaptation (White Paper on Information and Communications, 2024). Morikawa (2016) shows Japanese firms' strong interest in AI adoption, especially in services, based on data from 3,000+ companies. However, Motohashi and Kim (2024) find that despite this enthusiasm, few organizations achieve significant effectiveness, mainly due to HR and organizational challenges. This gap between adoption intent and implementation

success highlights the need for enhanced organizational capabilities in Japan's AI ecosystem. The AI industry shows increasing commercialization across manufacturing, retail, financial, and healthcare sectors, while academic research trails behind practical applications. Recent data from the New Energy and Industrial Technology Development Organization (NEDO) highlights a significant increase in CVC activities, driven by large corporations seeking to leverage AI for strategic gains (Hyun & Kim, 2024). This unique market environment, shaped by institutional conservatism, offers insights into how national characteristics influence AI development. The limited empirical research in this domain highlights the need for systematic investigation of Japan's AI startup landscape.

Japan's AI governance has evolved through strategic initiatives, with the government establishing AI Strategy Councils and facilitating cross-ministerial collaboration between MIC and METI. These efforts involve diverse stakeholders from academia, industry, and legal sectors in regular deliberative processes. Moreover, the 2024 AI Business Guidelines, jointly issued by MIC and METI, outline comprehensive principles for responsible AI development. These guidelines emphasize human-centric AI, fairness, privacy protection, transparency, and accountability (MIC, 2024). These insights help frame the role of institutional policies in shaping entrepreneurial activity in Japan's evolving AI landscape.

Recent studies by Japanese academic institutions highlight the country's AI startup ecosystem. The University of Tokyo's Institute for Future Initiatives (IFI) underscores significant regional disparities in this ecosystem. For example, Tokyo leads as a center for B2B AI solutions, and remains the epicenter for AI innovation, particularly in finance, healthcare, and enterprise solutions (Nvidia, 2024; Kanama, 2022). Osaka and Kyoto leverage their rich industrial heritage to integrate AI with traditional manufacturing, focusing on robotics and automation technologies (AI White Paper, 2024). Meanwhile, Fukuoka is rapidly becoming a startup-friendly region, attracting foreign entrepreneurs with initiatives like Fukuoka Growth Next and cross-border e-commerce incubators (ULPA, 2025). This regional diversification highlights the need for tailored policy interventions that capitalize on local strengths.

Global Positioning and Research Gaps

The global AI startup ecosystem exhibits divergent developmental pathways shaped by institutional contexts. The U.S. exemplifies a market-driven model, where venture capital provides 89% of early-stage AI funding (NVCA, 2023), and Silicon Valley emphasizes technology-driven disruption and rapid scaling through robust venture capital markets (Lee, 2018), incentivizing rapid scaling through risk-tolerant investment cultures. In contrast, China leverages extensive data resources and state-directed industrial policies for AI advancement in governance and consumer applications (Roberts et al., 2020). China's state-directed ecosystem allocates 37.2% of startup capital via strategic subsidies to align with national priorities (KPMG China, 2023), reflecting centralized data governance under initiatives like the Next

Generation AI Development Plan (State Council, 2017). The European Union adopts a regulation-led, publicly supported model for AI development. Regulatory frameworks like the EU AI Act further ensure that development aligns with European values and ethics (European Commission, 2024). Japan's closest neighbor, South Korea, shapes its AI ecosystem by strong government-led initiatives and a growing venture capital environment. It enacted the AI Basic Act, becoming the first country after the EU to introduce comprehensive legislation governing AI, focusing on high-risk and generative applications. Smaller economies like Singapore mandate corporate-startup collaboration in its '100 Experiments' program (AI Singapore, 2023 Annual Report). However, Japan pursues a unique path (Schaefer, 2020), demonstrating keiretsu network legacies and the "Society 5.0" human-centric innovation framework (Deguchi et al., 2020).

The academic landscape reveals emerging but insufficient research attention to Japan's AI startup ecosystem. While the University of Tokyo's Institute for Future Initiatives has initiated comparative analyses with other innovation corridors, such as Toronto-Waterloo, systematic research remains nascent. Recent contributions include Kanaya's (2022) ecosystem analysis frameworks and Watanabe et al.'s (2024) globalization policy proposals, yet comprehensive examination of ecosystem characteristics remains limited.

This research gap becomes more apparent when considering the broader literature. Despite extensive scholarship on general business ecosystems (Inoue, 2024) and regional innovation systems (Nishizawa et al., 2012), AI-specific startup ecosystem research lacks depth. Current literature, including Serizawa and Watanabe's (2019) ecosystem formation studies and Matsuzaki's (2022) digital management analysis, predominantly addresses peripheral aspects without directly engaging with AI startup dynamics. Similarly, while JOIC and NEDO (2018) and Schmidt et al. (2018) offer valuable insights into innovation ecosystems and AI startup narratives respectively, they stop short of systematic ecosystem analysis. These limitations stem from multiple factors: the relative newness of AI as a business domain, restricted access to AI startup leadership, and a disproportionate focus on technical rather than managerial dimensions. This study addresses these research gaps through primary research with AI startup executives, employing a novel six-dimensional analysis framework for comparative insights.

SIX-DIMENSIONAL AI ECOSYSTEM ANALYTICAL FRAMEWORK

The AI startup ecosystem consists of three fundamental components: key players, structural characteristics, and interaction patterns (Cohen and Winn, 2021). This ecosystem integrates five critical participants—startups, investors, tech corporations, research institutions, and government agencies—across three hierarchical layers: technology provision, application development, and service delivery (Autio and Thomas, 2014; Kenney and Zysman, 2016). These elements interact through competitive, collaborative, and symbiotic relationships, facilitating continuous flow of

resources, knowledge, and value (Adner and Kapoor, 2010; Mazzucato and Semieniuk, 2017).

Building on these foundational concepts, this study proposes a six-dimensional analytical framework for AI startup ecosystems:

- Access to Funding: Examines financial mechanisms supporting AI startup growth, including venture capital, bank financing, and government funding, with particular attention to the unique capital requirements of AI ventures.
- Entrepreneurial Spirit: Analyzes cultural and institutional factors influencing AI entrepreneurship, focusing on societal attitudes toward risk-taking and innovation.
- Talent Acquisition: Evaluates the ecosystem's ability to attract and retain specialized AI expertise, encompassing both technical and business talent.
- Government Support: Assesses the impact of regulatory frameworks and policy initiatives on AI startup development through direct and indirect support mechanisms.
- Infrastructure Resources: Examines technical and operational foundations, including computing resources, data access, and development platforms.
- Collaboration with Large Companies: Analyzes interaction patterns between startups and established corporations, focusing on strategic partnerships and resource sharing.

RESEARCH METHODOLOGY

Research Design

This study employs qualitative research through semi-structured interviews with senior executives from five AI startups across Japan (Eisenhardt, 1989). The data undergoes rigorous three-stage coding: open coding for key concepts, axial coding for thematic relationships, and selective coding for theoretical integration. Findings are validated through cross-checking interview data, company documents, and industry reports to ensure a comprehensive ecosystem analysis.

Data Collection

Semi-structured interviews were conducted with AI startup executives in Japan, with each session lasting 60 minutes via video platforms (Zoom, Google Meet). The interviews explore six ecosystem dimensions. Interviews are conducted following a systematic protocol, while data storage and management adhere to strict security and privacy standards.

Five representative Japanese AI startups were selected through purposive sampling to analyze Japan's AI startup ecosystem (see Table 1). The sample captures a broad spectrum of organizational characteristics, ranging from early-stage startups (J-A, est. 2021) to established public companies (J-E, est. 2005), with employee counts spanning from 9 to 650 and funding amounts from ¥100M to ¥17.85B. This diversity in development stages provides insight into how AI startups evolve within the Japanese ecosystem.

The selected companies represent multiple industry sectors, reflecting the widespread adoption of AI across the Japanese economy, including e-commerce and customer experience solutions (J-A), healthcare and baby tech (J-B), legal technology (J-C), sustainability solutions (J-D), and digital transformation services (J-E). This industry diversity enables examination of sector-specific challenges and opportunities within the AI ecosystem.

The companies demonstrate varying strategic approaches to growth and development. Their fundraising strategies range from domestic venture capital to international investors, while talent acquisition methods span from global recruitment to internal development programs. These different approaches provide valuable insights into the various paths to success within the Japanese market.

The interview questions systematically examine six critical dimensions of AI ecosystem development (see Table 2). The questions investigate key aspects such as financial market maturity, cultural attitudes toward innovation, technical expertise availability, policy effectiveness, and startup-corporate relationships.

Insert Table 1 about here

Insert Table 2 about here

Coding Concept

The research implements a rigorous three-phase coding methodology to analyze interview data from five Japanese AI startups (Eisenhardt, 1989; Nelson, 1993; Williams and Moser, 2019). The analysis progresses from open coding, which identifies initial patterns across six ecosystem dimensions, through axial coding, which establishes categorical relationships such as investment environment characteristics, to selective coding, which synthesizes these findings into coherent theoretical constructs. This systematic approach reveals the interaction between cultural values, institutional structures, and market dynamics in Japan's AI ecosystem development, while maintaining methodological rigor in theme identification and interpretation.

INTERVIEW DATA ANALYSIS

The analytical framework builds on six ecosystem dimensions, refined through iterative analysis of Japanese case studies. The thematic development process follows a systematic approach to pattern identification and employs a rigorous validation protocol. This protocol encompasses intercoder reliability checks, cross-validation, and expert assessment from both academic and industry experts in AI startup ecosystem development. The comprehensive results of this interview data analysis are shown in Figure 1.

Interview Data Analysis and Results

Access to Funding Analysis.

Analysis of the five case companies reveals a nuanced funding landscape in Japan, where both indirect financing (bank loans) and direct funding (equity) serve critical roles in early-stage development, albeit with distinct challenges. Early-stage AI startups benefit from Japan's relatively accessible bank financing infrastructure, supported by both public and private sector programs. Four of the studied companies (J-A, J-B, J-C, and J-D) consistently reported favorable conditions for securing initial bank loans during their startup phase.

However, the funding dynamics shift significantly as companies progress through different development stages. For example, J-A raised ¥2.6 billion through Series A and Series B funding between 2021 and 2023, benefiting from the "generative AI boom" and forming a partnership with Microsoft. The CEO noted that "it is difficult for banks to tolerate deficits, especially for J-curve models such as SaaS", highlighting the challenges early-stage startups face when seeking loans. This limitation frequently leads to a critical funding gap during the growth phase.

In terms of equity funding, J-B observed that "the small size of Japanese investors' one-time investments makes it difficult to develop large, full-scale projects like those in the U.S." This constraint often compels Japanese AI startups to seek international capital, a pattern exemplified by J-C's experience. Despite initial challenges securing venture capital funding, J-C's breakthrough came through an investment from a VC firm affiliated with a top national university. Subsequently, riding the SaaS sector's momentum, the company secured substantial funding of ¥18 billion. As the co-founder explained, "At later stages, Japanese venture capital firms are unable to meet the needs due to their smaller scale, so we had no choice but to rely on U.S. VCs and international capital."

The pattern of funding evolution is illustrated by J-C's experience, which successfully raised ¥18 billion through equity financing after demonstrating strong revenue growth and improved profitability metrics. This case exemplifies how Japanese AI startups can effectively transition from initial bank loans to significant equity investment when demonstrating promising business performance. While all five companies in this study secured bank loans in their early stages followed by equity financing, the timing and scale of investment varied based on their revenue generation capabilities and market positioning.

This funding challenge was further emphasized by J-D, who noted the scarcity of deep-tech investors in the Japanese market: "Few investors can evaluate advanced technology, which restricts funding opportunities for tech-focused startups." J-E's experience offers a different perspective, having secured early-stage angel investment of ¥400 million prior to the Lehman Shock. However, their founder's observation reinforces the broader systemic challenges: "Compared to the U.S., Japan's funding

environment is much slower and more cumbersome, with smaller deal sizes and lengthy communication processes before investment."

These insights contribute to our understanding of how national institutional contexts shape AI startup funding dynamics, which varies significantly depending on the stage of development. Bank loans and equity investment serve as essential complements for startups at various stages. Japan, early-stage AI startups face complementary challenges in financing. Bank loans are accessible initially but become harder to secure during loss-making J-curve stages, which leads to a financing gap until the company becomes profitable. Meanwhile, equity funding is realizable in all stages but is constrained by small domestic investments, pushing startups to seek international capital for large-scale growth.

Entrepreneurial Spirit Analysis.

The AI entrepreneurship landscape in Japan demonstrates an evolving balance between traditional risk-aversion and innovation imperatives, with more talented individuals pursuing entrepreneurship in recent years. The global stereotype of Japanese workers is often that they are "methodical and rule-following," lacking entrepreneurial spirit, with relatively few individuals aspiring to launch businesses. Recently, however, an increasing number of highly skilled professionals in Japan are venturing into entrepreneurship, gradually lowering these barriers and contributing to the growth of a more dynamic entrepreneurial culture.

While "Japanese people have a positive outlook on AI," organizational barriers persist, with "large Japanese companies having a very low tolerance for failure... demanding a success rate of over 99% for a service" (J-A). This manifests in conservative project management, where stakeholders "prolong projects simply because they do not want to be accused of having failed" (J-B).

However, a drive towards better innovation has emerged. As J-D highlighted a positive shift in large companies' attitudes: "Even big companies are starting to recognize and appreciate people who take risks to start their own ventures." In addition, the role of personal networks and professional backgrounds in shaping entrepreneurial success was also emphasized, as stated by J-B's founder, "My credibility as a serial entrepreneur and CTO at several startups helped me secure funding and attract talent."

The appreciation of innovation and talents also drove up entrepreneurship in AI sector. As J-E's founder recalled, "When we founded our company, there was no market for AI... but by the time our company became an IPO, AI startups were more established". Interview data reveals a gradual transformation in both entrepreneurial mindsets and institutional responses.

Talent Acquisition Analysis.

The interview report highlights the paradox regarding Japan's talent acquisition style. There is a global stereotype that Japan always has a rigid labor market, where it's difficult for startups to secure top talent. Job mobility is on the rise in Japan, with startups offering a clear vision and an appealing work environment becoming more capable of attracting top talent. Moreover, stock options are being increasingly adopted as a key incentive to draw and retain skilled professionals, as it's more flexible and allows employees to receive equity incentives in start-ups than large corporations. Meanwhile, startups have fewer bureaucratic constraints, allowing them to allocate resources more efficiently to professions and provide greater space for innovation and ideas. This flexibility is precisely what many top talents in the AI industry value most.

Growth patterns vary, from network-based expansion where "one person joined us... they invited others to join as well" (J-C), to rapid scaling where "The number of engineers has increased to 100 in the three years since its establishment" (J-E). These findings indicate that successful talent acquisition requires fundamental organizational changes to bridge global talent pools with traditional Japanese business practice. This also enhances efficient talent mobility within the ecosystem.

When it comes to hiring, companies actively pursue global talent diversity, as one firm notes: "We are actively hiring foreign professionals living in Japan, including those from Turkey, India, Taiwan, and Spain" (J-A). Leadership credentials play a crucial role, with one company highlighting that "A team of highly skilled AI experts, led by a CEO from a top AI startup based in the UK" (J-D) enhances recruitment success.

Language adaptation emerges as a key organizational challenge. J-D's executive reports that "English, not Japanese, has become the official language within the company". J-D employs a global recruitment strategy, receiving "around 100 applications from AI engineers each month", with English as the primary working language, but they still found there was a language barrier, as quoted "there are few Japanese people who can handle conversations in English with highly skilled AI professionals." As a result, J-D noted that, "many talented Japanese business professionals prefer joining well-known Japanese AI startups where they don't need to communicate in English" This linguistic factor introduces additional complexity to compensation structures and talent pool accessibility.

Government Support Analysis.

Empirical evidence reveals notable heterogeneity in how firms engage with government support within the AI ecosystem. The Japanese government is widely recognized for its support of small and medium-sized enterprises (SMEs). However, our research reveals that while some Japanese startups successfully acquire government support, an increasing number of others are growing independently in the market, achieving early-stage commercialization without relying on government

fundings. The case of J-B exemplifies successful government resource engagement, having "secured subsidies from the deep tech startup ecosystem for three consecutive years, totaling around 80 million yen." This was instrumental in developing their core product

Conversely, Companies J-A, J-D, and J-E operated independently of government assistance. This independent stance may offer advantages, as articulated by J-A: "Startups that don't rely on government support might be stronger in terms of resilience." While some firms thrive without direct government support, regulatory intervention remains vital in emerging technology sectors. J-C's experience exemplifies the importance of regulatory clarity, where a government statement confirming their service "did not constitute a violation of the Attorney Act," and facilitated broader market adoption.

Additionally, international market development has been notably facilitated by JETRO's support initiatives, as illustrated by J-B's experience: "JETRO supported us in exhibiting at a large trade show in the U.S. As a result, we received offers for alliances from overseas." The institutional framework continues to evolve favorably, with J-B highlighting a significant development: "A new system has been established where Japan's government organization, NEDO, collaborates with certified venture capital firms." Despite these positive advances, barriers to program access remain a persistent challenge.

While infrastructure and funding mechanisms are well-discussed, emerging legal and governance challenges in Japan's AI ecosystem deserve closer examination. J-C initially faced uncertainty regarding compliance with the Attorney Act, which governs legal services in Japan. Government clarification helped unlock adoption of their AI contract review system. Meanwhile, several companies, such as J-A and J-E, noted the near-total absence of regulatory impact—suggesting that Japan's AI governance remains underdeveloped relative to more structured approaches like the EU AI Act.

Infrastructure Resource Analysis.

Empirical evidence from the interview data reveals high Japan AI startup reliance on infrastructure from U.S. IT companies. The finding indicates widespread dependence on external cloud services and platforms, primarily provided by major U.S. technology companies such as Amazon AWS and Microsoft Azure. While these services offer robust computing power and scalability, they also introduce strategic dependencies that startups must navigate.

J-C emphasized their focus on data security, stating: "We handle data with strict security protocols and have established our own clean room for sensitive data storage". This highlights the growing importance of maintaining data integrity and privacy, especially for startups in sensitive industries like legal tech.

However, the reliance on foreign cloud providers has raised concerns. J-D expressed apprehension about the long-term implications of this dependency: "While there may be concerns about whether Japanese companies should rely on services from major American IT companies, these services have become the global standard, leaving few viable alternatives". This reflects a broader challenge for Japan's AI ecosystem in balancing global competitiveness with national technological sovereignty—the ability to maintain control and independence over critical AI technologies while participating in international markets.

Despite these challenges, infrastructure support programs have helped mitigate costs for startups. For example, J-E underscored the high costs of cloud services but acknowledged that recent advancements in cloud technology have reduced barriers to entry: "Ten years ago, the cost of AI algorithms and GPU servers was prohibitively high. Today, cloud services enable us to use these resources in smaller, more affordable increments".

Another challenge is that while access to high-performance computing and data centers remains favorable, startups with specialized needs—such as large-scale AI model training—often face difficulties in finding domestic solutions that match the performance of global providers. Additionally, the lack of AI-specific infrastructure, such as local accelerator programs with advanced technical resources, limits startups' ability to prototype and deploy solutions at scale. J-D suggested that building domestic alternatives, especially in high-performance computing and AI hardware, could reduce costs and foster a more resilient AI ecosystem in Japan.

Collaboration with Large Companies Analysis.

Historically, Japanese corporations have maintained a reputation for conservatism and risk aversion, particularly in their approach to startup collaboration, whether through commercial transactions, strategic partnerships, or direct investments. However, this traditional characterization is undergoing a significant shift as an increasing number of major Japanese enterprises actively seek engagement with startups, fostering business partnerships, establishing strategic alliances, and pursuing investment opportunities.

The relationship between AI startups and established corporations in Japan's ecosystem exhibits complex patterns of collaboration and tension. Recent evidence indicates an evolving shift in corporate engagement with AI technologies, particularly through proof-of-concept (PoC) initiatives. As one startup executive (J-A) notes, "Large companies frequently engage in PoC projects with us," reflecting growing receptivity to technological innovation among traditional sectors.

The CVC landscape presents a nuanced picture of selective engagement. Some startups encounter significant barriers to entry, as J-B observes: "doing business with large Japanese companies present high hurdles." However, those who successfully

navigate these relationships find that corporate partnerships often prioritize long-term value creation. J-D emphasized this aspect: "CVC investments often prioritize synergy over immediate financial returns, allowing us to build meaningful long-term partnerships." This approach aligns with Japan's traditional emphasis on incremental innovation and collaborative development.

This strategy aligns well with Japan's emphasis on incremental innovation and collaborative development, also indicates how trust mechanisms and strategic independence influence collaboration patterns. Partnership formation, however, faces distinct challenges. This selective approach is illustrated by J-D's insight: "I believe that large Japanese companies are open-minded, however, they do not easily form alliances because they cannot determine which AI startup is the best suited". This cautious evaluation process can delay partnership formation and restrict startups' access to critical resources.

Trust emergence appears as a fundamental catalyst for successful collaborations. J-D's observation that "Investments from large Japanese companies often prioritize synergy" underscores the importance of alignment in corporate-startup partnerships. This dynamic suggests that successful ecosystem development requires both structural support and cultural adaptation. These dynamics enhance our understanding of AI startup ecosystem development, emphasizing how trust mechanisms and strategic independence influence collaboration patterns. Effective ecosystem growth requires balancing corporate engagement with startup autonomy, enabling access to resources while preserving innovative capacity.

Successful collaborations hinge on establishing trust and maintaining strategic independence. J-E's experience illustrates this dynamic: "Today, all of our clients are large corporations, and our IPO status has made it much easier to build trust and form partnerships." The path to such partnerships often involves demonstrating credibility through measurable achievements and market validation.

International expansion represents another significant trend. J-B highlighted JETRO's role in facilitating global connections: "JETRO introduced us to legal experts familiar with U.S. law and helped us exhibit at a large trade show in the U.S., which led to several alliance offers." This demonstrates the potential for Japanese startups to leverage international relationships for market expansion.

Future ecosystem development may benefit from enhanced industry-academia collaboration. As J-D suggested: "Japan should encourage more industry-academia collaboration in AI research, particularly in deep learning and sustainability-focused AI, which would strengthen the ecosystem's technical foundation." Structured programs supporting such partnerships could accelerate innovation and enhance overall ecosystem competitiveness.

Insert Figure 1 about here

FINDINGS AND DISCUSSION

The analysis of Japan's AI startup ecosystem reveals distinctive patterns in value creation, capture, and distribution, alongside its unique governance structures and implementation approaches, illustrating how the national context shapes AI startup development pathways.

Value Creation

Value creation in Japan's AI startup ecosystem emerges primarily through practical business applications and incremental advancements, rather than revolutionary technological breakthroughs. This pragmatic orientation prioritizes market viability and seamless integration with existing business operations, allowing startups to deliver concrete results that address immediate market needs.

This emphasis on practical implementation, while facilitating rapid adoption and early commercialization, presents potential challenges for long-term technological leadership. The limited focus on deep-tech research and core AI technology development could impede Japan's competitive position, particularly in domains where fundamental innovations drive industry leadership. Striking a balance between applied solutions and foundational research would foster more diverse value creation pathways and strengthen resilience against global competition.

Moreover, the constraints of Japan's domestic market size impact the scalability of innovations, making international expansion crucial for Japanese startups' growth strategies. Strategic development of cross-border partnerships and global networks offers a pathway to overcome local market limitations and capitalize on broader growth opportunities.

Value Capture

Japanese AI startups excel in value capture through swift commercialization, primarily through corporate partnerships. These companies pursue aggressive scaling while operating with modest funding and accelerating their path to revenue generation. Their growth strategy emphasizes market expansion and scaling operations, which is reinforced by strong domestic market validation, providing a foundation for growth, particularly in B2B sectors where existing corporate relationships can be leveraged effectively.

This corporate partnership model, however, presents significant challenges. Japan's conservative investment culture tends to favor startups showing immediate revenue potential, creating a funding gap for early-stage deep-tech ventures. While this cautious approach mitigates failure risk, it potentially constrains the ecosystem's

ability to foster groundbreaking innovations that require substantial initial capital and extended development periods.

Notably, the research findings challenge common perceptions about startup funding in Japan. Counter to the stereotype of heavy reliance on indirect funding, interview data reveals an increasing trend toward equity financing, primarily through venture capital. While this shift appears to offset some limitations of Japan's conservative banking system, it introduces new complexities. The limited scale of domestic venture capital and scarcity of deep-tech investors within Japan has compelled startups to seek funding from U.S. and international sources, raising concerns about technological sovereignty—Japan's ability to maintain control and strategic autonomy over its critical AI innovations and intellectual property.

Moreover, even when early-stage financing is secured, investment scales remain modest compared to the U.S. venture landscape, where funding rounds typically reach significantly higher thresholds. Japanese venture capitalists typically prefer incremental funding rounds over large-scale investments. While this measured approach effectively sustains small to mid-sized ventures, it may impede the rapid scaling necessary for global competitiveness. The development of a more risk-tolerant investment environment that supports bold ventures could potentially unlock significant value and strengthen the ecosystem's global position.

Value Distribution

Value distribution in Japan's AI startup ecosystem exhibits distinctive characteristics, marked by a dual approach to talent management and geographical concentration. The ecosystem's core is firmly anchored in the Tokyo metropolitan area, where a dense network of startups, corporate headquarters, and research institutions creates robust innovation and collaboration opportunities.

This metropolitan concentration has produced a sophisticated talent acquisition model. Japanese AI startups are increasingly adopting global recruitment strategies to address specialized expertise gaps, while simultaneously nurturing strong domestic enterprise relationships. This global approach yields many applications from AI engineers, though companies must navigate significant language and cultural integration challenges.

The ecosystem reveals two primary talent development paths. The first emphasizes international recruitment, bringing diverse perspectives and technical expertise but facing integration challenges, particularly in language and business culture alignment. There are few Japanese people who can handle conversations in English with highly skilled AI professionals. The second path focuses on internal talent development. One AI startup has shown remarkable adaptability by transforming general IT engineers into AI specialists through comprehensive training programs.

The research indicates that sustainable ecosystem growth requires a balanced approach: strengthening education-industry collaborations while developing a pipeline of bilingual professionals who can bridge technical expertise with local business practices. This dual focus appears crucial for maintaining the ecosystem's competitive advantage while ensuring its long-term sustainability.

Governance

The governance of Japan's AI startup ecosystem reflects a complex interaction between market forces, corporate engagement, and institutional frameworks. While balancing traditional Japanese business practices with emerging AI sector demands, the ecosystem exhibits distinctive characteristics in its governance approach.

The ecosystem demonstrates a predominantly market-driven development pattern with limited direct government intervention. Japanese AI startups show strong tendencies toward self-sufficiency, actively pursuing market-based partnerships over government support. Despite the traditional availability of some government support for SMEs, AI startups typically opt for corporate partnerships and strategic alliances. This self-directed approach enables effective operation with modest, but strategic funding rounds, emphasizing both relationship-based business development and rapid scaling strategies. This dual focus represents a distinctive characteristic of Japan's AI ecosystem, where startups leverage deep corporate relationships to accelerate market entry while simultaneously pursuing aggressive growth targets. The data reveals that successful founders navigate this balance by establishing strong trust with corporate partners, which in turn serves as a foundation for quick expansion of their operations. Rather than viewing relationship development and scaling as competing priorities, Japanese AI entrepreneurs integrate these approaches, using their established network connections as catalysts for growth acceleration.

The regulatory landscape presents both opportunities and challenges. Current regulatory frameworks, while providing basic operational guidelines, lack the cohesion and clarity needed for stable ecosystem development. This regulatory uncertainty, coupled with fragmented government support, creates operational complexities for startups navigating the AI sector, particularly in areas requiring clear guidelines such as data privacy, AI ethics, and cross-border operations.

Critical governance challenges include investment structures with limited funding scale and slow capital deployment, fragmented institutional support mechanisms, and insufficient coordination in developing deep-tech expertise for global competitiveness. Addressing these challenges requires streamlining investment processes, developing coherent regulatory frameworks, and creating structured programs for international market access while building robust mechanisms for deep-tech capability development.

Beyond infrastructure and financing, Japan's AI ecosystem would benefit from

greater attention to legal clarity and governance frameworks. To ensure sustainable and responsible innovation, it is advisable to establish more explicit regulatory guidance on issues such as data use, algorithmic accountability, and sector-specific compliance. The development of a coherent national AI governance strategy—comparable in scope to instruments like the EU AI Act—could strengthen institutional trust, guide ethical deployment, and provide startups with clearer expectations as they scale.

The governance model must evolve to support global competitiveness while preserving the unique characteristics that have enabled Japan's AI startup success. This evolution requires careful calibration of market mechanisms, regulatory frameworks, and institutional support systems, ensuring they work in concert to foster innovation while maintaining stability. Success lies in balancing the preservation of effective corporate partnership models with expanded international reach, maintaining sustainable growth patterns while accelerating decision-making processes, and developing self-sustaining innovation capabilities while reducing external dependencies.

Insert Figure 2 about here

CONCLUSION AND FUTURE WORK

This research provides a comprehensive analysis of Japan's AI startup ecosystem, revealing distinctive features that shape innovation trajectories beyond the dominant US-China axis. The Japanese ecosystem has evolved unique characteristics in response to local institutional conditions while maintaining global competitiveness. Analysis across six dimensions—funding access, entrepreneurial spirit, talent acquisition, government support, infrastructure resources, and collaboration with large companies—illuminates how the ecosystem has developed novel solutions to fundamental challenges in AI development.

The findings highlight Japan's corporate-centric model, where AI startups achieve rapid commercialization through robust enterprise relationships and focused practical implementation. This approach is distinguished by deep collaboration between startups and established corporations, facilitating efficient technology transfer and market access. The ecosystem effectively leverages Japan's traditional strengths in robust industrial foundation and established business networks while adapting to modern AI development demands. Japanese AI startups emphasize practical applications and industry-specific solutions, reflecting a commitment to immediate commercial viability.

Most significantly, this research identifies six paradoxes that challenge conventional perceptions of Japan's AI startup landscape. The six paradoxes are as follows:

(1) Access to Funding:

Japan has been widely believed to rely heavily on indirect financing, making it difficult for startups to raise funds through direct financing such as equity. However, as seen in our interview results, more startups are successfully raising equity financing. That said, a challenge remains: securing large-scale funding in later stages is still difficult.

(2) Entrepreneurial Spirit:

Japan has been thought to lack an entrepreneurial spirit, with fewer people aspiring to start businesses and facing high psychological barriers to entrepreneurship. However, today, highly talented individuals in Japan are choosing to start businesses, reducing resistance to entrepreneurship and fostering a stronger entrepreneurial culture.

(3) Talent Acquisition:

Japan has been perceived as having a rigid labor market, making it difficult for startups to secure top talent. However, job mobility is becoming more common in Japan. Startups that present a compelling vision and provide an attractive work environment can now attract top talent. Additionally, stock options are increasingly being used as an incentive.

(4) Government Support:

Since the Japanese government is known for supporting small and medium-sized enterprises (SMEs), startups, which are often classified as SMEs, have been assumed to receive government subsidies. However, our findings indicate that Japanese startups are now growing autonomously in the market without relying on government subsidies, commercializing their businesses at an early stage.

(5) Technological Infrastructure:

Given Japan's reputation as a global leader in technology, there has been an assumption that Japanese startups leverage domestic technological infrastructure and resources for development. However, our interviews revealed that all the companies we studied rely on services provided by major U.S. IT companies for their development infrastructure.

(6) Collaboration with Large Companies:

Japanese large companies have been perceived as conservative and risk-averse, reluctant to engage with startups through transactions, alliances, or investments. However, today, Japanese large companies are increasingly seeking relationships with startups, engaging in business transactions, forming alliances, and making investments.

This research offers valuable insights for multiple stakeholders. Policymakers gain frameworks for developing culturally-attuned support mechanisms that capitalize on

Japan's institutional strengths rather than attempting to replicate the Silicon Valley model. Business leaders receive guidance for navigating Japan's unique AI ecosystem, particularly its corporate partnership model and implementation-focused approach. Entrepreneurs benefit from strategies for aligning with local ecosystem characteristics while maintaining global competitiveness.

Future research opportunities lie in examining how Japan's AI startup ecosystem advances traditional ecosystem theory. Key areas include investigating how AI-specific characteristics—data network effects, rapid technological evolution, and algorithmic governance—interact with Japan's institutional environment. Critical questions emerge around how requirements for specialized talent, computational resources, and ethical considerations reshape fundamental ecosystem assumptions. Particularly promising research directions include analyzing Japan's distinct value creation mechanisms, network dynamics, and resource dependencies.

Success in Japan's AI ecosystem development hinges on two key factors: leveraging local advantages (strong corporate partnerships and industrial expertise) and maintaining global connectivity (international talent, funding, and knowledge exchange). Japan has crafted an AI ecosystem that aligns with its institutional strengths while ensuring global competitiveness, rather than replicating Silicon Valley's approach. As AI technology evolves, understanding these ecosystem dynamics becomes increasingly vital for Japan's technological competitiveness. This study lays the groundwork for exploring how Japan can further develop its distinctive AI capabilities while preserving its unique institutional characteristics.

While this research provides valuable insights, several limitations should be acknowledged. The current sample size of five companies presents potential selection bias concerns. A larger sample size—ideally fifteen or more companies—would provide more comprehensive and statistically significant results. The selection of interview participants through professional networks may have introduced an inherent bias toward successful AI startups, particularly those with strong equity financing and commercialization track records. This sampling approach might present an overly optimistic view of the ecosystem. Additionally, the current sample underrepresents university-affiliated AI startups, which could offer different perspectives on academic-industry collaboration and technology transfer.

Future research should address these limitations through several key approaches. First, expanding the sample size would ensure broader representation across the ecosystem. Including more diverse startup profiles, particularly university-affiliated ventures, would provide a more complete picture of Japan's AI landscape. The incorporation of perspectives from less successful or early-stage AI startups would balance the current focus on established companies. More systematic sampling methods could reduce selection bias, while longitudinal studies would help track the ecosystem's evolution over time. These methodological improvements would strengthen the foundation for

understanding Japan's unique AI startup development patterns.

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TABLE 1 *
Overview of 5 Selected Japanese AI Startup Companies

Company	Establishment	Capital	Employees	Revenue	Business Focus
J-A	2021	100M ¥	~150	1.5B ¥	AI-powered BX platform, chatbots, e-commerce solutions
J-B	2012	100M ¥	9 (+11 contractors)	200M ¥	Baby tech, AI cry analysis, parenting apps
J-C	2017	17.85B¥ (Funding Amount)	650	N/A	Legal tech, AI contract review, legal process automation
J-D	2020	182M ¥	~60	N/A	Sustainability solutions with AI, consulting
J-E	2005	378M ¥	200	2.3B ¥	AI/DX solutions, TSE listed, enterprise services

TABLE 2 *
Interview Questions

Dimension	Interview Questions
1. Access to Funding	- How would you compare the ease of obtaining funding from banks, venture capitalists, angel investors, or other financial institutions for your AI startup? - Were there any unique funding opportunities or challenges you faced as an AI startup in [Japan/UK]? - How does the funding landscape for AI startups in [Japan/UK] compared to what you know about other countries?
2. Entrepreneurial Spirit	- How would you describe the general perception of entrepreneurship in [Japan/UK], particularly in the AI sector? - How tolerant is the business environment in [Japan/UK] towards risk-taking and potential failure? - How supportive were your family, friends, and professional network when you decided to start an AI company?
3. Talent Acquisition	- What has been your experience in attracting and retaining talented management team members and engineers? - How easy or challenging is it to find individuals with the specific AI skills and expertise your company needs? - Have you faced any unique challenges or advantages in talent acquisition as an AI startup in [Japan/UK]?
4. Government Support	- What types of government support, if any, have you received for your AI startup in [Japan/UK]? - How would you evaluate the effectiveness and accessibility of government programs for supporting AI startups? - Are there any specific regulations or policies in [Japan/UK] that have significantly impacted your AI startup, either positively or negatively?
5. Infrastructure Resource	- How would you assess the availability and quality of necessary infrastructure resources (e.g., high-performance computing, data centers) for AI startups in [Japan/UK]? - Have you utilized any AI-specific coworking spaces, incubators, or accelerators in [Japan/UK]? If so, how impactful were they? - How has the digital infrastructure (e.g., 5G networks, cloud services) in [Japan/UK] supported or hindered your AI startup's development?
6. Collaboration with Large Companies	- Were large companies likely to engage in transactions (purchasing) with startups? - Were large companies likely to form alliances with startups? - Did large companies invest in startups? (How much CVC investment was there?)

FIGURE 1 *
Interview Data Analysis and Results



FIGURE 2 *
Value and Governance Framework in Japan's AI Startup Ecosystem

