

How Venture Capital Firms Can Contribute to National Economic Strategy

—A Case Study of INCJ's Investments in Space Ventures—

官民ファンドは国家経済戦略にどのように貢献できるか

—INCJによる宇宙ベンチャー投資の事例研究—

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要旨

株式会社 INCJ は、2018 年 9 月に既存の官民ファンドである株式会社産業革新機構から新設分割されて設立された。この設立は、2014 年に施行された産業競争力強化法に基づいている。この取り組みは、アベノミクスの三本の矢として知られる経済改革の一環として位置付けられている。ビジネスベンチャーへの投資を促進することは、特に第三の成長の矢（2013 年 7 月）の枠組みの中で、民間部門の構造改革を加速するための重要な戦略の一つである。

本研究は、INCJ の宇宙ベンチャーへの投資に焦点を当てている。投資ポートフォリオ中で、4 つの宇宙ベンチャー企業が特定された。事例研究として、2016 年から 2025 年の間に行われた投資およびエグジットの活動を分析する計画である。この研究では、宇宙 4 社に関する INCJ 内部投資報告書を参考し、4 つの宇宙ベンチャーおよび VC 投資ファンドである INCJ に関する事例調査を実施することで、投資の効果と付加価値を検討し、さらに、INCJ が国家経済戦略にどのように貢献しているかを議論する。

キーワード：ベンチャーキャピタル、ベンチャーキャピタルファンド、官民ファンド、ベンチャー企業、付加価値、バリューチェーン、サプライチェーン、エコシステム、宇宙ベンチャー、宇宙産業、INCJ、日本

Abstract

INCJ, a public-private fund formed as a private company, was established in September 2018, splitting off from the Innovation Network Corporation of Japan. Its creation was based on the Industrial Competitiveness Enhancement Act, enacted in 2014. This initiative is part of the economic reform known as the three arrows of

Abenomics. Promoting investment in business ventures is one of the strategies aimed at accelerating structural reforms in the private sector, particularly within the framework of the third growth arrow (July 2013).

This research focuses on INCJ's investments in space ventures. Four space ventures have been identified within the investment portfolio, with investment and exit activities made between 2016 and 2025. This study reviews INCJ's investment reports and conducts field surveys on four space ventures and the public-private fund INCJ, to examine the effectiveness and added value of the investments and discuss whether INCJ contributes to the national economic strategies.

Key words : Venture Capital, Venture Capital

Fund, Public-Private Fund, Venture Creation, Added Value, Value Chain, Supply Chain, Eco-system, Space Venture, Space Industry, INCJ, Japan

1 Introduction

1.1 Overview

The research is situated in the field of venture capital firms' investments in venture companies. In the current market environment, characterized by venture capital investments from nearly all industries into most corporations capable of preparing investment funds, even in the form of corporate venture capitals, national governments are promoting ventures and startups to address social issues, create value for society, boost the national economy, and increase job opportunities. Japan is no exception. Its national economic strategies adopt a similar approach to stimulate the

economy and create new job opportunities by promoting innovations and ventures, as reflected in policies encoded in regulations, such as the Industrial Competitiveness Enhancement Act, established in 2013 and enacted in 2014. The country fosters innovations to create a new economy, particularly focusing on venture innovations in several promising industries.

The government may not be able to allocate the national budget to invest directly in specific companies due to strict regulations imposed by national laws. Logically, a better approach is to establish an agency to fulfill the principal's objectives. INCJ Ltd.⁽¹⁾, formed with both public and private funds, exemplifies a public-private fund. INCJ operates as a public-private investment company, functioning as a private equity firm within the investment industry, or as a venture capital firm when it focuses more on venture capital investments in seed-stage or early-stage ventures.

This raises the question: how can a venture capital firm fulfill national economic strategies? Taxpayers may even question the effectiveness of using such a large amount of capital derived from residents' taxes to invest in the high-risk private equity industry. Is it not a waste of money?

This research idea originated from the author's interest in exploring venture investment opportunities in the space industry and understanding the ecosystem and value chain of the industry. The research commenced when the author encountered the company INCJ. It served as the catalyst for the formation of this research topic. The study focuses on INCJ's investments in four space ventures. They are Astroscale, ispace, iQPS and Axelspace. The methodology involves verifying the effectiveness of INCJ's investments in these ventures through qualitative analyses. Quantitative analyses, such as whether INCJ generates profits from its investments or brings proceeds back to its stakeholders, including the government or taxpayers, are outside the scope of this research.

This research survey examines the venture capital investor, INCJ, and its four portfolios,

assessing the effectiveness of the investments and the added value. Through this examination, the results aim to clarify whether INCJ has effectively added value to its portfolios and has contributed to value creation in the ventures, as well as to what extent INCJ has brought impacts on the new space industry in the country.

1.2 Research Approach

The research began with the collection of investment reports and related documents created by INCJ for assessments of specific investments. These include four space ventures, which represent the portfolios that received funding from INCJ. The details are outlined in the following section (Section 4).

The second step involves designing a survey for the four venture portfolios. The questionnaire, formatted with checkboxes, is intended to gather responses regarding the supports received from INCJ and the expected added value beyond capital funding, along with descriptive questions for optional answers. Additionally, interviews were arranged to clarify the perspectives of the fund recipients and the venture entrepreneurs themselves. The direct feedback of questionnaires and interviews were implemented after investment exits from the portfolio companies. They were done after INCJ completed selling out or transferring all held stocks of the portfolio companies in the stock market or the third venture capital fund. It is important to assure that all feedbacks from the portfolio companies are neutral and without profit conflicts or influences from stock holders.

The third step consists of interviewing INCJ managers about the four space venture investments to discuss their insights. This aims to uncover the reasons behind the survey results and clarify the implications of those findings.

Based on repeated verifications of the situations of the five parties involved in the survey, the fifth step presents the preliminary analysis results.

The sixth step, which was conducted in parallel with the third, fourth, and fifth steps, involves additional surveys, such as interviewing Shimizu

corporation (Kanayama, 2025), Spacetide (Ishida, 2025), space business development related office of Fukuoka Prefecture (Satou, 2025) and Kita-kyushu City (Nagai, 2025) beyond the five parties. These surveys targeted similar ecosystems or value chains related to the venture products or services. The information collected can help fill in any gaps or insufficient information in the value chain and assist in verifying the questions and interactions between INCJ and the portfolio companies.

The seventh step is to explain the analytical results of the previous tasks. Subsections of discussion and understanding in this paper are created to verify the interactions between INCJ and the four portfolios.

In summary, the final step will involve inferring the results of the research analyses and concluding this research.

1.3 Questionnaire Design

The research approach is based on INCJ's investment activities and its industrial research analyses. Thus, this research designs the questionnaire on collecting feedbacks from portfolio companies of space ventures. The feedback is used for comparison with INCJ's analysis, reporting and verifying some facts if applicable.

The questionnaire is designated for collecting what challenges they confronted and thus, whether corresponding supports were received from venture capital investors. Accordingly, what supports has INCJ provided in addition to investing financial capital. Equivalently, what additional resources were expected from portfolio companies and what supports were provided by capital investor, INCJ. Furthermore, what added values were provided by INCJ effectively and efficiently, and whether they brought growing opportunities for the portfolio companies or not.

There were challenges in collecting responses from investees while they are disconnected with the investor who has exited from the investments. Thus, the process of collecting questionnaire response was revised, and collecting methods were modified after the difficulty of collecting response for the first

round. Finally, the last version of questionnaire is listed in Appendix A. These five main questions could directly reflect the responses from the portfolio companies in the last version of questionnaire. See Appendix A.

Question 1 "Could you tell us how INCJ has supported your company from the following six perspectives?" is the overall question that covers what categories INCJ has given significant supports for the portfolio companies. The answering choices contains 6 areas "a, b, c, d, e, f" and the last "g. Others" as below.

- a. Business development support
- b. External communication/ branding support
- c. Management related/ strategy formulation
- d. Shareholder communication support as a lead investor
- e. HR support
- f. Operation and IPO related support
- g. Others

Question 2 and Question 3 are a combination. Question 2 "As a pioneering space venture in Japan, what major challenges are you facing?" is designed to identify the challenges that the portfolio company, as a space venture, is facing and would need itself or external support to overcome. Question 3 "Furthermore, has there been any support from INCJ in addressing the challenges mentioned above Question 2?" continues from Question 2 to identify whether INCJ has been well communicated with the portfolio company to support it and grow the value of the portfolio venture. The answering choices contains 5 areas "n, o, p, q, r" and the last "s. Others" as below.

- n. Technology
- o. Fundraising
- p. Business revenues
- q. Legal regulations
- r. Business operations
- s. Others

Question 4 and Question 5 are a combination. Question 4 "When receiving funding from investors, what added value did your company expect? (based on Question 1 and Question 2)" is designed to extract what added values the portfolio company

expect beyond financial capital from the venture capital firm. This question helps us identify what the substantial needs are expected by the space ventures. Question 5 “Additionally (continuing from Question 4), did your company receive the expected added values from INCJ?” help us identify what exactly provided by INCJ that are indeed the needs expected by the portfolio company and help it grow its company value. To compare with the previous questions effectively, the answering choices, which are designed and cited from the previous questions, are a combination of all the previous choices and are added with the last “Others” as below.

- a. Business development support
- b. External communication/ branding support
- c. Management related/ strategy formulation
- d. Shareholder communication support as a lead investor
- e. HR support
- f. Operation and IPO related support
- g. Others not mentioned in a~f
- n. Technology
- o. Fundraising
- p. Business revenues
- q. Legal regulations
- r. Business operations
- s. Others not mentioned in n~r
- z. Others not mentioned above

Eventually, a Google form was created with all the five questions and was sent to the CEOs of the four venture companies.

2 Space Industry

2.1 The Economy of Space Industry

The space economy is building from niche to ubiquitous, creating value for multiple industries and developing solutions to many of the world's greatest challenges, researched by the partnership of World Economic Forum and McKinsey & Company (2024). The impact induced by the space industry' will be on a wide range of non-space industries, such as supply chain and transportation, food and beverage, state-sponsored defense, retail, consumer goods and electronics and lifestyle, media,

entertainment and sports, state-sponsored civil investments and digital communications, nearly all industries. The space economy is forecasted to soar to \$1.8 trillion by 2035, growing from current \$630 billion in 2023 (Future of Space Economy Research, edited by WEF, McKinsey 2024).

In Japan, the market scale of space industry is estimated as ¥4 trillion in 2023 and will double to ¥8 trillion in 2030. The government budget takes only one-fourth of the scale, and the rest three fourths are invested by the private sectors, such as satellites and rockets related. The trend of the lead is moving from the public sector to the private sector, from the governments to private companies (METI 2024).

2.2 The Japanese Policy on Space Industry

The Ministry of Economy, Trade and Industry (METI) in Japan aims to power Japanese economic growth by fostering globally competitive companies. As for now, Japanese companies are lagging in innovation-driven value creation. The long-term investments are necessary for generating sustainable value. However, they are hindered by insufficient cash flows. To address this, the private sector needs not only to adopt value-creating management practices, but also needs complements of large-scale, long-term, and strategic support from the government (METI, 2024).

The central Japanese government, Cabinet Office, takes the lead, promoting the development of the space industry. Japan created Basic Space Law and Basic Act on Space (2008) to establish the legal platform for the new space industry. The government later further established the Basic Plan on Space to boost the development of Japan's space industry. In addition, the Strategic Headquarters for National Space Policy was established, in accordance with the Basic Space Law, to comprehensively and systematically promote policies related to the space development and utilization. Japan's space industry commences with strong legal platform and administrative supports.

3 Venture Capital and Startups

3.1 Shared Value and Co-Creation

Startups rely on venture capital, as a main source of funding for sustainable business, whereas venture capital firms contribute a big portion of fundings for venture companies. As we understand, venture capital firms are private companies that have a main responsibility to work out profits and return to their stakeholders. They target investment profits as their important goals. However, in venture industry, startups share failure odd as high as to 80%. How venture capital firms can make a successful investment with attractive returns is critical, not limited merely in providing financial support to startups. Thus, the input to help venture companies grow and create value, so called added value, becomes important and necessary (Spinelli and Adams, 2016).

The concept can be traced back to shared value, introduced by Porter et al (2011). They discuss this concept and give examples from HP, Nestle and Novartis on how corporations can put it into practice. While this concept is applied to the venture industry, can it be inferred as the co-creating values among venture capital firms and startups, while they are linked by the capital investments? Startups are the fund raisers, and venture capital firms are the fund providers. Both pursue value creation and business success. These concepts support the importance and effectiveness of value-up requirements in INCJ's investments.

3.2 Eco-system of Space Industry

Further, Porter et al (2012) suggest three ways to create shared value, one of which is to enable local cluster development. Companies tend to improve their external framework to support operations and to create shared value for one another. Thus, business network is formed among companies through their value chain. While all the related parties and stakeholders are included, it further forms an ecosystem of a specific business. Based on this concept, should we explore the value chain of space industry and startup ecosystem of the space

ventures, it will help us research value creation among venture capital firms and venture startups, such as the space ecosystem in Kyushu (Kyushu 2022).

4 Case Study on INCJ

4.1 INCJ and Its Investments

The case study company, INCJ, Ltd.⁽¹⁾ (INCJ: Innovation Network Corporation of Japan), was established while it was split from previous Innovation Network Corporation of Japan in September 2018. The parent organization was further founded in July 2009 under the enforcement of the Act of Partial Revision of the Industrial Competitiveness Enhancement Act, and aims at overcoming boundaries between companies and industries, creating and nurturing key industries via open innovation for the prosperity of future generations. With the background, INCJ asserts to play an investor role as a public-private investment fund and a risk-taker beyond the private-sector funds.

INCJ accumulated 144 investment cases over the past decade with 119 exits by October 2024. Following its investment principle, INCJ invests in various industries including the following four categories, big data, AI (Artificial Intelligence), robotics and IoT (Internet of Things), based on the core value, "Open Innovation." According to our survey on the 144 cases, we have discovered its strategic investing insights on the space industry. Four space ventures with cutting-edged technologies are among its portfolio companies. They are Axelspace, Astroscale, ispace and iQPS that appear to be the research subject.

4.2 INCJ's Investment Principle

First, we would like to learn INCJ's investment principle by reviewing its investment philosophy and criteria (INCJ website). INCJ emphasizes in creating and nurturing key industries via open innovation for the prosperity of future generations. Its investment principle is composed of the following three main investment theories.

- 1) Alignment with the long-term needs of society
 - a. Addresses environmental and energy issues in Japan and worldwide
 - b. Help people live long, healthy lives
 - c. Boost the productivity of the national economy
- 2) Growth
 - a. Able to generate new added value
 - b. Likelihood of additional funding from private enterprises
 - c. Able to dispose of the acquired shares
- 3) Innovation
 - a. Concentrate and deploy cutting-edge base technologies
 - b. Gather management resources of enterprises such as venture companies, and utilize them
 - c. Technology focused business consolidation and integration

In addition, INCJ defines its criteria for assessing deals in three points. They are 1) profitability: assessed in the same way as a private fund, 2) feasibility: assessed in the same way as a private fund, and 3) investment impact: a third assessment criterion, particular to INCJ, about the potential benefit to society. The above investment principle and criteria, in a good shape, provides us the valuable clues to research the company's investment strategy on deal selection and analysis.

4.3 Four Venture Portfolio Companies

Four investment targets are identified as space ventures among INCJ's 144 portfolio companies. They are Axelspace, Astroscale, ispace and iQPS, of which the investment guides are briefed as follows.

1) Axelspace:

Axelspace is a space venture company that provides integrated microsatellite services from development to data analysis and aims to build a global observation network. It was firstly established in August 2008. INCJ decided to invest a max amount of ¥850 million in December 2018, with actual investment ¥600 million later. The exit of the investment is marked in July 2024 when all

the Axelspace stocks held by INCJ were transferred to the Kepple Liquidity I, LP, managed by Kepple Group, Inc.

2) Astroscale:

Astroscale is a space venture, engaged in the development of space debris removal technologies and other space-related services. It was established in May 2013. INCJ decided to invest a max amount of \$30 million in March 2016 and an additional second investment of \$35 million in October 2018. The harvest of the investment is marked in the venture company's IPO, dated on June 5, 2024, when the Astroscale stocks were listed on the Growth Market of the Tokyo Stock Exchange (TSE). Eventually, INCJ fully exited from Astroscale investments by selling out all stocks outside TSE as announced on January 21, 2025.

3) ispace:

ispace is the first TSE-listed space venture in Japan, established in September 2010, and is the only venture company that is involved in the lunar resource development project. INCJ decided to invest a max amount of ¥3.5 billion in December 2017. The harvest of the investment is marked by the venture company's IPO, dated on April 12, 2023, when the ispace stocks started to be traded in the Tokyo Stock Exchange. In September 2024, INCJ further sold out all the shareholding of ispace stocks in the TSE market.

4) iQPS:

iQPS is a Kyushu University launched venture company that develops the world's lightest class of small radar (SAR) satellites. It was originally established in June 2005 and was transformed to current legal corporation in April 2016. INCJ decided to invest a max amount of ¥850 million in November 2017, with actual input to the max. The harvest of the investment is marked in the venture company's IPO, dated on December 6, 2023, when the iQPS stocks started to be traded in the Tokyo Stock Exchange. Right before the IPO, INCJ signed the sale contract with SMBC Nikko Securities, Inc. for the purpose of selling all the shareholding of iQPS stocks on the TSE market. The completion was soon announced on December 12, 2023.

Table 1 The summary of four space ventures

	1	2	3	4
	Astroscale	iQPS	iSPACE	Axelspace
Business	is engaged in the development of space debris removal technologies and other space-related services.	is a Kyushu University launched venture company that develops the world's lightest class of small radar (SAR) satellites.	is the first TSE-listed space venture in Japan, and is the only venture company involved in the lunar resource development project.	provides integrated microsatellite services from development to data analysis and aims to build a global observation network
Establishment	is established in May 2013	is established in Jun 2005 is converted to iQPS K.K. in Apr 2016	is established in Sep 2010	is established in Aug 2008 is converted to Holding on 2 Mar 2020
IPO	IPO on 5 Jun 2024	IPO on 6 Dec 2023	IPO on 12 Apr 2023	Private / Secondary Sale
INCJ Investment	Invested \$30M in Mar 2016 Invested \$35M in Oct 2018	Invested ¥0.85B in Nov 2017	Invested ¥3.5B in Dec 2017	Invested ¥0.6B (¥0.85B) in Dec 2018
INCJ Exit	Sold out all stocks outside TSE as news press on 21 Jan 2025	Entrusted SMBC Securities to sell all stocks (9.17%) on 4 Dec 2023	Sold out all stocks at TSE on 6 Sep 2024	Transferred stocks to Kepple Liquidity 1 on 23 Jul 2024

4.4 Investment Effects of Space Ventures

INCJ defines its criteria of assessing deals in three points. Profitability and feasibility are assessed in the same way as a private fund. The third assessment criterion is about the investment impact. INCJ assesses the potential benefit to society whether the venture company would generate and bring positive effects to the society.

In terms of economic effect, the four cases going through investment periods of 6-8 years have been marked positive growth (INCJ internal reports). According to Section 3.1, Astroscale, ispace and iQPS went public, listed on the Growth Market of the Tokyo Stock Exchange. The fourth, Axelspace, stocks of which were sold and transferred to a third fund, is marked closed with smooth exit procedures.

Regarding the third criterion, investment impact, INCJ highly evaluates the potential benefit to the society. While INCJ made the investments on the four cases confirming that its decisions matched the government's policy on developing Japan's space industry, in order to grow the space venture companies, INCJ put efforts on the six perspectives, a) business development support, b) eternal communication/ branding support, c) management related/ strategy formulation, d) shareholder communication support as a lead investor, e) HR support, and f) operation and IPO related support.

In the four investment cases, we further identified some value-up supports by INCJ. For example, the effective communications to the Cabinet Office, METI and JAXA, were arranged for ispace, iQPS and Astroscale. The support of getting syndication

loans from financial institutions was implemented for iQPS. INCJ provided sales support, like introducing corporate customer company prospects, CxO class recruitment support, and support for the establishment of an internal management system for ispace. INCJ supported Astroscale from the aspects of all matters necessary for space ventures, such as business planning, fundraising, corporate governance and relationship lobbying. INCJ helped Axelspace in fundraising, IPO preparation, etc.

5 Field Surveys and Verification

The surveys relating to questionnaires, Section 1.3 are conducted by Google Form format and collected as Tables 2-6. The results of each space venture are discussed as the following sub-sections.

5.1 From Stance of Portfolio, Astroscale

The founder and CEO of Astroscale, Mitsunobu “Nobu” Okada, expressed the importance of INCJ's fundings in the early stage and emphasized the significance of its support in business planning (Field Survey in Astroscale, 2025) (Okada, 2025b). Astroscale received two rounds of funding from INCJ, in 2016 and in 2018 respectively, as it was vital to survive the new startup without a completed product development and significant cash flows in business.

Another key success is the interaction from the venture capitalist, INCJ. Astroscale not only receives the investor's financial capital but also needs to convey the business core value to the

stakeholder. INCJ greatly learned Astroscale's core value and challenges both in technology and business development (Okada, 2025b).

However, Okada (2025b) didn't agree that a public-private venture capital firm, INCJ, contributed in introducing networks of the government side as he, himself, was a previous public officer in the Ministry of Finance, holding his own networks. Besides, Astroscale aims to global markets with increasing weights in the US and the UK markets. In verification with INCJ (Field survey, meeting with INCJ, 2025, March 14) Oshige (2025) responses that it is understandable as Okada is an active entrepreneur in the global markets, not limited in the Japanese market (Oshige, 2025).

5.2 From Stance of Portfolio, iQPS

The representative and CEO of iQPS, Shunsuke Onishi, answered the questionnaire of this research, agreeing overall supports obtained from INCJ, covering all the six categories of supports (Onishi, 2025). They are a) business development support, b) eternal communication/ branding support, c) management related/ strategy formulation, d) shareholder communication support as a lead investor, e) HR support, and f) operation and IPO related support. He also agreed iQPS confronted the indicated five challenges. They are technology, future fundraising, business revenues, legal constraints, and business operation, among which, INCJ supported in future fundraising, business revenues and business operations.

iQPS would expect added value from VC providers, such as d) shareholder communication support as a lead investor and o) future fundraising, p) business revenues. Besides of the three, iQPS obtained further "management related/ strategy formulation" over its expectation.

Onishi's answer emphasized that INCJ's proximity to the government both in location and as a public private fund with governmental capital provides huge opportunities to reach the potential clients in the public sector, such as connecting to Cabinet Office, MOD (Ministry of Defense), METI (Ministry of Economy, Trade and Industry) and

MLIT (Ministry of Land, Infrastructure, Transport and Tourism) further to JAXA (Japan Aerospace Exploration Agency, a public funded organization). Indeed, Onishi mentioned the public sector is a huge share in contribution to its revenues in the Fukuoka Space Forum 2025 (in Fukuoka, Japan on March 3, 2025).

Onishi's answers imply the comprehensive support from INCJ, aside the legal regulation. In a regular stance, legal reform may not be what a venture capital firm can support.

5.3 From Stance of Portfolio, ispace

The founder and CEO of ispace, Takeshi Hakamada, answered the questionnaire of this research, reflecting positively about INCJ's general support in capital funding along with value-added support (Hakamada, 2025). In general, Hakamada (2025) agrees that the received support from INCJ in the three categories of c) management related/ strategy formulation, d) shareholder communication support as a lead investor, e) HR support, in addition to the received capital investment.

Hakamada (2025) further pointed out the value-added support from INCJ, beyond providing capital, includes "eternal communication/ branding support," "management related/ strategy formulation," "HR support," and "future funding." Among the four ticked added values, the support of acquiring talented human resource is vital. It is one of the main challenges as being a pioneer space venture in Japan.

5.4 From Stance of Portfolio, Axelspace

In the mid-term report, the questionnaire result was not available. With a long process to collect the first-hand data, it took several months long finally to obtain the response from Axelspace. While no response earlier had implied that the company is less agreeable on the questionnaire or the add-values from the investor. Eventually in the response of the designed questionnaire by the founder and CEO of Axelspace, Yuya Nakamura, the answers don't show the positive facts (Nakamura, 2025) in

the relationship between the fundraising venture and venture capitalist.

Nakamura (2025) expresses that the add-values from INCJ was not fulfilled as he had hoped for more proactive hands-on assistance. He further

explained that there was no notable support since INCJ was not the lead investor. The possible reason is clearly linked to the investor as not playing a lead investor in the series fundraising.

Table 2 Questionnaire results: Question 1

Q1 Could you tell us how INCJ has supported your company from the following six perspectives?	iQPS	iSpace	Astroscale	Axelspace
a. Business development support	v		v	
b. External communication/ branding support	v			
c. Management related/ strategy formulation	v	v	v	
d. Shareholder communication support as a lead investor	v	v	v	
e. HR support	v	v	v	
f. Operation and IPO related support	v		v	
g. Others				v

Table 3 Questionnaire results: Question 2

Q2 As a pioneering space venture in Japan, what major challenges are you facing?	iQPS	iSpace	Astroscale	Axelspace
n. Technology	v	v		
o. Fundraising	v	v	v	v
p. Business revenues	v	v	v	
q. Legal regulations	v			
r. Business operations	v	v		v
s. Others		v		

Table 4 Questionnaire results: Question 3

Q3 Furthermore, has there been any support from INCJ in addressing the challenges mentioned above Q2?	iQPS	iSpace	Astroscale	Axelspace
n. Technology				
o. Fundraising	v	v	v	
p. Business revenues	v			
q. Legal regulations				
r. Business operations	v		v	
s. Others				v

Table 5 Questionnaire results: Question 4

Q4 When receiving funding from investors, what added value did your company expect?(based on Q1 and Q2)	iQPS	iSpace	Astroscale	Axelspace
a. Business development support			v	
b. External communication/ branding support		v		v
c. Management related/ strategy formulation			v	
d. Shareholder communication support as a lead investor	v		v	
e. HR support				
f. Operation and IPO related support				
g. Others				
n. Technology				
o. Fundraising	v	v	v	v
p. Business revenues	v			
q. Legal regulations				
r. Business operations				
s. Others				
z. Others not mentioned above				

Table 6 Questionnaire results: Question 5

Q5 Additionally (continuing from Q4), did your company receive the expected added value from INCJ?	iQPS	iSpace	Astroscale	Axelspace
a. Business development support				
b. External communication/ branding support		v		
c. Management related/ strategy formulation	v	v	v	
d. Shareholder communication support as a lead investor	v		v	
e. HR support		v		
f. Operation and IPO related support			v	
g. Others				
n. Technology				
o. Fundraising	v	v	v	
p. Business revenues	v			
q. Legal regulations				
r. Business operations			v	
s. Others				
z. Others not mentioned above				v

6 Discussion, Understandings and Further Findings

6.1 Discussion and INCJ Interview

INCJ's investment policy basically follows the purpose of the Industrial Competitiveness Enhancement Act, under which the company is founded. Although INCJ operates from a position of compliance with national policies, there are no specific directives for investment in particular industries as a private company, emphasized by Oshige, 2025 (Field survey with INCJ). Investment in the space industry was not clearly defined until the investment in Astroscale in 2016. However, it can be traced back to a specific internal meeting, in

2014, where the investment discussion about the newly targeted space industry was initiated.

INCJ promotes the growth of space business through investments in four space companies. The investments started from Astroscale in 2016, then iQPS and ispace in 2017, followed by Axelspace in 2018. In the short term, INCJ tried to invest in some countable pioneer space ventures to inspire other private funds into this new industry. In the long term, INCJ aims to develop a strong and competitive Japanese space industry in the globe (Oshige, 2025).

As a public-private fund, INCJ's strength in forming the space industry lies in its ability to provide large-scale funding for the space ventures that usually need huge initial investment before

gaining healthy cash inflows. This advantage arises from the portion of public funds in linkage with the governments. Accordingly, INCJ symbolizes a level of credibility to the space ventures that is not typically available from private funds. Additionally, support of added value is provided to space ventures by INCJ through its business networks and introductions to public institutions as business prospects.

INCJ did not specially plan supply chains or value chains for a specific portfolio company while selecting space ventures. Target companies are evaluated based on their business plans and required funding, with investment amounts determined while considering cooperation with other investors. INCJ expects that the business development of portfolio companies will naturally strengthen the supply chains and business networks.

INCJ believes that the space industry will eventually be utilized by the public, and expectations are high for technological development and new projects. In particular, the projects related to lunar landings are poised to play a significant role in future investment strategies.

In this way, INCJ's investment strategy in the space industry takes an independent and strategic approach that leverages the strengths of public-private collaboration to unlock growth potential from the portfolio ventures expanding to the formation of space industry for Japan.

6.2 Understandings and Further Findings

By the current stage, the tasks of research analysis in this research project are implemented including the documents review which are collected from the public sources and INCJ's provided internal investment related reports and documents, the field surveys on the four portfolio space ventures, the implemented qualitative analyses on questionnaires and discussions in the previous section. The understandings in this research as well as the understandings between the venture capital investor INCJ and its four space portfolios are generated as the followings.

1) iQPS:

a. iQPS was benefited directly and indirectly from INCJ comprehensively covering the perspectives of business development, eternal communication, credibility, business management and strategy formulation, shareholder communication as a lead investor, Human Resource, and business operation and IPO related support (Onishi, 2025). As a university launched startup, the company is strong and innovative in technology (Oshige, 2025). INCJ is the best value-added investor which compliments insufficient resources that the venture needs in this case. Eventually, INCJ created the maximal added value to iQPS which led the space venture's growth in the growing space industry.

b. iQPS was a university launched venture located in the Kyushu, the south of the four main islands of Japan, distancing around 1,000km in land transport. This space venture iQPS formed its supply chain and grew with the suppliers, with 25 formal partnerships, and more sub-suppliers through its supplier network as well (website information and Satou, 2025). The local government of Fukuoka Prefecture was selected as one of the pioneer prefectures to boost space industry for domestic economy.

2) Astroscale:

a. Astroscale received comprehensive support from INCJ except in the perspective of eternal communication less than iQPS. They are counted as business development, credibility, business management and strategy formulation, shareholder communication as a lead investor, Human Resource, and business operation and IPO related support.

b. However, the level of support received could be different. Thus, Astroscale relied less on INCJ's business network to the public sector. It is suggested that the founder and CEO of the company Okada is capable and active in the global markets (Oshige, 2025). It can be verified that the company grew to a holding parent company and holds subsidiaries in the US and the European (UK) markets. The revenues and potential projects are growing outside the Japanese market.

c. Astroscale admitted a great support from INCJ that greatly assist its business planning and implementation, given the example of selecting the current headquarter with office and labs located inside the Tokyo business area (Okada, 2025b).

3) ispace

a. ispace had been an incubation-fund-backed startup in the timing when INCJ assessed the investment case in 2018. ispace had been growing to a mid-sized startup with ca. 40 staff and \$1 million capital (¥112.2 million yen in October 2018). Thus, it needed less support from INCJ except financial capital.

b. ispace was selected by Google Lunar Xprize with media exposure and hooked with market connection.

c. However, it also received added value from INCJ. That can be inferred capital investment is more critical in that moment.

4) Axelspace

a. INCJ's add-values didn't research Axelspace expectation as INCJ didn't play a leading investor in the series fundraising (Nakamura, 2025).

b. The amount of investment from INCJ to Axelspace is much less than the total to the other three portfolio

space ventures (INCJ internal reports).

c. Besides, it may be inferred that instead of IPO but sales to a secondary venture capital fund, in the stance of venture capitalist, INCJ's exit in this portfolio investment was tight due to the closure of funds. It is a wonder that both may be not satisfied with each other's performances. This suggests that both did not reach the opposite's best expectation.

In summarizing the field surveys of the four pioneers of space ventures in Japan, the findings are generated as follows. Space ventures in the early stages need assistance of fundraising the first, followed by business revenues and business operations. In this regard, INCJ was recognized by the three ventures with successful IPO in fundraising as the most and business operations as the second. As for business revenues, INCJ had supportively assisted university-launched QPS, but not the others.

Continuing, the early staged space ventures expect add-values from the venture capital investors in future fundraising the most, followed by eternal communication/ branding support and shareholder communication support as a lead investor. Afterwards, the three space ventures with successful IPO recognize the added value from INCJ are fundraising and management/ strategy formulation (reflected to business operation) as the most, followed by shareholder communication support as a lead investor. Meanwhile, INCJ is not recognized in supporting the space venture in the case of not being a lead investor.

Further, assistance in business operation as added value from investors is not expected by early staged space ventures, but INCJ's assistance in business operations effectively supported early staged space ventures in overcoming challenges they have confronted.

6.3 Growth of The Space Industry in Japan

6.3.1 Space Ventures' Rapid Growth to IPOs

Since Japanese government created space related

laws to promote private ventures in developing new space industry in Japan, there are still only four space ventures that successfully went public on the Tokyo Stock Exchange Growth Market (updated in May 2025). The four IPOs are ispace (TYO: 9348) on 12 April 2023, iQPS (TYO: 5595) on 6 December 2023, Astroscale (TYO: 186A) on 5 June 2024, and Synspec (TYO: 290A) on 19 December 2024. Among the four pioneering space ventures listed on Tokyo Stock Exchange Growth Market, the first three are in the INCJ's portfolio list. According to a Reuters report (Komiya and Uranaka, 2025), the remaining portfolio company, Axelspace, in INCJ's four primary space venture investments is preparing for an IPO in June 2025. INCJ has played a significant role in ushering in a new era for Japan's space industry.

The market's growth can be observed through the scale of the leading space ventures. As of June 5, 2025 (Startup DB), the market valuations reached ¥116.46 billion for ispace, ¥109.19 billion for iQPS, and ¥97.17 billion for Astroscale. The fourth company, Axelspace, is expected to follow soon after its upcoming IPO on the Tokyo Stock Exchange Growth Market (Komiya and Uranaka, 2025).

6.3.2 Space Business Cluster in Fukuoka, Kyushu

INCJ's contribution to the development of Japan's space industry can be seen in its venture investment in iQPS, which further forms the space business cluster in revitalizing Kyushu economy. iQPS website expresses its vision is to form a commercial satellite cluster in Kyushu by developing synthetic aperture radar (SAR) satellites (iQPS, n.d.).

Further, the Japanese Cabinet office created S-net Promotion Prefectures (宇宙ビジネス創出推進自治体) to promote regional revitalization in economy by developing space business, and Fukuoka Prefecture where iQPS is situated was selected into S-net on 2020 (Cabinet Office, Government of Japan, n.d.). iQPS is exactly the key role in forming the space business cluster in Fukuoka Prefecture, expanding to regional Kyushu. This can be understood in the following verifications.

By meeting with Julian Yuki Satou, the chief

officer of Space Business Team, New Industry Promotion Division, Commerce and Industry Department, Fukuoka Prefecture on 5 March 2025, Satou (2025) describes the outstanding space venture iQPS has played a lead role in forming the space cluster in Fukuoka Prefecture, and further similar supportive explanation by Nagai (2025), officer of space business promotion, Kita-kyushu City.

The iQPS lead in space business of Kyushu also proved by the communications with its suppliers and partners, such as Shota Inoue, principal officer of New Business Department, Tobata Seisakusho Co. Ltd. and Ryo Yamada, executive managing director, Kyushu Denka Co. Ltd. both in ISIEEX Tokyo, 29-31 January 2025.

6.3.3 Investment Expansion to Space Value Chain

The space industry is typically divided into three main segments, which represent different parts of the space value chain.

1. Upstream (space manufacturing and launch): This segment focuses on building and sending objects into space.
2. Midstream (space infrastructure and operations): This is the operation and management of space-based assets once they are in orbit.
3. Downstream (space applications and services): This segment deals with using space-based data and systems to provide services on Earth.

In addition to INCJ's primary investments in the four well-known space ventures, Astroscale, ispace, iQPS, and Axelspac in upstream and midstream segments, INCJ has also pursued a broader space strategy including downstream segment. According to its internal report, this strategy extends beyond these notable cases to include four additional investments in downstream segment, space applications and services, with the aim of building a comprehensive space value chain. This type of approach is considered to generate synergies across its portfolio ventures and reflects the ongoing trend of expanding and integrating the space business

(Ishida, 2025; Kanayama, 2025).

Among these four additional ventures, three are data service-related: Umitron (¥800 million investment), Ridge-i (¥550 million), and Dynamic Map Platform (¥19.34 billion). The fourth, WaveArrays, is a space infrastructure related venture. INCJ invested in it through a private venture capital fund in which INCJ is a limited partner. These investments demonstrate INCJ's mission to support the development of Japan's space industry, extending beyond the four headline ventures examined in this study.

6.4 Limitation in This Research

There are some limitations in this research, considering the status of implementing the research project till the current timing. The research focuses on qualitative analysis, but not quantitative analysis. The obtained information from questionnaires and interviews may bring bias when the respondents of questionnaires or interviewees answer questions or express opinions not objectively.

To avoid bias, the field surveys on the four space ventures were implemented in the timing after INCJ completed exit procedures by selling out the stocks of the venture companies, except Astroscale. However, strictly looking into the Astroscale case, the timings of answering the questionnaire and implementing interview session for the company were both in February 2025 after INCJ fully exited from Astroscale investment in January 2025. It is very clear with the other two companies, iQPS and ispace that the field surveys were implemented after INCJ exited from the iQPS and ispace investments respectively. The rest, Axelspace's response was late, but finally the date of response in May 2025 is behind INCJ's exit in July 2024. Thus, bias induced from the relationship of fundraiser and investor are possibly avoided in implementing field surveys.

7 The Last

7.1 Conclusion

INCJ Ltd., a venture capital firm of public-private

investment fund, is established based on the enforcement of the Act of Partial Revision of the Industrial Competitiveness Enhancement Act. It takes investment risks over private investment companies, and aims to overcome boundaries between companies and industries, creating and nurturing key industries via open innovation for the prosperity of future generations (INCJ website). The INCJ investments and value-up activities in the four space ventures, Astroscale, ispace, iQPS and Axelspace, have led to three successful IPOs and they are the first three in the Japanese space industry. The company, Axelspace, is foreseen to be listed on the Tokyo Stock Exchange Growth Market in 2025. The four space ventures are the pioneers and are leading the growth of the new space industry that the Japanese national economic strategy aims to with creation of Basic Space Law and Basic Act on Space (2008). Viewing the growth of the four space ventures under INCJ's investment and value-up activities, INCJ has greatly contributed to the national economic strategy in developing the space industry for Japan.

In this research, value-up activities are verified and proved in three of the space ventures. Although there is a gap in the fourth company, Axelspace, it can't be denied that the investments and the activities that INCJ has done in supporting Axelspace, which is planned to complete IPO in 2025. During the time of conducting field surveys, it is found that INCJ's investment in ventures indirectly supported the formation of space value chain regionally in Kyushu led by iQPS that has contributed to regional economic revitalization (Kyushu, 2022; Nagai, 2025; Satou, 2025).

In the venture company level, INCJ's value-up activities, fundraising support, have greatly appreciated by the space ventures. The support in business operations, such as management and strategy formation, is greatly appreciated to assist space ventures in overcoming business challenges in the early stage of startup life cycle. These effective supports are recognized by the pioneering space ventures and have led to the successful IPOs which further led to the formation and growth of the new

Japanese space industry. Eventually, we can agree on the great contribution to the Japanese national economic strategy by INCJ.

7.2 Future Insight

INCJ as a public-private fund, has implemented various tasks to power value-up on the space ventures beyond a private fund, such as supporting loan syndication, Recruiting C-level executives in the companies, connecting communications to the governments, etc., for the space ventures. With the facts of value-up practices on space ventures by INCJ in the past investment period, how to deepen the research on economic effects and social effects of space ventures with a public-private fund highly interests us. It is regarded as limitation of the current research project in terms of time and resources. However, this project has built research foundation and provides us future opportunity to pursue further research. For example, quantifying the effects or visualizing the investment impacts would be the possible expansion of the current project, being a next step for future research.

【Note】

(1) In this article, INCJ, Ltd. is abbreviated as INCJ.

【Appendix】

Appendix A, Questionnaire design with five questions

Question 1:

Q1	Could you tell us how INCJ has supported your company from the following six perspectives?
	a. Business development support b. External communication/ branding support c. Management related/ strategy formulation d. Shareholder communication support as a lead investor e. HR support f. Operation and IPO related support g. Others

Question 2:

Q2	As a pioneering space venture in Japan, what major challenges are you facing?
	n. Technology o. Fundraising p. Business revenues q. Legal regulations r. Business operations s. Others

Question 3

Q3	Furthermore, has there been any support from INCJ in addressing the challenges mentioned above Q2?
	n. Technology o. Fundraising p. Business revenues q. Legal regulations r. Business operations s. Others

Question 4

Q4	When receiving funding from investors, what added value did your company expect?(based on Q1 and Q2)
	a. Business development support b. External communication/ branding support c. Management related/ strategy formulation d. Shareholder communication support as a lead investor e. HR support f. Operation and IPO related support g. Others not mentioned in a~f ----- n. Technology o. Fundraising p. Business revenues q. Legal regulations r. Business operations s. Others not mentioned in n~r z. Others not mentioned above

Question 5

Q5	Additionally (continuing from Q4), did your company receive the expected added value from INCJ?
	a. Business development support b. External communication/ branding support c. Management related/ strategy formulation d. Shareholder communication support as a lead investor e. HR support f. Operation and IPO related support g. Others not mentioned in a~f ----- n. Technology o. Fundraising p. Business revenues q. Legal regulations r. Business operations s. Others not mentioned in n~r z. Others not mentioned above

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