The Roles of INCJ for Business Recovery

: A Case Study of INCJ's Role in the Carve-out and Carve-in of JEOL Ltd.'s NMR Division

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Abstract

Japanese companies are characterized by their inability to unlock the potential of their dormant, unutilized resources; new developments are crushed during commercialization, and seldom realized. One solution is a "carve-out." I examine the requirements for a successful carve-out through a case study—in particular, the role played by the Innovation Network Corporation of Japan (INCJ) in the carve-out and carve-in of the Nuclear Magnetic Resonance (NMR) division (JEOL RESONANCE) of JEOL Ltd., the first case of an INCJ-supported company making a successfully exit. In 2009, when JEOL encountered financial challenges, it divested its loss-making NMR division. After a year-long due diligence and meticulous discussions, the INCJ decided to invest ¥1.5 billion in the NMR division. This investment led to the establishment of an independent company, JEOL RESONANCE, which restructured with the support of INCJ's management. Although initially confused by the cultural gap between the two organizations, JEOL RESONANCE implemented a series of measures, including management restructuring, investment in R&D, implementation of open innovation, and internationalization of sales. It accelerated new product development and transformed itself into a profitable organization. The parent company, JEOL, under the leadership of its president, also underwent organizational reform, breaking up vertical divisions in the organization and implementing a "YOKOGUSHI" strategy that aimed at overall optimization. In November 2013, INCJ sold shares worth ¥3.0 billion to JEOL, completing the exit. This marked the first successful exit strategy since the establishment of INCJ. In 2022, JEOL RESONANCE was absorbed by JEOL and ceased to exist.

Keywords: carve-in, carve-out, nuclear magnetic resonance (NMR)

1 Introduction

One of the challenges facing Japanese companies has long been the perception that they do not make the most of their unutilized resources. This character is best exemplified by the gap in number of patents and the 48 % of patents by Japanese companies (Japan Patent Office. 2024., p.46). The seeds of research and development (R&D) suffer under the interplay of political and power relations within the organization during the commercialization process, are left unrealized, and eventually become dormant.

One method to solve such problems is the carve-out of a business. A carve-out is "a venture by a large or medium-sized company in which management strategically separates a business division (Carve Out) and obtains participation including evaluation and

investment from a third party" (Kijima, 2008, p.60).

Research on carve-outs and divestments has primarily been discussed in the field of finance, but in recent years, carve-out as a strategy has gained greater relevance. First, existing research only considers the two-party relationship of (1) the divesting company and divested business, and (2) the acquiring company and acquired business, which separates the discussion of "divestment" and "acquisition." In contrast, Kochura et al. (2022) and McGrath and O'Neill (2023) argue for analyzing three parties simultaneously (called "triad analysis"): the (1) divesting organization, (2) divested business, and (3) acquiring organization.

Second, most research focuses on acquisitions by corporate acquirers that hold multiple businesses, especially emphasizing synergy with existing businesses. Recent years have seen an increase in cases where funds act as acquirers (e.g., private equity acquirers). Because value creation through acquisitions manifests differently between the two, they should be discussed separately. For example, Kaul et al. (2017) note that the strength of private equity funds is their ability to invest in long-term strategic assets and capabilities, and revitalize businesses through better evaluation, monitoring, and support. Kaul et al. (2018) similarly state that private equity funds tend to acquire non-core businesses and encourage investment in long-term strategic assets. Nary (2024) notes that, on average, business divestments to private equity funds tend to result in lower shareholder returns for the divesting company compared with non-private equity divestments; however, private equity funds also have three strategies to create value from acquired businesses: 1) target selection (choosing a target that is underperforming, undervalued, seeking capital, or an unpopular business that fits with the private equity fund's own advantages), 2) ownership selection (improving outcomes through operational efficiency, additional investment, resolution of shareholder conflicts, and re-establishment of management incentives), and 3) deal timing selection (choosing the transaction details and timing).

Accordingly, I consider the triadic relationship of related organizations and examine the acquirer's strategy to increase the value of the acquired business and the challenges thereof. INCJ, the subject of this case study, is a public–private fund. It differs from private equity in that its top priority is not profit; instead, it aims for a complementary relationship with the private sector, and handles difficult cases that the private sector would not. The data for this single case study were acquired from interviews with the three parties involved in the carve-out process—the divesting company, divested business, and acquiring company—as well as secondary sources.

2 Overview of the JEOL Case

2.1 Case Outline

I focus on the carve-out and carve-in of the Nuclear Magnetic Resonance (NMR) division of JEOL Ltd., one of INCJ's initial investment projects. While fulfilling the social mission of retaining the technology and development/ manufacturing functions of NMR's analytical instruments,[1] it also accelerated the development of these

instruments and overseas market expansion. In 2013, it achieved—earlier than expected—an economic value that was double the expected investment efficiency. Thus, this case, despite obstacles and conflicts, is an ideal embodiment of INCJ's core values and purpose.

2.2 Overview of JEOL Ltd.

JEOL Ltd. was founded shortly after World War II and celebrated its 70th anniversary in 2019 as a top manufacturer of electron microscopes. The founder, Kenji Kazato, was a Navy Technical Lieutenant Commander belonging to the Navy Technical Research Institute's radio wave research department. Kazato's readings on electron microscopes inspired him to develop one for Japan. Immediately after the war, he began studying electron microscopes with his colleagues from the Navy Technical Research Institute (Kazato, 1997). On May 30, 1949, he founded Japan Electron Optics Laboratory Co. Ltd. in Mitaka, Tokyo, with 10 employees. It was initially named Optics Laboratory and was solely focused on research.[2]

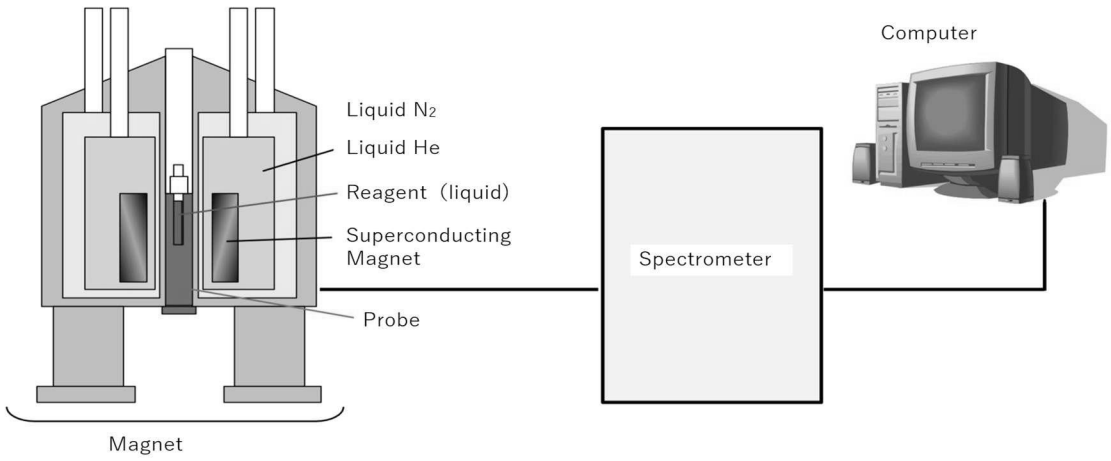
JEOL's philosophy is to contribute "to the progress of science and the development of society through its products, always challenging itself with the world's best technology based on 'creation and development.'" It has thus played an outsized role in rebuilding war-torn Japan. This spirit defines JEOL's identity, making it a nonpareil organization for Japanese researchers, many of whom were and are Nobel Laureates.

At the time of its founding, the company developed electron microscopes but gradually expanded its business domain, successively developing NRM apparatus in 1956, an electron probe microanalyzer in 1962, a scanning microscope in 1966, and an Auger electron spectrometer in 1974. It subsequently began developing analytical instruments and medical and semiconductor equipment. Currently, JEOL has three business divisions: **scientific and chemical instruments** (electron chemical, analytical, and measurement/ inspection), **industrial equipment** (semiconductor-related and industrial equipment), and **medical equipment**.

2.3 About the NMR Division

JEOL's involvement with NMR apparatus began in 1956. An NMR apparatus is an analytical instrument that generates a strong magnetic force inside the apparatus with a superconducting magnet and analyzes the molecular structure of a substance at the atomic level by using the phenomenon of atomic nuclei in the sample resonating with electromagnetic waves (Tosoh Analytical Center, Figure 1).

Figure 1. Schematic diagram of NMR apparatus



Source: Tosoh Analytical Center.
(Retrieved 2025/6/5 from https://www.tosoh-arc.co.jp/technique/detail/t1712/)

NMR is used in a wide range of research fields, from structural biology to materials science. Its ability to measure using small amounts of a sample make it highly suitable for analyzing materials where a sufficient quantity cannot be secured. It allows for easy sample preparation, non-destructive measurement, and short measurement time, making it essential for cutting-edge material development. It thus finds use in pharmaceuticals, biotechnology, food, chemicals, organic electroluminescence, and battery films.

As of 2008, the NMR market was dominated by three companies: Varian (U.S.), JEOL (Japan), and Bruker (Germany). Varian was subsequently acquired by Agilent Technologies, a major medical equipment company, in September 2010; it withdrew from the NMR market in October 2014, leaving Bruker with the top share, followed by JEOL, as of 2025.

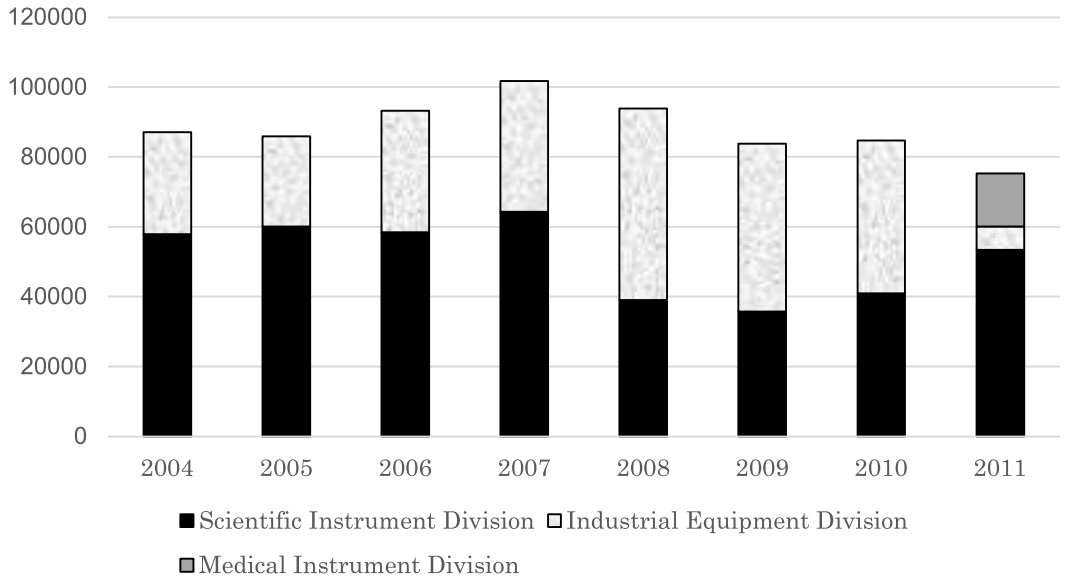
In 2008, the NMR division was considered a side business within JEOL. The electron science equipment, especially the microscope division, possessed strong brand power and was the main revenue generator, which attracted investments in management resources. However, the division did not receive sufficient research funding and new product development stalled, leading to a vicious cycle of losing in the internal budget competition and continued deficits for several years.

Nevertheless, the NMR division continued to excel in cutting-edge organic chemistry research and gained international recognition; its laboratories have been the workplace of numerous Nobel laureates, such as Hideki Shirakawa, Ryoji Noyori, and Akira Yoshino, for 60 years. Without JEOL's NMR apparatus, development in future growth areas such as lithium-ion batteries and organic electroluminescence would have stagnated.

3 JEOL's Fall into Deficit and the Survival of the NMR Division

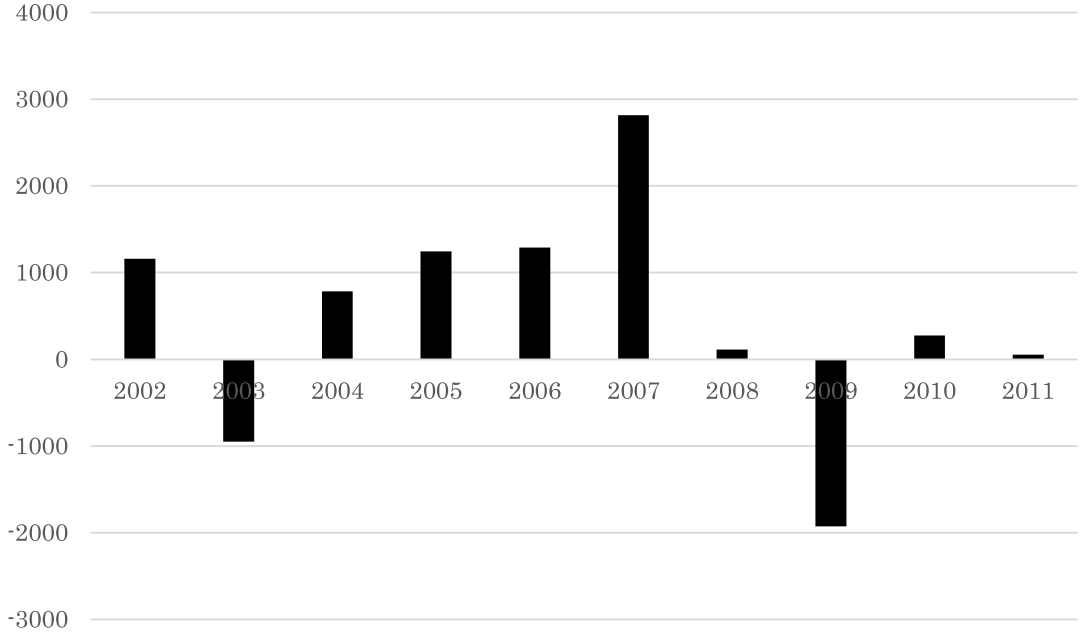
In June 2008, Gonemon Kurihara was appointed as the President and Representative Director. Kurihara handled sales in the NMR division, making him an unusual choice for president at JEOL (Author Unknown, 2023). Soon after Kurihara took office, the Lehman Shock triggered an economic crisis, which also affected JEOL, resulting in a deficit of ¥2.7 billion in 2009 (Figures 2 and 3).

Figure 2. JEOL sales after the 2008 Lehman Shock (million yen)



Source: JEOL Financial Statements

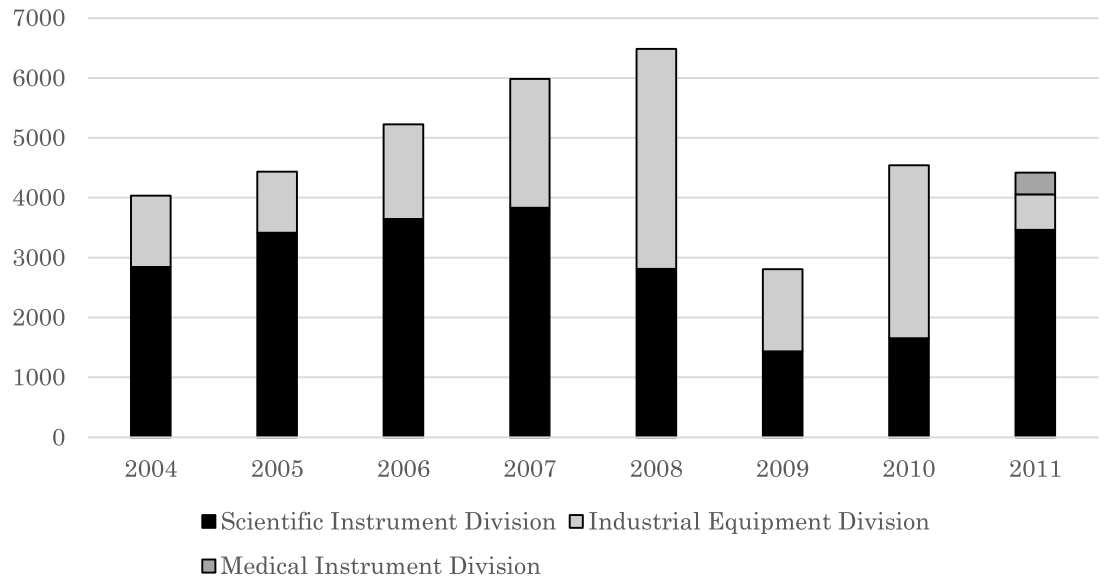
Figure 3. Current net earnings of JEOL (million yen)



Source: JEOL Financial Statements

When the company fell into the red, Kurihara and the management team received strict guidance from banks, forcing them to structure the company, beginning with 500 layoffs. The target was the NMR division, which could help the company recover the personnel costs of 150 employees. Moreover, the NMR division had already been in deficit for eight to nine years at the time, especially owing to insufficient R&D spending. In terms of JEOL's R&D expenses, the industrial equipment division was on an upward trend; the scientific and measurement equipment division had also been on an upward trend until 2007, but decreased sharply in 2008 and 2009. The NMR division, which was not a core business, was in an even more difficult situation (Figure 4). Kurihara had a strong sense of crisis about the impending loss of NMR technology from Japan and desired to protect the NMR division, which prompted him to save it.

Figure 4. R&D expenses of JEOL group (million yen)



Source: JEOL Financial Statements

4 Encounter with Innovation Network Corporation of Japan

At the time that Kurihara was struggling with the NMR division's future, information about the INCJ was brought to the company. INCJ, which began operating in July 2009, is a public–private fund established based on the Industrial Competitiveness Enhancement Act; its purpose is to provide medium- to long-term risk capital that private funds cannot, with a budget of ¥2 trillion a 15-year scheme. INCJ's investment policy emphasized social significance and impact, along with relatively medium- to long-term risk capital in areas that the private sector would deem too risky. The investment criteria were 1) response to social needs, 2) growth potential, and 3) innovativeness.

Kurihara believed that the NMR division fit INCJ's investment criteria and approached it in November 2009. At the time, the opinion of Takahiro Anai, the then NMR Business Unit

Leader (and later became the president of JEOL RESONANCE), was sought, who responded that—

> At that time, I felt pretty light-heartedly about the INCJ scheme. I also felt that it would be difficult to revitalize the NMR division as it was, so I chose that path because I wanted to take a chance on setting up a new company and getting an investment. So we decided to go for it (Takahiro Anai, March 3, 2025).

JEOL catered to the country's top scientists, and its value was well established. Since INCJ's Industrial Innovation Committee included several members from research backgrounds, such as Hiroyuki Yoshikawa, the former head of the Japan Science and Technology Agency's R&D Strategy Center, the proposal was expected to contribute to INCJ's founding philosophy of "increasing national wealth." Moreover, INCJ had only been established for a year at the time and had not yet produced a successful case; it was eager for a promising investment target. Critics within the INCJ considered JEOL's case "difficult" and "a guaranteed loss." The decision to invest in INCJ had stalled and would have been rejected had it not been for Kurihara's insistence, which eventually led to the due diligence stage.

5 Carve-out of the NMR Division

Full-scale consideration began in January 2010, and INCJ conducted a year-long due diligence. The JEOL side formed a project team comprising Kanji Takahashi (then General Manager, Solution Sales Headquarters, Data Solution Business Division, who later became the first president of JEOL RESONANCE), Anai, and two other executives.

During this process, interviews were conducted with all employees of the NMR division, which was to be acquired. Some employees expressed anxiety about transferring from a publicly listed company to a new company with an uncertain future. For the employees, this transfer was a major life event. Anai and others explained the company's situation and persuaded the employees to stick through the acquisition.

Although INCJ found numerical discrepancies during due diligence, by the beginning of 2011, a full picture of the business environment, business content, and internal situation was gradually emerging. The market environment for NMR was promising, with only two competitors, Varian and Bruker. The market had a high entry barrier owing to the need for specialized technology.[3] Several concerns also emerged. JEOL had a monopoly on the domestic NMR market but was lagging in internationalization. The technical capability of the NMR division, which was evaluated as "three laps behind its rival Bruker," was a serious concern. Their undeveloped main product, the cold probe, contributed to its inferior status versus JEOL's rivals, which made INCJ particularly cautious about investing in a company "on its last leg."

Another concern was investing in the business division of an existing company rather than an independent company. Creating a company out of a business division that did not have the form of a company would require multi-stakeholder coordination. Role allocation with the existing company added to the

problem; for example, questions relating to the leader of the new company, the relationship with the existing company, and responsibility for crises arose.

When the review began, the NMR investment was seen with misgivings. However, the due diligence favored JEOL. First, Kurihara, JEOL's president, was committed to the project. Second, the Japanese academia needed the NMR division, and it was a unique market with a large number of people and strong scientific and technological capabilities. Third, the company had earned the trust of researchers—rare resources that other companies did not have.

JEOL also had a function called "field application," which provided a service to researchers by advising them on how to use and set up the NMR experimental equipment to get the desired results, and by rushing to the site to deal with the equipment if it broke. Customer satisfaction and availability of Japanese-language services compensated JEOL's weaker equipment performance. Unlike foreign companies, the stability of personnel and the consistent service provided also contributed to the trust in the company. Researchers perceived the employees to be "sincere and kind." Tomohiro Tange, the INCJ investment manager at the time, considered this relationship an "intangible asset" and a strength of the company.

The NMR division's low technical capability was its consistent losses in the fierce internal budget competition, leaving it little R&D expenses. Conversely, this signaled significant room for growth. In fact, the R&D in-charge Hiroto Suematsu believed that INCJ's goals were achievable, and conveyed this to INCJ.

The INCJ investment team and JEOL team began to work on a business plan—not without heated debate on investment targets. INCJ finally decided to invest on the condition that it would inject external talent into the company and offer hands-on support. At this time, INCJ's shareholding was finally set at 50.1% in order to ensure governance of the investee—a statement of INCJ's resolve.

After the second investment committee convened on January 25, 2011, and the industrial innovation committee on January 28, JEOL officially announced the carve-out of its NMR division on January 31. The functions subject to the carve-out were business strategy/ planning, development, design and production technology, production management, logistics, procurement, maintenance, finance/ accounting, general affairs, and human resources.

INCJ invested ¥1.5 billion in the carved-out business division, acquiring 50.1% of the shares. JEOL held 49.1%, and the remaining 0.8% was owned by Japan Superconductor Technology Co., Ltd. (JASTEC), a subsidiary of Kobe Steel, Ltd.[4] By holding 50.1% of the shares, the NMR division effectively came under INCJ's umbrella. This business division became a new company, JEOL RESONANCE, in April 2011, and accounted for by the equity method for JEOL.

Of the 145 full-time employees (190 including part-time employees) of the NMR division who were subject to the transfer, all but one transferred to JEOL RESONANCE. Their average age was 40 years. Even after the transfer, the salary system was the same for base pay, with only a slight difference in bonuses. The union also remained part of the

JEOL Federation of Labor Unions. Although a few employees left subsequently, the majority remained. According to Kurihara, the employees were not depressed by the sale. “On the contrary, I even felt a desire to get back at JEOL for selling them,” he said (Gonemon Kurihara, March 14, 2019). In this way, JEOL was able to achieve a personnel reduction of 500 employees through the early retirement of 150, reduction of 200 temporary employees, and carve-out of the remaining 150 in the NMR division.

6 Management Reform at JEOL RESONANCE

JEOL RESONANCE was located in the same building as JEOL; but its functions and operations differed markedly from that of JEOL. INCJ carried out ruthless management reform and a concentrated improvement of the business structure to generate profits in a short period. It intervened in management to increase profitability, accelerate R&D, strengthen the management system, and reform employee awareness. Since it knew that the NMR division had been unable to secure sufficient funds for R&D before the carve-out, it injected abundant funds into the R&D department while also imposing strict goals.

6.1 Revitalization of the Management System

At the time of JEOL RESONANCE’s establishment, the system from JEOL was carried over with President Takahashi and Vice President Anai, and development, production, finance, and sales/ maintenance functions under them. Without a leader (project manager) and lack of communication between the functions, the organization’s pace was slow. INCJ addressed these issues by making Takahashi the chairman; in 2012, Anai was appointed president; and an alumnus of Misumi Co., Ltd. was invited as the new vice president. Anai was a researcher but also had sales experience and was highly respected within the company; his track record of successfully managing business negotiations and problems was evaluated. Anai himself had been in charge of the adjustments since the carve-out discussion began, so he accepted the presidency without hesitation.

Although INCJ entrusted the general manager positions of production, finance, sales/maintenance, procurement, and general affairs to internal personnel, they were immediately transferred and replaced with external talent upon further evaluation. Neither JOEL nor JOEL RESONANCE would have been able to acquire such external on their own. INCJ’s reputation and wide network may have enabled the hiring strategy, which, in turn, created unease among the existing employees of JEOL RESONANCE.

> In that sense, JEOL is kind to people. At that time, it was still kind to people, and it wasn’t a company that would make such drastic changes, like ‘it’s no good, let’s change it,’ in a short period. It was more like, ‘let’s try to nurture them,’ or ‘let’s observe for a few years before we make a change.’ But with INCJ, they pushed for the appointment of talent from outside the company (Takahiro Anai, March 3, 2025).

However, even when they were replaced, most employees did not quit.

> The demands from INCJ were tough, and the level they required was

> completely different from what we had done at JEOL. So, I think there may have been some people who couldn't bear it themselves. So, I think there were some people who were half relieved to be removed (Takahiro Anai, March 3, 2025).

Only Anai and Suematsu from development remained in the management team from the beginning to the end of JEOL RESONANCE's establishment. The other management positions were filled by external talent recruited by INCJ. The two who remained faced a daily struggle to cope with the strict performance checks at the weekly management and board meetings; if they could not satisfy them, they were assigned additional work. Suematsu, the R&D in-charge, recalls the time, saying, "If you couldn't explain what kind of effect this would have, they would immediately say, 'Okay, make a document and bring it in today'" (Hiroto Suematsu, March 17, 2025).

INCJ constantly and strictly questioned the return on investment. Since JEOL, a *monozukuri* (manufacturing) company, had never been particular about return on investment, this new focus proved to be a culture shock. Anai reflected, "It was a kind of true strictness that I had never experienced at JEOL, or the strictness of a fund, and I felt it very strongly" (Takahiro Anai, March 3, 2025). In this situation, they had an ally in Tange from INCJ. Tange supported them, accompanied them to presentation rehearsals before meetings, and continued to give them advice. This presence was significant, and both Anai and Suematsu described him as a "comrade-in-arms."

6.2 Operational Reform

Operations were also subjected to scrutiny. The issues identified during the due diligence were prioritized, and five projects were launched to solve each priority issue: 1) financial management improvement and system construction, 2) cost reduction, 3) production and procurement reform, 4) sales management and efficiency, and 5) new human resources system construction. External talent was brought in for each of these projects. At the start of the projects, there was no basic data, and due diligence revealed numerical discrepancies. There was also a shortage of personnel to manage the projects, which required building a foundation for reforms—a time-consuming endeavor.

First, the production floor layout was changed. JEOL RESONANCE operated in a corner of JEOL's factory. To distinguish it from JEOL, that corner was painted a different color to show that it was a different company. Second, INCJ began to change the factory layout. They visited and observed high-performing outstanding factories all over Japan and incorporated the results into JEOL RESONANCE.

> We also visited a number of excellent Japanese manufacturers' factories, and there's a kind of 'basic principle.' Factories with good tact time, throughput, and cost ratios are really clean and bright... I thought, 'I see.' For example, good places don't have tall cabinets in the factory that are higher than eye level. Stagnant places have something like the Tower of Babel everywhere... So we brought in a former factory manager of a major

company for a short period, about half a year to a year, and had him start on-site reform, including the factory layout (Tomohiro Tange, February 3, 2025).

External talent was also hired to improve efficiency by reducing operational waste. A former factory manager from Canon was placed in charge of the production and procurement reform project. Key performance indicators were set, and a management foundation was built, which resulted in the lead time being shortened from 6 months to 2.5 months. External talent was recruited in the financial management improvement and system construction project; INCJ introduced a foundation for profit management by project and management of gross profit and amount for each project. The cost reduction project also improved the cost ratio by 7% year-on-year; the sales management and efficiency project established a sales system and strengthened the cooperation between sales and production, which resulted in shorter lead times and a lower loss rate.

6.3 Changes in R&D

Of the series of reforms, the R&D department was the one that achieved significant results with the least intervention from INCJ and a certain degree of freedom. When the NMR division was a department within JEOL, it was in a vicious cycle where it lost in the competition for development funds with other departments, could not secure R&D expenses, and thus could not produce results, which, in turn, made it even less competitive. The R&D expense of the NMR division right before the carve-out was only ¥300 million, which barely covered personnel costs and left even less for research. Suematsu and his team somehow continued their research activities by securing external competitive funds such as from the Japan Science and Technology Agency and the Japan Society for the Promotion of Science's Grants-in-Aid for Scientific Research for Women. The results of this work became the foundation for subsequent developments (especially the cold probe, which was in the put option).

In the technical due diligence stage, the R&D of the NMR division was evaluated as lagging behind competitors. Suematsu recalls, "I had a prospect that we could do it. It was more difficult to persuade the people who were evaluating us" (Hiroto Suematsu, March 17, 2025). From INCJ's perspective, the organizational culture of JEOL RESONANCE seemed too complacent. For example, when Suematsu created a key performance indicator report and submitted it to a management meeting, he was chastised:

> I was told to create a KPI, and when I put forward my idea, I think I was scolded quite a bit... Since it's development, things don't always go as planned, so I thought it couldn't be helped. Also, you can't just add a lot of people to the resources. And it's not like anyone will do... It was just a matter of us doing our best. It's not like building a house; in R&D, with difficult products, if something happens, things can get delayed suddenly, so I think I made some excuses to a certain extent, but I don't know if they were convinced (Hiroto Suematsu, March 17, 2025).

Tange of INCJ added:

> If we were to provide funding, we would ask them to write a development plan for how long it would take. We created development subcommittees and sales subcommittees and did all of that... A plan came out from the development subcommittee, and it was slow. I thought, 'It's fine, but even if you can do it by this time, Bruker will probably have released something even better, for sure' (Tomohiro Tange, February 3, 2025).

INCJ emphasized to Anai and Suematsu that the NMR division had to catch up with rivals like Bruker, and persuaded them to proceed with development regardless of the budget.

> When you do a carve-out, you have to generate profit as a single business, so the perspective of 'this will lose' comes from that kind of interaction. So, when you say 'how can we shorten this, and money is not an issue,' the next plan that comes out is something like 'it will cost this much more, but we can shorten it by this much,' for example (Tomohiro Tange, February 3, 2025).

While there was an initial difference in mindset regarding time and results, as they continued to dialogue with INCJ and were given ¥1 billion annually for R&D, a change began to occur in the R&D at JEOL RESONANCE. It also became possible to develop multiple prototypes in parallel.

> Before, it was a world where you'd make one prototype, and then the money would run out. If that failed, the plan would be extended by another year. That's how we used to do it... [After receiving investment from INCJ] when we set a goal to definitely make a new device by this date, everyone started thinking, 'What do we need to do to make it in time?' As a result, we started making prototypes in parallel and testing different things, and we were quite strict about it. The people in development themselves also showed that strictness (Takahiro Anai, March 3, 2025).

With the funds from INCJ, employees who had been forced to curb overtime owing to limited budgets could now work overtime and immerse themselves in research. In this way, researchers' motivation for development and the development speed increased. Employees' awareness of following schedules strengthened. Anai described the change as follows:

> We set goals for what needed to be done by when. And everyone tried to stick to them. The internal atmosphere really became very active. There was a designer who had a deadline to give specifications to an outsourcing company, but he couldn't meet it. So, we wouldn't let him go home that day until the specifications were ready... We were able to do a lot of things we wanted to do, and I think that also raised everyone's motivation (Takahiro Anai, March 3, 2025).

Several other visible results appeared. By creating development plans, the development speed increased, and a product that was scheduled for six years was launched as a world-class product in three years. A customer information system linking development and sales was introduced, which shortened the lead

time from 7.8 months to 2 months and lowered costs. Every development was executed at a faster pace than initially planned, which brought the organization closer to its goals (Table 1).

Table 1. Initial Development Plan and Actual Results

Project Name	Initial Plan	Achievements	Notes
Development of Ultra-high Speed Solid Probe	Up to 2012	Development successful in 2011, sales started in April 2012	World's highest performance
Development of Ultra-cool Probe	2012 to 2015	Development successful in 2012	-
Development of New SSS Magnet	Up to 2012	Development successful in 2013	-
Development of Zero-boil-off Magnet	Up to 2012	Sales of NMR equipment using zero-boil-off magnet started in April 2013	World's first
Development of New Spectrometer	2012 to 2015	Development successful in 2013, sales of Spectrometer Z (JNM-ECZS series) started in August 2014	World's smallest, high-performance model

Source: Author.

Following criticism from INCJ, JEOL RESONANCE also began to work on internationalizing R&D. Although this occurred after INCJ's business sale, JEOL RESONANCE used its abundant research funds to establish research institutes in several overseas countries to secure excellent talent. Having research institutes overseas, such as in the U.S. and the U.K., had been impossible for the parent company, JEOL, until then.

6.4 Sales Reform and Internationalization

INCJ also began reforming JEOL RESONANCE's sales system. It viewed the NMR division division's weakness in international markets as a problem, attributing it to the sales system.

At the time of the carve-out, JEOL RESONANCE inherited the R&D, manufacturing, and maintenance operations related to NMR from JEOL, but outsourced the sales of NMR products to JEOL. To improve customer satisfaction and operational efficiency, it transferred domestic NMR sales operations to JEOL RESONANCE in April 2012. Then, INCJ hired external talent at an exceptional salary to strengthen the NMR division's overseas sales capabilities. This hiring was successful, and JEOL RESONANCE's overseas expansion accelerated rapidly, with the number of units sold in overseas markets increasing steadily from 2013. Based on 2011 as a benchmark, sales units more than quadrupled by 2015, with some minor fluctuations in between.

6.5 Organizational Changes

Despite INCJ's strict reforms, the organizational atmosphere improved, and despite the pressure, employees worked with such momentum that they had no time to feel impatience, and many ideas were put forward in meetings. This was also because Takahashi, Anai, and Suematsu were considerate of minimizing the impact on their subordinates by standing between INCJ and JEOL RESONANCE, with additional support from Tange at INCJ.

When it was part of JEOL, development was done on a tight schedule and failure was not tolerated given the small budget. Unexpected occurrences led to delayed schedules, which had become common. After INCJ came in, the budget was abundant, schedules were managed strictly, and adherence to deadlines became the norm, which quickly permeated the culture of JEOL RESONANCE's employees, such that the employees would force suppliers to work overtime to avoid delaying the schedule. Thus, by being carved out and coming under the management of INCJ, the morale of JEOL RESONANCE employees increased, and their mindset changed significantly.

7 Results of JEOL RESONANCE

The management reforms did not show results immediately. In the financial results two months after the carve-out, JEOL RESONANCE's operating profit was ¥300 million less than the amount predicted during due diligence. Tange, the INCJ manager, said he thought, "This is the end of my career." After that, Tange concentrated solely on this project as his work for INCJ, often at the detriment of his health, going to JEOL RESONANCE almost every day and working with Takahashi, Anai, Suematsu, and others to improve management. Sales were flat, but research funds were being consumed at a rapid pace for about 1 to 1.5 years.

In 2011, the company succeeded in developing the world's fastest solid-state probe and began sales in April 2012. This was an NMR apparatus that could analyze the molecular structure of materials with a very small amount of sample—1/100th that of a conventional product. The apparatus was expected to reduce development costs for products that use rare materials such as organic electroluminescents and pharmaceuticals.

Other developments, such as the ultra-cool probe, SSS new magnet, zero boil-off magnet, and new spectrometer, also progressed and were announced at a faster pace than initially expected. Many of them had features such as "world's first," "world's smallest," and "world's highest function," and could compete globally. The enrichment of these globally competitive products and results of the management reforms gradually came to fruition; JEOL RESONANCE was finally profitable in just two years.

8 Relationship between JEOL RESONANCE and JEOL

Under reforms, what was the relationship between JEOL, the company that carved out the NMR division, and JEOL RESONANCE? The transferred employees were influenced by JEOL's President Kurihara. Since Kurihara was from the sales department of the NMR division, JEOL RESONANCE employees felt a sense of security in his leadership. Even after

the carve-out, Kurihara frequently visited JEOL RESONANCE, which was located in the same building, and talked to the employees. “When I went to the site, the employees came up to me,” he said, adding that the feeling of trust was mutual (Gonemon Kurihara, March 14, 2019).

At the same time, Kurihara had several interactions with Makoto Tsuchida, the executive officer in charge at INCJ, and continued to express his intention to buy JEOL RESONANCE back into JEOL from the early stages. However, the employees were not informed about these interactions between INCJ and Kurihara.

9. Internal Reforms at JEOL

While the NMR division unit was being carved out, Kurihara had initiated internal reforms at JEOL. The essence of this reform was to break down organizational silos and create a horizontal structure, which he named the “**YOKOGUSHI strategy**.”

9.1 Resolution of Internal Conflicts and Group Reform

Even before Kurihara took office, JEOL had several internal conflicts, the chief being a rigid hierarchy with technology at the top and sales at the bottom, similar to the *shi-nou-kou-shou* feudal system (samurai, farmers, artisans, merchants). The barriers between business units and subsidiaries were high, leading to overall inefficiency.

Kurihara merged five subsidiaries (service, materials, etc.), and then withdrew from the capacitor business and closed a factory in China over six years. In this way, he transformed the organization from one focused on partial optimization to one focused on overall optimization. Despite fierce opposition to these reforms, Kurihara took measures to convince detractors in order to gain internal consensus. The carve-out of JEOL RESONANCE and the Great East Japan Earthquake in March 2011 further created a sense of crisis within the organization, which helped Kurihara to rapidly promote organizational reform.

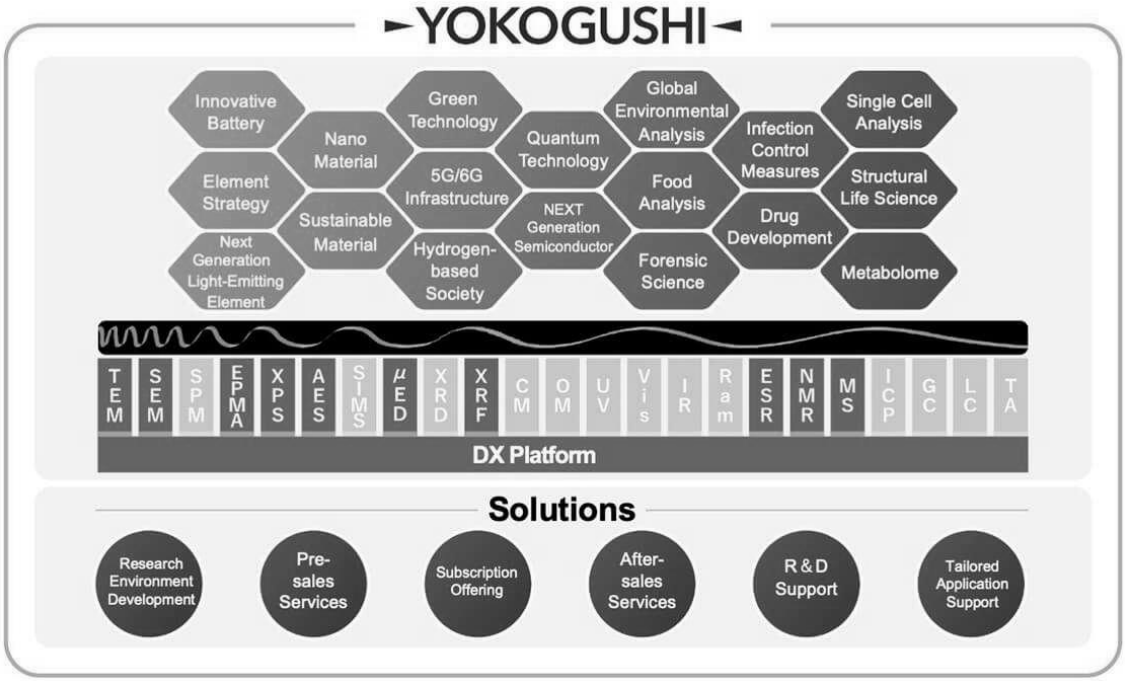
9.2 YOKOGUSHI Strategy

JEOL originally had a strong vertical structure, with each business unit having its own sales department that handled only the products and services of that specific unit, which was both confusing for customers and inefficient. It also prevented the company from leveraging its multiple fields to develop new categories and equipment businesses. Recognizing these issues, Kurihara sought to create a mechanism for the entire organization to function as a single, cohesive entity.

This is where the **YOKOGUSHI strategy** was introduced (Figure 5). Kurihara reorganized the company by unitizing all businesses under two major umbrellas (electron microscopes and analytical analytics) and creating a horizontal structure that cut across the entire organization. This fundamentally changed the way of working. Previously, the sales team only had to sell the products of their own business unit. With the organizational reform, the sales team was expected to sell all equipment. For example, when the company hosted conferences, they had previously been organized by equipment type, which was synonymous with business unit. After the YOKOGUSHI strategy was implemented,

events evolved into cross-departmental conferences, such as the "Lithium-ion Conference."

Figure 5. The image of YOKOGUSHI strategy



Source: JEOL website (Retrieved 2025/9/5 from https://www.jeol.com/)

The results of the YOKOGUSHI strategy gradually manifested; in 2017, JEOL partnered with Nikon to establish the **JEOL-Nikon CLEM Solution Center**, which allowed correlative light and electron microscopy analysis, which integrates information from both optical and electron microscopes for more effective observation and analysis. The establishment of such a center is a clear sign that the YOKOGUSHI strategy had permeated the company's culture and was successfully adopted by its employees.

10 Carve-in of JEOL RESONANCE

About 2.5 years after JEOL RESONANCE was established, in November 2013, JEOL announced it would repurchase the shares of the now profitable JEOL RESONANCE from INCJ. INCJ also announced the sale of its JEOL RESONANCE shares to JEOL for ¥3.0 billion, resulting in a profit of ¥1.5 billion. Of the 54 investments INCJ had made from 2009 to the end of 2013, JEOL RESONANCE was the first case to yield a profit from a business sale.

The original plan had aimed for an exit around 2016, so the news of the sale came as a surprise to JEOL RESONANCE employees. "From the perspective of the front line, it was like, 'What? Already?'" (Hiroto Suematsu, March 17, 2025). Anai also commented, "I thought, 'Wait, isn't this a little too fast?'" (Takahiro Anai, March 3, 2025).

From the beginning of the carve-out, JEOL President Kurihara had been in regular contact with INCJ's Executive Officer, Tsuchida, and consistently expressed his intention to buy JEOL RESONANCE back. Meanwhile, INCJ had several potential buyers in mind and was considering multiple scenarios for the exit. Its deliberations were not solely based on the sale price; they also considered the potential for restructuring in the analytical instrument industry. In fact, INCJ received several acquisition inquiries for JEOL RESONANCE from other companies and had multiple exit options. After considering the overall costs, including the post-merger integration costs, it ultimately decided to sell to JEOL at the point when JEOL RESONANCE became profitable. When the sale to JEOL was finalized, INCJ insisted that JEOL RESONANCE should not be immediately absorbed by JEOL but should first become a subsidiary and remain a separate entity for a certain period.

> In fact, when we were exiting, we had a contract that was close to a gentleman's agreement, and we requested that they ensure the company's independence for a certain period. We were also reluctant to see it absorbed. After all, it had been reborn, and we didn't want to see it revert to its old state if it was absorbed. It's a rare contract, but they accepted it and fully honored it, which I believe was a sign of their intent to continue the reform (Tomohiro Tange, February 3, 2025).

This spirit was carried on, and JEOL RESONANCE continued to operate as an independent company until it was finally absorbed by JEOL in 2022.

11 Dissolution of JEOL RESONANCE

After becoming a subsidiary of JEOL, JEOL RESONANCE continued its independent management. In 2022, the company was finally absorbed by JEOL and became its NMR business unit. This marked the dissolution of JEOL RESONANCE.

Over the 11 years since the carve-out, JEOL had also changed. Kurihara, who had been president since 2008, stepped down in 2019 to become Chairman and CEO. His successor, President Izumi Ooi, had been the contact person for JEOL during the carve-out of JEOL RESONANCE. Suematsu, who had led the R&D at JEOL RESONANCE, returned to JEOL and became the head of the new NMR business unit.

Anai, the former president of JEOL RESONANCE, later became the president of JASTEC. JEOL RESONANCE had long aspired to internalize the production of magnets, a core component of NMR, which it had purchased from JASTEC, a subsidiary of Kobe Steel. In 2024, during Kobe Steel's business restructuring, JEOL successfully made JASTEC a subsidiary and appointed Anai as its president. Thus, in 2022, JEOL RESONANCE, having achieved various successes, was absorbed by JEOL and ceased to exist.

12 Discussion

This case study is an example of a public–private fund, INCJ, acquiring, creating value in, and then selling a business. The analysis below examines the case using a triadic framework and Nary's (2024) strategic framework for private equity acquisitions.

12.1 Analysis from a Triadic Perspective

By focusing on the three parties—JEOL, JEOL RESONANCE, and INCJ—the changes and relationships between stakeholders that were overlooked in existing research could be observed.

(1) Mutual Trust among Stakeholders Supporting the Triad

The relationship between JEOL, JEOL RESONANCE, and INCJ was supported by personal connections at the individual level of each organization. Collaboration among management, including Takahashi, Anai, and Suematsu, who persistently responded to INCJ's strict demands after the carve-out, and the continuous support provided by Tange, was indispensable. Kurihara, as president, continued to monitor the process from the outside, sending a consistent message to the employees that "JEOL will not abandon the NMR division," which provided psychological safety (Edmondson, 1999). These relationships were foundational for the NMR division's survival.

Thus, what appears, in retrospect, to be a rational and straightforward strategy was, in fact, a delicate and difficult path toward business recovery; the absence of a single element or a slight timing misalignment could have jeopardized its success. The ability to persevere on this path was a combination of the determination and tenacity of the individuals involved as well as the mutual trust that was built at a personal level, transcending organizational boundaries. The success of a carve-out and carve-in may depend on whether such relationships can be built between the three parties: the 1) divesting organization, 2) divested business, and 3) acquiring organization.

(2) Post-Carve-out Transformation of JEOL

The case also showed that the behavior of the divesting company after the sale can influence the subsequent process. In this instance, after spinning off JEOL RESONANCE, JEOL concurrently undertook its own organizational reform. The carve-out of the NMR division created a sense of crisis within JEOL, which fostered an environment conducive to organizational change. Kurihara seized this opportunity to accelerate reforms. It is likely that JEOL's actions influenced INCJ's decision regarding the choice of the buyer.

12.2 Value-Creation Strategy

I further analyze JEOL's case using Nary's (2024) strategic framework for value creation by private equity funds in acquired businesses.

(1) Target Selection

INCJ's unique investment policy, which differs from that of a typical private equity fund, influenced its target selection. Although NMR was an essential product for Japanese researchers, it would have been difficult for a private company to invest in a loss-making business. The investment would not have taken place had INCJ not been a public–private fund. Kurihara himself stated, "I don't know what would have happened if the investor wasn't INCJ" (Gonemon Kurihara, March 14, 2019).

The presence of talented individuals with keen foresight within INCJ was also crucial. Initially, INCJ viewed the NMR division as a low-potential venture and was reluctant to

invest. After a year-long due diligence, Tange discovered that the NMR division had maintained a certain level of absorptive capacity (Cohen & Levinthal, 1990) and gained the support and trust of numerous researchers. He used this evidence to persuade his colleagues and the committee. The presence of such an individual was a key factor. In line with Nary's (2024) argument, two conditions that determine a successful carve-out by a fund existed in this case: the NMR division was a non-core unit within JEOL, and it had a limited number of internal and external stakeholders.

(2) Ownership Strategy

INCJ, as the lead investor, held a 50.1% stake and leveraged its abundant management resources and extensive network to support JEOL RESONANCE. It swiftly implemented management shake-ups, internationalized sales, and invested heavily in R&D. A typical fund would not have had access to this level of funding or network, and other investors might not have been able to transform JEOL RESONANCE into a "performance-driven organization" in such a short period.

(3) **Transaction Strategy**

During the sale, INCJ considered the possibility of selling to an overseas company. The decision to proceed with a carve-out and carve-in was made after considering the risk of Japan losing a crucial technology that supported Japanese scientists. INCJ did plan to sell JEOL RESONANCE once it became profitable; indeed, JOEL RESONANCE overshot expectations far earlier than expected. JEOL's reform of its internal organization may have made the decision to sell easier—a detail that would have been overlooked without a triadic analysis.

Furthermore, INCJ insisted that JEOL RESONANCE remain an independent subsidiary until 2022 to ensure that the momentum of the reforms would not be lost even after it came under JEOL's umbrella. This demonstrates a strategic consideration for post-merger integration. Thus, the strategic actions taken by INCJ, which were unique to its nature as a public–private fund, led to the success of this carve-out and carve-in process.

12.3 Challenges of Carve-outs

While carve-outs help revitalize businesses and revive dormant technologies and seeds within a company, the case under examination also revealed that they place a significant emotional burden on the individuals involved. When asked if JEOL would perform a carve-out again in the future if needed, Kurihara answered, "No"[5] (Gonemon Kurihara, March 14, 2019). Since Japanese companies have long traditions of lifetime employment and self-sufficiency, carve-outs are not easily accepted, and there are psychological hurdles to their use. While the situation is changing owing to increased labor mobility and the growing need for open innovation, an implementation of carve-outs should involve the consideration of psychological factors.

12.4 Contributions and Limitations of the Study

This study provides a comprehensive overview of the entire process of business recovery, from the pre-carve-out stage to the post-carve-in stage. The application of a triadic analysis to the three parties—the divesting

company, divested business, and acquiring company—is unique. Moreover, this study clarifies INCJ's strategy for value creation in the acquired business, especially highlighting the challenges that can arise. Finally, it considers the actions of the divesting company after the sale and examines their effect on the overall outcome.

However, this single case study deals with a unique organization, the INCJ. Its generalizability remains limited. For carve-outs and carve-ins to be strategically utilized in the future, it is necessary for academia to conduct parallel verifications and accumulate more case studies. It is hoped that the present study contributes to such an effort.

【Notes】

1. The NMR division supports the research of Japanese scientists, including Nobel laureates.
2. The company name was changed to JEOL Ltd. in May 1961.
3. In NMR manufacturing, the process of winding the coils, a component, involves human craftsmanship, and this skilled technique is one of the barriers to entry.
4. JASTEC supplied magnets, a core component of the NMR.
5. Another example of a business carve-out at JEOL is a software company, System Infrontier Co., a 50-person company, in 2008. JEOL invested 14.9%, and the remaining shares were invested by the employees themselves.

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【Interviews】

- March 14, 2019, 2:00 PM–4:30 PM, Location: JEOL Ltd.
    - Informant: Gonemon Kurihara, Chairman and Representative Director of JEOL Ltd. (then President and Representative Director)
- February 3, 2025, 1:30 PM–3:00 PM, Location: INCJ Headquarters
    - Informant: Tomohiro Tange, Director and CIO of JIC Venture Growth Investments Co., Ltd.
- March 3, 2025, 10:30 AM–12:00 PM, Location: Japan Superconductor Technology Co., Ltd. (Kobe Steel Research Institute)
    - Informant: Takahiro Anai, President and Representative Director of Japan Superconductor Technology Co., Ltd. (former President of JEOL RESONANCE)
- March 17, 2025, 1:00 PM–2:00 PM, Location: Online
    - Informant: Hiroto Suematsu, NM Business Unit Leader of JEOL Ltd.

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