Impact Business Case

How Can Social Impact Businesses Take Root?

Two Aisin Cases

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Table of contents

I. Introduction 3

II. Analytical framework: extension of the logic model 4

1. The utility of the logic model: as a communication tool for social impact 4
2. Structural limitations indicated by prior research 4
3. Problems unique to large corporations 5
4. From communication to strategy design 6
5. Connection to CVS management 6

III. Aisin corporation: corporate overview and business strategy 8

1. Corporate overview 8
2. The positioning of the css company 10
3. The development of social impact businesses 10

IV. Case study: Choisoko (AI on-demand mobility business) 14

1. Business overview and development 14
2. Dynamic reconstruction of the logic model 22
3. Internal strategy design 27

V. Case study: YYSystem (voice recognition business) 30

1. Business overview and development 30
2. Dynamic reconstruction of the logic model 36
3. Internal strategy design 42

VI. Discussion and conclusion 46

1. What the second case is for 46
2. Discussion 48
3. Practice findings and academic contributions 49
4. Implications 51
5. Limitations and further research 51
6. Conclusion 51

I. Introduction

The philosophy of sanpo-yoshi – good for the seller, good for the buyer, and good for society – once guided the management of Japanese companies. Embodied by the merchants of Omi, this management view **refused to treat profit and social contribution as opposites,** rooted in the conviction that the **patient accumulation of trust** is the only durable foundation for a business. It should be noted, however, that Japan's high-growth era was also marked **by serious corporate failures,** most starkly in the **environmental devastation** wrought by industrial pollution. Even so, postwar Japanese management maintained a degree of **long-term orientation – incorporating social contribution, customer satisfaction (CS), and employee satisfaction (ES)** – under the institutional framework of **hojin (corporate) capitalism,** characterised by **cross-shareholding** among corporations. **Stable relationships** with main banks, **long-term employment contracts,** and **enduring ties with suppliers** all functioned as **institutional buffers against short-term market pressures.**

That equilibrium was fundamentally disrupted in the early 2000s. **ROE-oriented shareholder capitalism entered Japan in earnest.** A wave of corporate governance reform pressed executives to **deliver quarterly earnings improvements.** The **unwinding of cross-shareholding arrangements** proceeded rapidly, **stripping away the structural buffers of hojin capitalism.** Businesses requiring patient investment – or generating value that resists capture in financial statements – **were steadily crowded out of strategic priorities.**

Within large corporations, there are no small number of **businesses and technologies capable of generating social impact**. Yet **most lie buried without ever being commercialised.** The reason is not technological constraint or lack of market opportunity. **Existing performance metrics cannot render social impact visible,** and **investment timelines do not align with corporate financial cycles.** As a result, impact that should reach society is shelved inside the organisation. 'Mottainai' – what a waste. This is the problem that motivates this research.

The issue facing **social impact businesses within large corporations is not external fundraising.** According to the Ministry of Finance's Corporate Enterprise Statistics Survey, Japanese **corporations' retained earnings exceeded 637 trillion** yen at the end of fiscal year 2024 – a record high for the thirteenth consecutive year. The capital exists. The question is how to explain the **legitimacy of investment to the internal management board and CFO, and secure resource allocation.** Here lies the void. As Ebrahim (2003) argues, **social impact measurement has functioned as an 'accountability upwards'** mechanism towards resource providers. In social impact businesses within large corporations, **that 'upward' accountability is directed at the internal management board and CFO. Yet existing logic models are designed for external funders and lack any translation function for internal decision-makers.**

To fill this void, this study analyses two cases at Aisin Corporation – the on-demand mobility business Choisoko and the voice recognition business YYSystem. Through this analysis, the **existing logic model is extended and transformed: from a 'communication tool' for social impact into a 'strategy design tool' that captures emergent outcomes and feeds them into company-wide competitive advantage.** The aim is to present a framework for making social impact businesses take root within large corporations. Unlike conventional linear pipelines, **this extended framework operates as a dynamic feedback loop, allowing corporations to adapt and re-orchestrate their strategies as outcomes evolve over time.**

Parts of Chapters I and II draw on a Japanese-language article by Tokuda et al. (2026), in which the problem framing and the initial extension of the logic model were set out. The analytical perspective presented here has since been substantially developed through discussion with Professor Alex Nicholls, and is further extended to support the comparative analysis of Choisoko and YYSystem in Chapters IV and V.

II. Analytical framework: extension of the logic model

1. The utility of the logic model: as a communication tool for social impact

In recent years, ESG investment has entered a period of temporary retreat and rigorous screening as a superficial boom, driven by political backlashes and tightening greenwashing regulations, such as the introduction of ISSB standards. However, the total asset volume remains massive, and the market is now shifting towards a phase that demands substantive quality. Precisely because investor scrutiny is becoming so stringent, the importance of tools like the logic model (SIM&M) and Theory of Change (ToC) – which enable corporations to rigorously visualise and prove their social value at the level of causal chains, rather than relying on mere assumptions – has become more critical than ever before, serving as a dynamic framework to capture and manage emergent outcomes over time.

Since the W.K. Kellogg Foundation (2004) popularised it, the logic model has become the dominant tool for visualising the causal chain from inputs through activities, outputs, outcomes, and impact. It has proven its worth as a tool for explaining to external resource providers the legitimacy of resource allocation (Ebrahim & Rangan, 2014). Its fundamental role as a tool to translate social impact for external audiences remains valid. However, as highlighted by New Philanthropy Capital (NPC), applying these models to complex environments requires moving beyond linear pipelines towards a more adaptive framework that accounts for shifting outcomes and complex causal mechanisms.

2. Structural limitations indicated by prior research

(1) The limits of linear causality

Funnell and Rogers (2011) argue, however, that **the typical logic model is little more than a pipeline diagram** – it identifies intermediate variables without genuinely explaining how change occurs. The unidirectional flow from inputs structurally abstracts away the feedback loops and non-linear dynamics that characterise real programmes.

In the context of entrepreneurial and social ventures, some scholars have argued that growth processes are better captured not as causation – selecting means to achieve a predetermined goal – but as effectuation: starting from available means and capturing the emergent possibilities that arise from them (Sarasvathy, 2001). The strategic decisions at Aisin – the adoption of a franchise model for Choisoko and the decision to make YYSystem free – were management judgements operating precisely on this effectuation logic. A linear model has no language with which to depict such active evolution of outcomes. Complementary to effectuation, the concept of bricolage – the creative recombination of available resources to address problems at hand (Baker & Nelson, 2005) – and co-creation with communities further illuminate how social ventures mobilise resources in non-linear ways. In the Aisin cases, the involvement of local governments, area sponsors, and user communities in shaping the trajectory of both businesses reflects precisely this dynamic: resources and outcomes co-evolve through ongoing interaction rather than following a predetermined path.

(2) The limits of static structure

Patton (2010) demonstrated that static models are ill-suited to evaluation in complex dynamic systems, and proposed Developmental Evaluation grounded in the concepts of non-linearity, emergence, and dynamic adaptation. **A logic model can picture a causal chain at a single point in time; it cannot, however, incorporate how a business transforms and deepens through interaction with its environment.** The trajectory of Choisoko – expanding from elderly mobility support to high-school students and tourists – and YYSystem – deepening from hearing-impaired worker support to Deaflympic adoption and a Microsoft partnership – cannot be captured without this dynamic perspective.

It is in response to these static limitations that Theory of Change (ToC) has developed. ToC aims not only to answer the 'what' of the logic model – what happens – but also to address the 'why': why change occurs, making explicit the underlying assumptions, causal mechanisms, and contextual conditions. By treating

the change process as a non-linear feedback loop and incorporating external factors and preconditions, ToC is positioned as both a systematic response to the static limitations of the logic model and a management tool for designing and guiding change processes.

(3) Bias towards external justification

Social impact measurement tends to be biased towards 'accountability upwards' to resource providers, at the **expense of 'accountability downwards' to beneficiaries and communities (Ebrahim, 2003). This bias produces the decoupling identified by neo-institutional theory (Meyer & Rowan, 1977) – a state in which elaborate models are created for external audiences while remaining entirely disconnected from internal decision-making.**

Numerous cases have been documented in which impact measurement degenerates into a bureaucratic exercise that improves nothing in actual strategic decision-making (Ebrahim, 2019). Such administrative tokenism typically stems from poorly designed Impact Measurement and Management (IMM) systems that fail to operationalise a critical framework, which is essential for aligning shifting social outcomes with internal resource allocation. The extreme consequence of this hollowing-out is 'impact washing': a state in which businesses profess to generate social impact while in practice engaged in nothing more than the acquisition of external legitimacy. To be sure, securing such external legitimacy is not inherently without merit; it remains critical for fulfilling formal accountability to investors, governments, and other external stakeholders. However, when this external justification becomes the sole objective, it blinds the corporation to the dynamic internal learning required for actual strategic adaptation.

3. Problems unique to large corporations: absence of internal justification and CSV's structural void

As the foregoing suggests, the integration of the logic model (what) and ToC (how) is gaining recognition as a promising approach to evaluating social impact businesses. Yet existing discussion has been skewed towards an 'external context' – explaining to society, local governments, and external investors – while the 'internal context' of capital allocation and the acquisition of internal legitimacy within large corporations has not been systematically addressed. This distinction maps onto two fundamentally different functions: external disclosure serves institutional legitimacy, while internal management serves performance optimisation – and it is the latter that this study addresses.
The limitations of existing models – their specialisation in external communication and their lack of investment-decision language [i.e., the failure to bridge qualitative social outcomes with quantitative resource-allocation metrics, such as hurdle rates or strategic option values] – create serious problems in the context of large corporations. The effective resource providers for new businesses in large firms are the internal management board and the CFO; the target of accountability turns inward. Existing models lack the vocabulary connected to financial rationale that would answer the CFO's questions: 'Does this business contribute to company-wide capital efficiency?' and 'How does it reduce the risks of existing businesses?'

This challenge can also be confirmed from the perspective of existing strategic management theory. Porter and Kramer's (2011) CSV (Creating Shared Value) advocated the integration of social and economic value and argued for the significance of resolving social issues through business. CSV is an academically contested concept, but as Menghwar and Daood's (2021) systematic review of 242 articles confirms, it is best understood neither as a revolutionary breakthrough nor as a mere buzzword, but as a meaningful, incremental addition to the literature that elevated the debate to a strategic level. Yet while CSV offered a strategic direction, the concrete processes of evaluation and resource allocation required to put it into practice remained a black box. Indeed, it is precisely this inability to resolve the tension between economic and social values through rigorous evaluation that has led CSV to be widely discredited in contemporary academic literature.

In other words, CSV provided a 'strategic direction (what to aim for),' but the explanatory tool needed to translate that direction into an 'investment metric (why to commit budget)' that would satisfy a CFO lay outside its scope. Without a dynamic language to bridge qualitative social outcomes with quantitative financial metrics, corporate executives and CFOs cannot justify resource allocation amid competing core businesses. Consequently, despite top-down strategic endorsements, these projects fail to clear traditional hurdle rates and are inevitably starved of capital, stalling at the operational level. It is this void between strategy and evaluation that is one of the root causes of impact businesses being shelved inside large corporations.

4. From communication to strategy design: the extended logic model as an emergent engine

This extended framework transforms the logic model from an 'external communication tool' into a 'strategy design tool (internal translator)' that convinces the management board and CFO – providing empirical justification by demonstrating how qualitative social outcomes convert into strategic and financial assets. Crucially, this framework directly addresses the temporal issue by capturing how social impact and financial value mutually reinforce each other over time. Rather than treating resource allocation as a static, one-time investment decision, this framework operationalises a longitudinal process where initial low-risk inputs evolve into emergent strategic assets, thereby resolving the linear limitations of traditional models.

The first perspective is the reduction of investment risk through the 'strategic characteristics of inputs.' Choisoko's AI dispatch system is built on map-matching technology from Aisin's car navigation business; YYSystem is an application of factory-floor communication support systems. These are re-utilisations of 'depreciated technologies' – assets whose investment recovery is already complete and whose reliability has been established – minimising the additional investment and failure risk associated with new businesses. This financial leverage constitutes a 'de-risking of structural innovation,' shifting the internal narrative from a high-risk social experiment to a low-risk, high-return optimisation of existing corporate assets. The mechanism here is a deliberate platform strategy: the corporation utilises its depreciated, highly reliable existing technologies as a robust underlying platform. Any emergent outcomes or service expansions born out of field interactions function as 'applications' running on top of this secure platform, allowing the firm to scale social impact businesses at a speed and level of reliability that competitors cannot easily replicate – thereby creating sustainable competitive advantage rooted in core competences.

The second perspective is the construction of competitive advantage through a dynamic emergent feedback loop. The decisions to make YYSystem free and to adopt the Choisoko franchise model were not the result of prior planning (causation), but of active decision-making that captured the emergent sprouts of outcomes born from field interactions and scaled them into company-wide business models (Sarasvathy, 2001). Two distinct strategic mechanisms must be understood separately. First, specific network externality effects: as more municipalities, sponsors, and users join Choisoko's platform, AI dispatch precision improves and service value compounds – creating a self-reinforcing competitive moat that competitors cannot easily replicate. Similarly, YYSystem's free-access strategy attracts diverse users, deepening its voice-recognition dictionary through a data advantage that grows over time. Second, option value through an extended time horizon: initial low-risk inputs function as a low-cost 'call option' on future strategic possibilities. As emergent outcomes evolve – Choisoko expanding from elderly support to tourism; YYSystem extending to the Deaflympics and a Microsoft partnership – each outcome opens new co-creation options that were not visible at the outset.

Crucially, these two mechanisms interact as a dynamic spiral rather than a linear sequence. Accumulated intangible assets – mutual trust with municipalities, data reliability, community relationships – alter the context of subsequent decision-making in real time, enabling each cycle to generate higher-order strategic possibilities. The Aisin cases provide longitudinal evidence of this spiral: early trust-building with local governments directly enabled the franchise model adoption; early vocabulary accumulation in YYSystem directly enabled the Deaflympics partnership. This is not a predetermined pipeline but a continuously co-evolving system in which social impact is fed back into the firm's strategic resource pool, generating sustainable competitive advantage and future return.

5. Connection to CSV management

CSV is an academically contested concept, but its central question – how to integrate social and economic value – remains valid. As Menghwar and Daood (2021) establish through their systematic review of 242 articles, CSV is best understood as a meaningful, incremental contribution that elevated existing discourse to a strategic level. The extended logic model proposed in this study is positioned as a tool that gives CSV's direction a concrete logic of implementation. The internal strategy design framework visualises the reduction of risk, the

improvement of return, and the generation of impact simultaneously. When these three dimensions are integrated, the creation of social value circulates back into the enhancement of economic value – completing the circuit that CSV proposed but could not implement.

Nicholls & Tomkinson (2015) systematically explore 'social risk' as a distinct feature of social finance investment, proposing the concept of Net Present Social Value (NPSV) – which mirrors the well-established discounting of future cash flows in mainstream finance but calibrates the discount (risk-return) rate differently – and suggesting the possibility of a 'social WACC' that integrates financial and social risk-return profiles. The risk, return and impact framework proposed in this study is aligned with this direction and connects its early manifestations to concrete management practice in the context of internal capital allocation within large corporations.

This framework treats the dynamic trajectory of impact as a harbinger of future profitability. It defines the repurposing of existing assets not as mere cost reduction, but as the dynamic management of investment risk through the construction of new market dominance at low risk. In this respect, it can be said to have translated the financial approach of Nicholls & Tomkinson (2015) – which reconsiders capital costs by integrating finance and society – into a corporate decision-making model. The true novelty of this research lies in redefining (reviving) 'depreciated technologies' – assets whose value has declined in existing markets – as strategic assets on the unexplored frontier of social challenges, thereby logically reversing the priority of internal resource allocation.

The framework is also consistent with the direction of the ISSB (International Sustainability Standards Board), which consolidated the IIRC's Integrated Reporting Framework in 2022 and is advancing the integration of financial and sustainability-related disclosures as a global standard. The extended logic model functions as the mediating device that transforms CSV from a 'statement of opportunity' into a 'tool for management design.'

III. Aisin corporation: corporate overview and business strategy

Parts of chapters III and IV are adapted and translated from a Japanese-language article by Tokuda et al. (2026), which draws in part on Yamada's (2025) peer-reviewed study of Choisoko from the perspective of Open Innovation 2.0 and co-creation. The present article extends these prior studies by introducing YYSystem as a second case and developing a cross-case analysis. Accordingly, Choisoko is presented not as a newly reported case, but as a previously documented case that provides an empirical basis for comparison with YYSystem. Empirical claims are attributed to the relevant prior studies or underlying sources, while the organisation of those findings within the analytical framework represents the authors' interpretation.

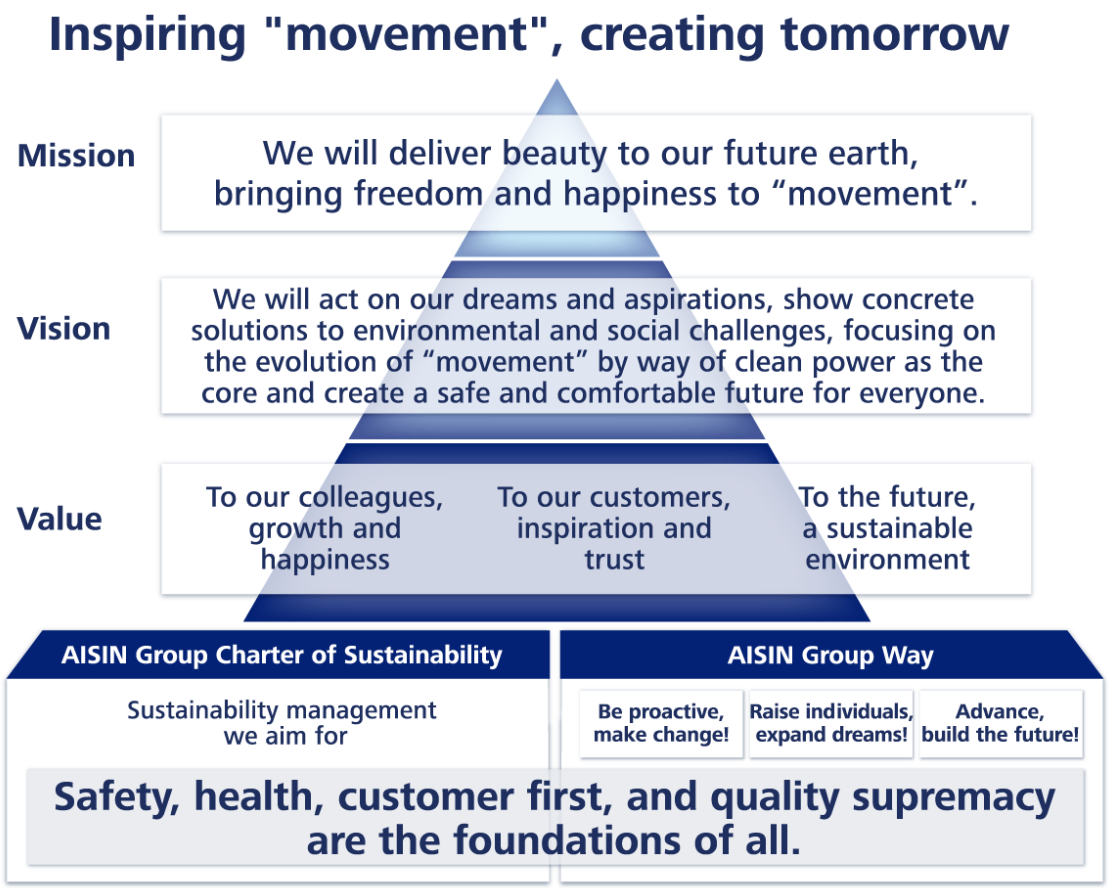
Against this background, this chapter sets out the corporate overview of Aisin Corporation – the subject of this study – and the trajectory of its social impact businesses. Ahead of the case studies in Chapters IV and V, it describes the management environment, technological base, and business portfolio within which Aisin developed these businesses. It focuses on three points: (1) Aisin's characteristics as a large corporation; (2) the positioning of the CSS (Connected & Sharing Solutions) Company, which was responsible for developing the social impact businesses; and (3) the development of the AI on-demand transport service Choisoko and the voice-recognition business YYSystem.

1. Corporate overview

Aisin Corporation, headquartered in Kariya City, Aichi Prefecture, is one of Japan's leading automotive-parts manufacturers and a core company of the Toyota Group. In 2021, Aisin Seiki Co., Ltd. and Aisin AW Co. Ltd. (hereafter, Aisin AW) merged to form the present-day Aisin. For the fiscal year ending March 2026, consolidated revenue was approximately JPY 5.1 trillion. As of 31 March 2026, Aisin employed approximately 35,000 people on a non-consolidated basis and 113,000 across the Group (Aisin, 2026c, 2026d). Listed on the Prime Market of the Tokyo Stock Exchange, Aisin operates as a global supplier. Its core business comprises automotive components that support the driving, stopping, turning, and comfort of vehicles – including automatic transmissions (AT) and car navigation systems – through which it has accumulated technological capabilities over many years. In recent years, these accumulated capabilities have been reconfigured towards new domains of value creation (Tokuda et al., 2026).

Meanwhile, the business environment surrounding the automotive industry is changing dramatically against the backdrop of the advance of CASE (Connected, Autonomous, Shared & Services, and Electric) and the response to carbon neutrality. In Japan, carbon neutrality is framed as a national policy objective, with the government committed to achieving net-zero greenhouse-gas emissions by 2050. The discussion in this article refers specifically to this Japanese policy context (Government of Japan, 2020).

Amid these changes, Aisin is shifting from its conventional hardware-centred business structure towards value-provision businesses that include software and digital services. Under the slogan 'Inspiring movement, creating tomorrow,' the company pursues business development that seeks to reconcile the resolution of social problems with the creation of economic profit (Figure 1).



Source: Aisin official website (global), https://www.aisin.com/en/profile/policy/ (accessed 19 August 2026)

Figure 1 presents the Aisin Group's management philosophy, which connects mobility-related value creation with the resolution of social challenges and longer-term sustainability.

Figure 1. The Aisin Group management philosophy

In recent years, Aisin has placed digital transformation (DX) at the core of its management strategy and has developed an internal digital infrastructure, the Cyber/Physical Information Factory (CPIF), and a location-information platform, the Mobility Service Platform (MSPF). These initiatives are positioned as the foundation for creating new businesses that leverage existing technologies and digital assets (Aisin, 2026a).

Aisin was selected as a DX Stock in both 2024 and 2025 and as a Noteworthy DX Company in 2026 (METI, 2024a, 2025; Aisin, 2026a).

The DX Stocks programme is a public-recognition scheme that recognises listed companies demonstrating notable achievements in digital transformation; it does not itself provide direct funding (METI, n.d.).

2. The positioning of the CSS company

Within this transformation of the business portfolio, the organisation responsible for developing new businesses that addressed social problems was the CSS (Connected & Sharing Solutions) Company, which operated from the 2021 merger until early 2024. Its functions subsequently continued within the CSS Headquarters. Effective 1 January 2025, the CSS Headquarters was incorporated into the Product Development Center and renamed the LBS (Location Based Solutions) Products Division (Aisin, 2024a). Beyond conventional automotive-parts supply, the CSS organisation developed a cluster of new businesses that directly addressed problems in people's lives and local communities, drawing on digital technology and co-creation.

The predecessor of the CSS Company was the division responsible for Aisin AW's car navigation business, which was grounded in location-information and software technologies. Within Aisin's overall portfolio, the CSS Company functioned not as a replacement for its established core businesses, but as a complementary organisation tasked with exploring future growth domains and developing new businesses alongside them (Yamada, 2025). Tokuda et al. (2026) further characterise the organisation by its efforts to create social and economic value through the repurposing of location-information, voice-recognition, and software technologies accumulated in established businesses.

Choisoko, for example, draws on map and route-search technologies and the location-information platform developed through the car navigation business. Rather than relying on wholly new technological development, the business reconfigured and reused technological assets accumulated in Aisin's established businesses for applications addressing social problems (Tokuda et al., 2026). The CSS Company also emphasised industry–academia–government–community collaboration and co-creation with users. This approach was not merely a CSR activity, but a strategic undertaking that sought to reconcile social and economic value through the use of Aisin's DX infrastructure and established technological assets (Yamada, 2025; Tokuda et al., 2026).

The January 2025 restructuring positioned Choisoko and related functions within LBS, where new businesses leverage Aisin's location-information platform, the Mobility Service Platform (MSPF). Tokuda et al. (2026) interpret this transition as indicating that new businesses originating in social problems had moved from an exploration phase towards a platform-utilisation phase. They further argue that the restructuring illustrates how social impact businesses can become integrated into the established business platforms and organisational structure of a large corporation.

3. The development of social impact businesses

As representative examples of social impact businesses at Aisin, this study sets out two exemplar case studies: Choisoko and YYSystem.

(1) Choisoko

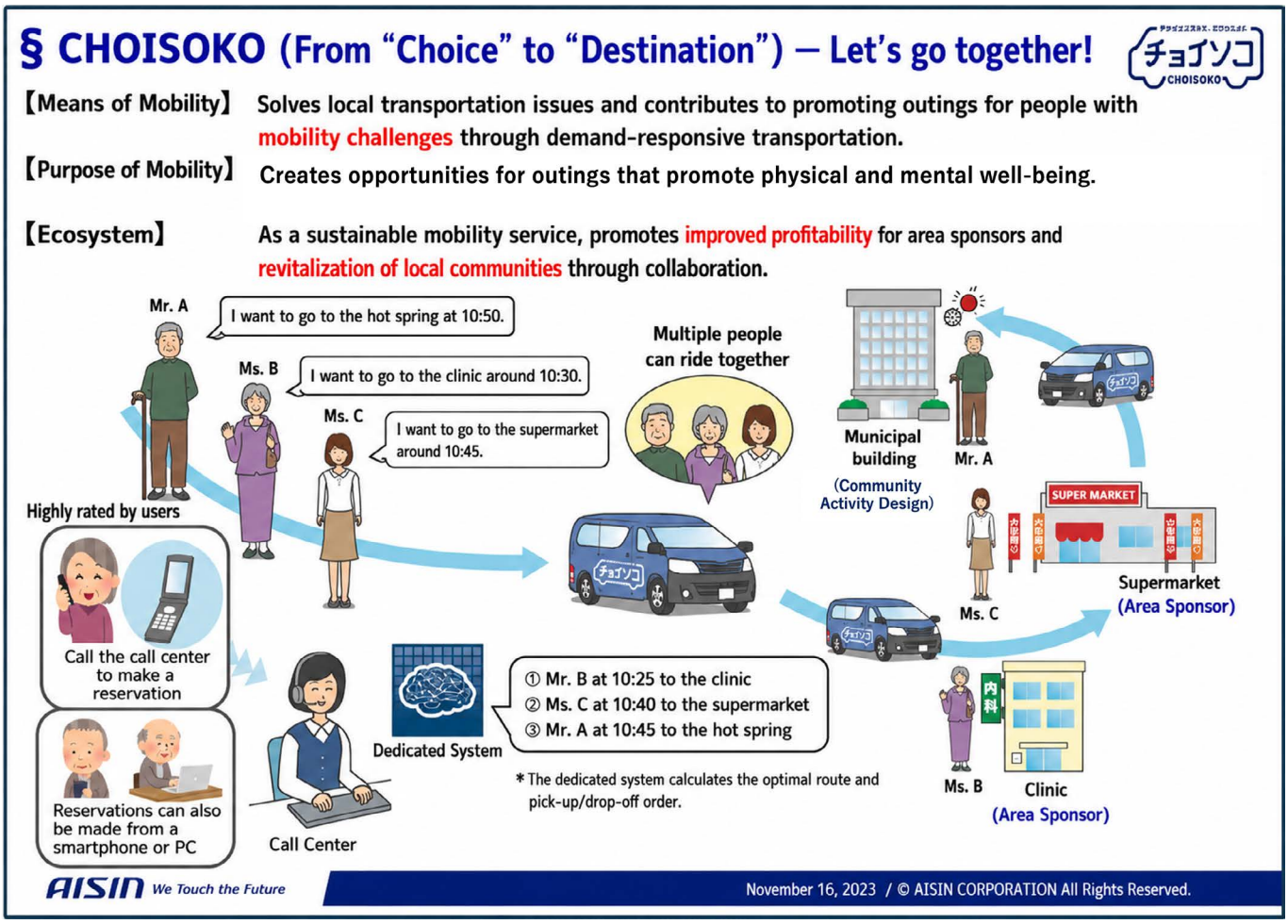
Choisoko is a membership-based, reservation-based AI on-demand transport service launched in 2018 in Toyoake City, Aichi Prefecture (Figure 2). Eligibility criteria vary by municipality, and no uniform age requirement applies. Introduced against the backdrop of population ageing and mobility difficulties following the voluntary surrender of driving licences by older adults, it was developed as a community co-creation service premised on collaboration among residents, municipalities, transport operators, and commercial facilities (Yamada, 2025; Tokuda et al., 2026).

Choisoko uses AI route-search technology operating on the MSPF and grounded in Aisin's existing car navigation technologies. Initially focused on supporting the mobility of older adults, the service subsequently expanded – in response to community requests – to include people with disabilities, pregnant women, high-school students, tourists, and other users. In addition to the cost efficiencies enabled by the MSPF, the combination of a franchise model and an area-sponsor system – in which local companies and organisations contribute a portion of the operating costs – has created a business structure supported not only by fare revenue, but also by area-sponsor contributions and franchise-related revenues. Publicly available data do not provide a percentage breakdown of these revenue sources, but their combination has enabled Choisoko to diversify its revenue base (Yamada, 2025; Tokuda et al., 2026).



Source: Choisoko official website, https://choisoko.jp/about (accessed 19 August 2026)

Figure 2. Choisoko service image (Toyoake City, Aichi Prefecture)



Source: Adapted and translated by the authors from materials submitted by Director Suzuki of Aisin to the MLIT Regional Public Transport Redesign Council, Third Meeting, 16 November 2023.

Figure 3 shows the flow of Choisoko's service. Users make reservations by phone or smartphone, and AI integrates multiple users' reservations to generate optimised routes. The service brings together residents, area sponsors, and local facilities, thereby supporting both mobility assistance and regional revitalisation.

Figure 3. Choisoko service concept

The Choisoko case is characterised by the repurposing of established technological assets for social-problem-solving applications and by its development from a small-scale demonstration through co-creation (Tokuda et al., 2026). It also demonstrates how the creation of social value can contribute to business growth and financial sustainability. By FY2024, Choisoko had been adopted by 83 municipalities, its registered membership had exceeded 200,000, and its franchise model had enabled expansion into multiple regions. The business achieved single-year profitability in FY2023 (Yamada, 2025). The case therefore demonstrates the strategic potential to advance commercialisation through exploratory activities and co-creation facilitated by a complementary organisation, while leveraging established technological assets and the DX infrastructure (Yamada, 2025; Tokuda et al., 2026).

(2) YYSystem

YYSystem is a voice-recognition and transcription support system developed to support communication with employees with hearing impairments during the COVID-19 pandemic. Its technological base lay in transcription and communication-support technologies accumulated internally since the mid-2010s. As mask-wearing became routine and communication difficulties with employees with hearing impairments on the factory floor became apparent, Aisin repurposed its internal technologies to address this social problem (Aisin, 2022; Nakamura et al., 2024).

Thereafter, YYSystem evolved – through repeated improvement and co-creation with users with hearing impairments – into a system equipped with multilingual translation, AI summarisation, and other functions. Today, in addition to real-time speech-to-text transcription, it implements functions that convert words into illustrations and icons and sound into vibration and light. The use of YYSystem has also expanded beyond everyday conversation to meetings and lectures, events, cinemas, live venues, train stations, and public spaces (Figure 4). Against this backdrop, cumulative downloads reached three million in April 2026 (YYSystem, 2026). Furthermore, the Good Design Gold Award and its use in connection with the Tokyo 2025 Deaflympics contributed to greater public awareness and social acceptance (Aisin, 2023, 2025b).



Source: Adapted and translated by the authors from Japan Institute of Design Promotion (2023) and YYSystem (n.d.) (accessed 19 August 2026.

Figure 4 shows YYSystem's service system. Initially developed through co-creation with individuals with hearing impairments around voice-recognition and transcription functions, it evolved into a group of applications suited to diverse needs by continuously incorporating user perspectives.

Figure 4. Services provided by YYSystem

Chapters IV and V examine Choisoko and YYSystem respectively, analysing how these social-impact-creating businesses developed and took root within a large corporation.

IV. Case study: Choisoko (AI on-demand mobility business)

This chapter presents the development of the AI on-demand transport service Choisoko, introduced in Chapter III, from its conception through demonstration to full-scale deployment. The chapter employs two key analytical frameworks that together constitute the extended logic model proposed in Chapter II. The first is the dynamic reconstruction of the logic model, tracing how social impact evolved from a static initial design to an emergent, expanding trajectory. The second is the internal strategy design function, examining the strategic decision-making that enabled the business to take root within Aisin's organisation.

Unless otherwise indicated, the Choisoko case account and associated logic-model analysis presented in this chapter are adapted and translated from Tokuda et al. (2026), which draws on interviews with Aisin project members, internal company documents, meeting records, and publicly available corporate and government sources. Specific quotations, quantitative claims, and figures are attributed separately to their underlying sources.

1. Business overview and development

The origins of Choisoko can be traced back to the concept of a 'horse-like car,' proposed on 17 April 1985 at the Equos Research Laboratory of Aisin AW (now Aisin).[1] The term refers to Aisin AW's development philosophy of creating a vehicle that understands the driver's intentions and responds as seamlessly as the relationship between a horse and its rider. At the time, Aisin AW had established a firm position as a specialist manufacturer of automatic transmissions (AT), yet senior management recognised the risks of relying on a single core business and emphasised the need to establish a new pillar of growth. Within the 'horse' concept, the Japanese expression jinba ittai–literally, the unity of horse and rider – represented a vision in which the driver and vehicle work together seamlessly, with the vehicle anticipating the driver's intentions and assisting them in reaching their destination. This research began with the electronic control and computing capabilities of the period, not contemporary AI, and explored how customer needs might evolve.

This vision led senior management to recognise the growing importance of control and software technologies. They observed that an automatic transmission without an electronic control system was merely a mechanical assembly incapable of shifting gears autonomously. Although Aisin was primarily a mechanical-parts manufacturer, it therefore began research and development into electronically controlled systems, including four-wheel independent suspension and four-wheel steering.[2]

Subsequently, while developing and evaluating AT systems, the idea arose of a system that could safely guide drivers to unfamiliar destinations using a display monitor. This led the Equos Research Laboratory to research technologies supporting communication between vehicles and humans. As a result, in 1992, Aisin launched the world's first voice-guided car navigation system. During its development, a suite of foundational technologies – including map and location information, map-matching, route sequencing, and route search – was systematically established (Figure 5).[3] As Aisin explored new external applications for these existing technologies, it developed the hypothesis that they could generate value independently of the car navigation system and could potentially be applied to addressing social problems. The company subsequently converted what had originally been internal functions of the car navigation system into an externally accessible technology suite.[4]

[1] Based on the Aisin internal document *Toward a Horse-Like Car: The Birth of Equos*; see also Tokuda et al. (2026).

[2] Based on Mr Suzuki's written response to the authors, 5 June 2026; see also Tokuda et al. (2026).

[3] Aisin, 'Voice Navigation System', *AISIN 60th Anniversary,* available at: https://www.aisin.com/jp/60th/product-history/lbs/ (accessed 6 June 2026); interview with an Aisin project member, 27 May 2026.

[4] Based on the minutes of the fifth Aisin–Ritsumeikan meeting on social-impact research, 8 May 2026; see also Tokuda et al. (2026).



Source: Aisin (n.d.), adapted and translated by the authors.

Figure 5 shows Aisin's world-first voice navigation system released in 1992. It was the starting point for the location-information technologies later utilised in Choisoko. (Aisin, n.d.).

Figure 5. Aisin's world-first voice navigation system (1992)

Against this technological backdrop, Choisoko's business concept was formulated in 2017. Mr A and Mr B, then members of the new-business planning division of Aisin Seiki (now Aisin), led the formation of a shared-ride transport concept addressing mobility difficulties among older adults. The concept was developed in response to a directive from senior management to prepare a proposal on ridesharing. Mr A drew attention to older residents who had to walk long distances to shop or attend medical appointments and developed the concept as a service supporting their everyday mobility.[5]

The proposal initially received little attention from Mr A's direct superior. An opportunity to present it directly to a senior executive nevertheless enabled it to gain support from top management. The senior executive subsequently arranged for the proposal to be presented to other executives, reasoning that support from even one additional executive would provide evidence of a genuine social need. This process ultimately led to approval for commercialisation.[6]

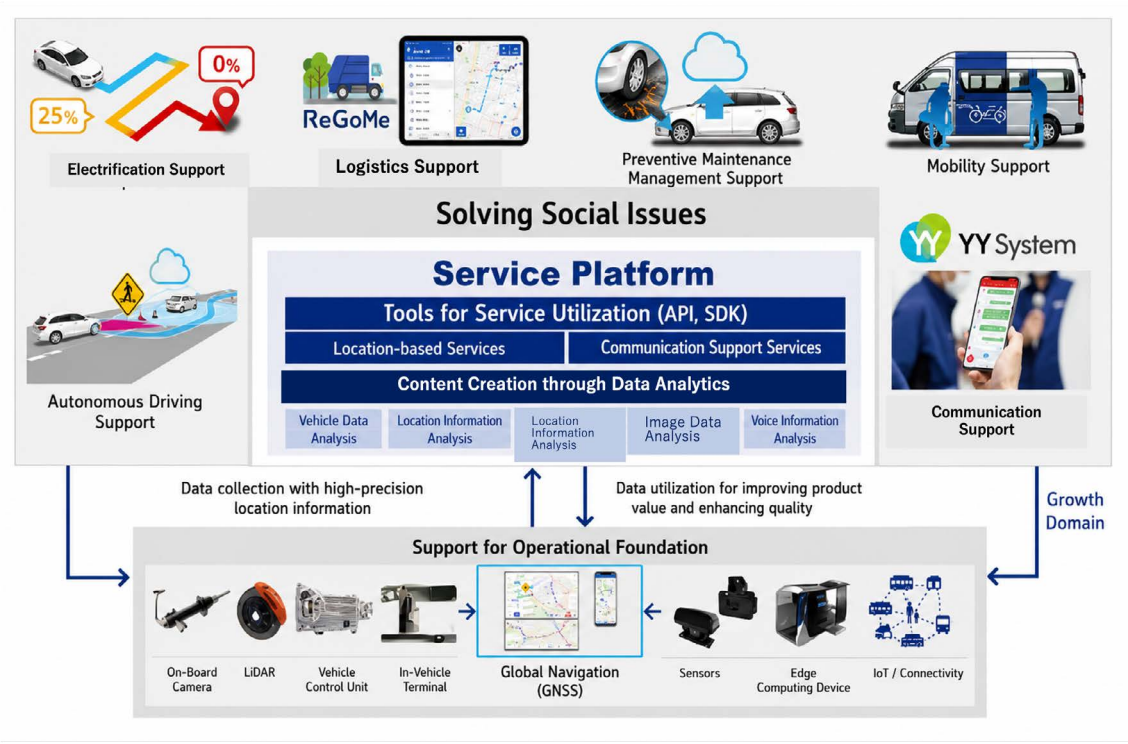
Around December of that year, collaboration with drugstore Company A began. Recognising drugstores as potentially important destinations for older adults, an Aisin representative approached Mr C, a member of Company A's management, and explained the shared-ride transport plan. Company A shared Aisin's vision of addressing the mobility challenges faced by older adults, and this shared understanding became the starting point for collaborative discussions. During these discussions, the participants concluded that limiting the service to transportation to a single drugstore would be too narrow. Instead, Choisoko should serve the broader public interest by addressing mobility needs across the local community in collaboration with municipalities. Consultations then began with neighbouring municipalities, including Toyoake City, with which Company A had already established comprehensive collaboration agreements covering a broad range of community issues. These existing relationships provided an institutional basis for initiating discussions about local mobility needs.

In 2018, a project was launched involving three parties: Municipality A, which was particularly enthusiastic; drugstore Company A; and Aisin. Although Aisin had initially regarded Choisoko primarily as a mobility-support service, discussions with Municipality A revealed that mobility could also promote physical activity, exposure to new

[5] Based on an Aisin internal document dated 23 July 2021 concerning the establishment of Choisoko; see also Tokuda et al. (2026).

[6] Based on the same Aisin internal document and an interview with an Aisin project member, 27 May 2026; see also Tokuda et al. (2026).

surroundings and social encounters, and improved mental and physical health. Shopping at destinations could also contribute to the local economy and regional revitalisation. Transport-related departments therefore joined health-promotion departments in regular review meetings. Following consultations with residents and an examination of how Choisoko could complement existing public transportation, substantial demand for regional transport was confirmed. An unpaid pilot operation began in July 2018, followed by a fare-charging pilot operation in April 2019 and full-scale operation in April 2021.[7]

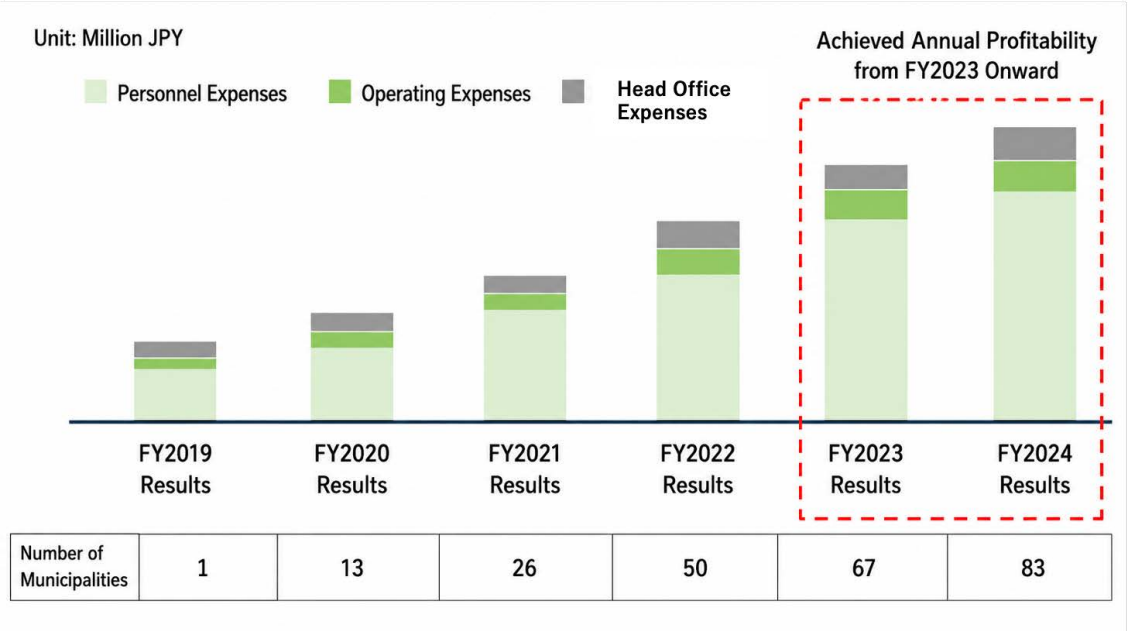


Source: Adapted and translated by the authors from METI (2025, p. 56).

The MSPF integrates three core functions: an on-demand reservation system, centralised member management through a call centre, and AI-based route generation using map data. Their integration enabled more efficient nationwide service management while reducing operating costs.

Figure 6. Mobility Service Platform (MSPF) image

[7] Based on an Aisin internal document dated 15 April 2022 concerning the collaboration between Aisin and Company A; see also Tokuda et al. (2026).

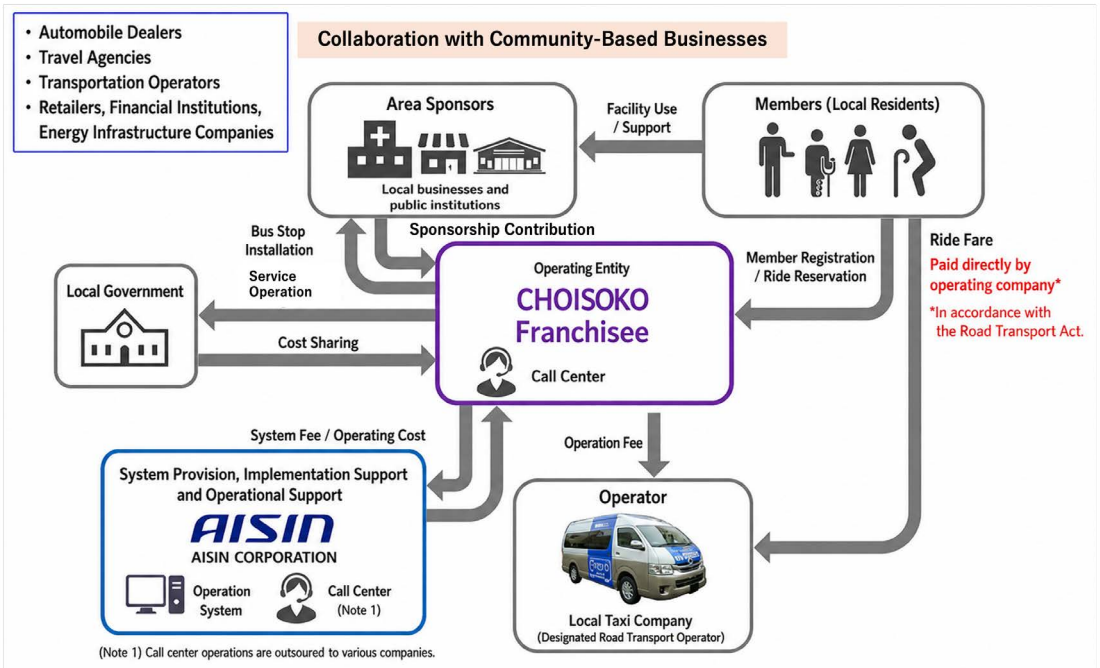


Source: Adapted by the authors from Yamada (2025, p. 143).

Figure 7 shows that although the number of participating municipalities increased from one in FY2019 to 83 in FY2024, annual fixed costs remained controlled, contributing to profitability from FY2023 onward.

Figure 7. Choisoko annual fixed-cost trend (FY2019-2024, indicative)

Furthermore, Choisoko developed a revenue structure that did not depend solely on fare revenue by combining the franchise model – which accounted for approximately 70% of contracts as of 2025 – with the area-sponsor system (Yamada, 2025; Tokuda et al., 2026) (Figure 8). Rather than competing with existing public transport, these mechanisms build complementary relationships within regional transport systems by involving local transport operators as service providers. Vehicle operations, for example, are undertaken in collaboration with local taxi companies. Choisoko is therefore deployed not as a replacement for existing regional transport but as a mechanism that complements it.



In consultation with local governments, the optimal stakeholder structure is designed for each community.

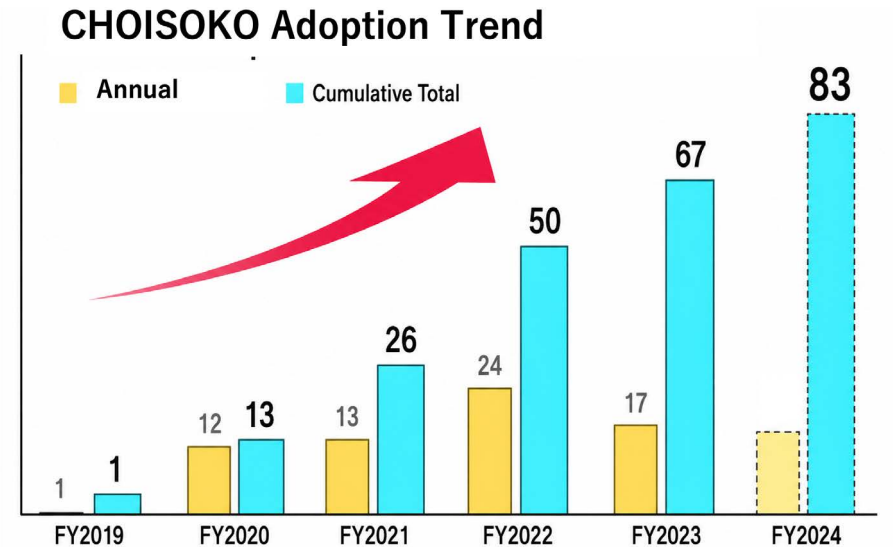
Source: Adapted and translated by the authors from Yamada (2025, p. 137).

As illustrated in Figure 8, the franchise model distributes operational and financial roles among Aisin, local governments, franchisees, transport operators, area sponsors, and local residents, thereby supporting both service sustainability and regional collaboration.

Figure 8. Choisoko franchise model (image)

As a result, the number of municipalities adopting Choisoko increased from one in FY2018 to 83 in FY2024 (Figure 9), while registered membership grew from approximately 400 to more than 200,000 (Figure 10). Although the business recorded losses from FY2019 to FY2022, it achieved single-year profitability in FY2023 (Yamada, 2025, pp. 140–141) (Figure 11). Internally, concerns had grown by around 2023 about whether Choisoko could remain financially viable while continuing to generate social value.[8] Achieving single-year profitability provided important evidence that Choisoko could both contribute to solving social problems and operate as a financially self-sustaining business, thereby supporting internal consensus-building for the project's continuation.

[8] Interview with an Aisin project member, 27 May 2026; see also Tokuda et al. (2026).



Source: Adapted by the authors from Yamada (2025, p. 136).

Figure 9 shows a steady increase in the number of municipalities adopting Choisoko, from one municipality in FY2018 to 83 in FY2024. This trend indicates that the Choisoko model was progressively adopted across different regions of Japan.

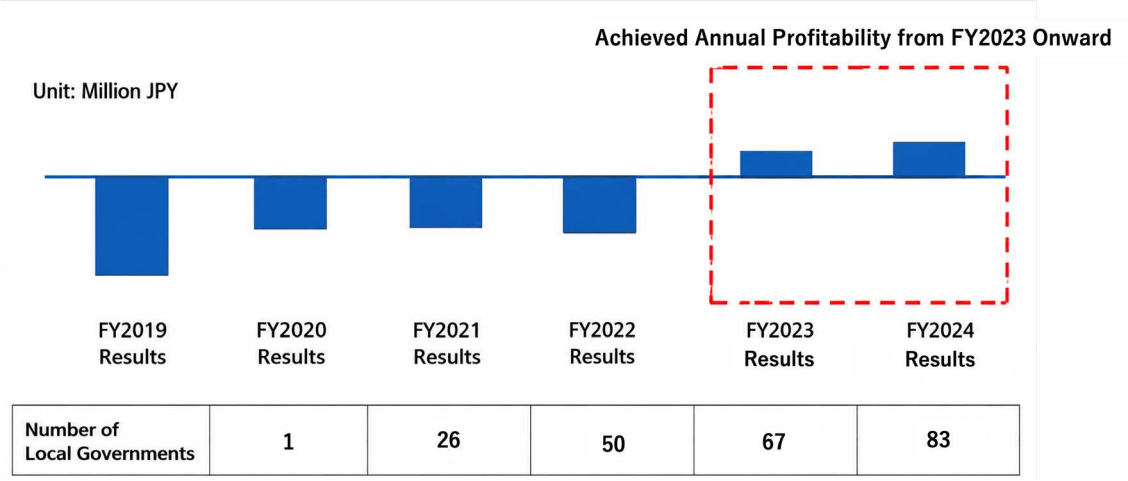
Figure 9. Trend in the number of municipalities adopting Choisoko



Source: Adapted by the authors from Yamada (2025, p. 136).

Figure 10 shows that registered membership increased from approximately 400 to more than 200,000 during the study period. This growth suggests that Choisoko was accepted by an expanding user base as the service spread to additional municipalities.

Figure 10. Trend in Choisoko's registered membership



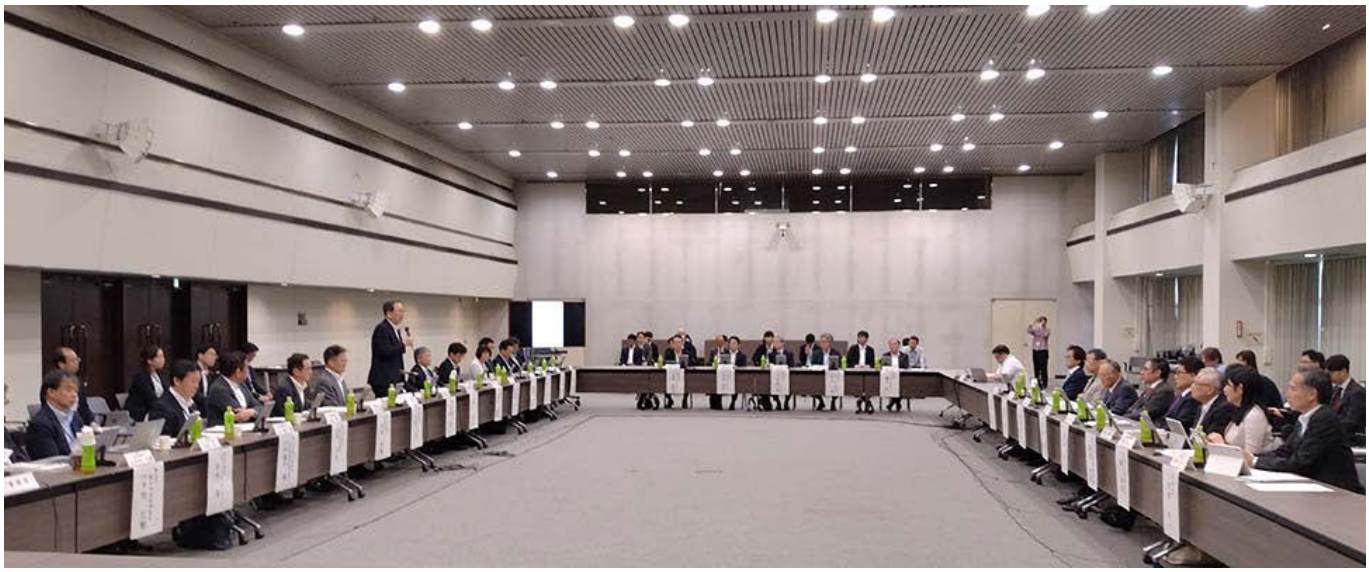
Source: Adapted by the authors from Yamada (2025, p. 140).

Figure 11 shows that Choisoko recorded operating losses from FY2019 to FY2022 but achieved single-year profitability in FY2023, which continued in FY2024. This transition demonstrated the business's financial sustainability and strengthened internal support for its continuation.

Figure 11. Choisoko annual profit-and-loss trend (FY2019–FY2024, indicative)

Moreover, as Choisoko expanded nationwide, Aisin's engagement also extended into national transport policy. Between September 2023 and May 2024, the company participated as a representative provider of AI on-demand transport in the Regional Public Transport Redesign Council convened by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) (MLIT, 2023). This engagement reflected a growing recognition within Aisin that working with municipalities individually would limit the wider diffusion of Choisoko and that transport-sector budgets alone would constrain the expansion of vehicle fleets. Mr Suzuki therefore encouraged senior management to join the council, arguing that participation could support both Choisoko's further development and broader efforts to address transport-related social challenges. The mobility gaps addressed by Choisoko cut across several policy domains: transport falls primarily within the remit of MLIT, welfare-related mobility involves the Ministry of Health, Labour and Welfare, and student transportation involves the Ministry of Education, Culture, Sports, Science and Technology. This institutional fragmentation made coordinated action difficult. Aisin's senior management therefore approved participation in the council as a means of contributing to cross-ministerial coordination, promoting wider recognition of universal mobility as a policy objective, and supporting the development of an enabling institutional and regulatory framework.[9]

[9] Based on the minutes of the fifth Aisin–Ritsumeikan meeting on social-impact research, 8 May 2026; see also Tokuda et al. (2026).



Source: MLIT (2024).

Figure 12 shows the Regional Public Transport Redesign Council, which brought together representatives of central government ministries, local governments, public transport operators, and private companies to consider the future design of regional public transport systems.

Figure 12. The Regional Public Transport Redesign Council (Aisin participating as a member, second seat from the back in the right-hand row)

As Choisoko developed, its applications expanded beyond mobility support for older adults. Rural municipalities increasingly faced the problem of young people leaving their communities to attend high schools elsewhere and subsequently not returning after entering higher education or employment. Because entering high school often requires students to travel longer distances, this transition created new transportation needs. In response, some municipalities combined two operating modes: scheduled bus services carrying high-school students in the morning and demand-responsive services operating during the day. By integrating Choisoko with existing regional public transport in this way, these municipalities sought to improve access to high schools while making more efficient use of available transport resources.

In Municipality B, Choisoko was introduced with the dual objectives of supporting residents' mobility and encouraging migration from urban areas. Although the anticipated cost reductions proved limited, the municipality recorded a substantial improvement in resident satisfaction. The service was therefore continued as part of a broader effort to make the municipality easier to navigate and more attractive as a place to live.[10]

More recently, increasing demand from non-resident visitors, including tourists and business travellers, together with the expansion of transportation for high-school students, has further broadened Choisoko's user base. This expansion has also required continued coordination between Choisoko and existing transport providers over their respective roles. As of 1 May 2026, Choisoko was operating in 97 municipalities (Choisoko, n.d.).

Overall, Choisoko developed by reconfiguring technological capabilities originally accumulated through Aisin's car-navigation business and

[10] Interview with an Aisin project member, 27 May 2026; see also Tokuda et al. (2026).

applying them to emerging regional mobility needs. Collaboration among actors inside and outside the company enabled the service to progress from demonstration to full-scale operation, while continued interaction with municipalities and users expanded its applications over time. Choisoko consequently evolved from a service initially centred on older adults into a broader, cross-generational regional mobility infrastructure.

2. Dynamic reconstruction of the logic model

This section applies the logic model to analyse Choisoko's social impact strategy and implementation, first as a static initial design and then as a more dynamic, emergent process. Section (1) presents the impact envisaged in the initial design, while Section (2) examines the dynamic and emergent evolution of that impact. Comparing these two points in time illustrates the extension from static to dynamic explanation discussed in Chapter II.

Building on the Theory of Change (ToC) perspective developed in Chapter II, the empirical representation used in this section takes the form of a staged programme logic model. ToC provides the explanatory perspective for examining why and under what organisational and contextual conditions change occurs, while the programme logic model represents the sequence linking inputs, activities, outputs, outcomes, and impact.

In this programme logic model, outputs refer to the direct products of programme activities, whereas outcomes refer to changes in beneficiaries' behaviour, status, or conditions resulting from those outputs. Following established programme logic-model approaches, the analysis distinguishes among short-, medium-, and long-term outcomes (McLaughlin and Jordan, 1999; W.K. Kellogg Foundation, 2004). Short-term outcomes therefore remain conceptually distinct from outputs: outputs describe what the service directly provides, whereas short-term outcomes describe the initial changes experienced by its beneficiaries.

(1) Impact of the initial design: a logic model originating in elderly support

The initial logic model was built on Mr A's recognition of the mobility difficulties faced by older adults and the subsequent collaboration with Company A, which established the foundation for Choisoko's original service concept.

Three principal inputs supported the initial design: Mr A's planning and conceptual capabilities; the understanding and cooperation of Mr C at Company A; and the component technologies accumulated through Aisin's car-navigation business. These technologies included map and location information, map-matching, route sequencing, and route search. Because they had already been systematically developed by the time Aisin launched its voice-guided car-navigation system in 1992, their repurposing for Choisoko required little additional technological investment. Car-navigation engineers also participated in the system design, allowing Aisin to draw on existing personnel and limit the human-resource costs associated with adding new functions.[11]

These inputs supported three main activities. First, the shared-ride transport concept was developed into the Choisoko service. Second, discussions with Company A led the participants to recognise that the service should operate as regional transport serving the broader public interest rather than as transportation limited to particular stores. Collaboration with municipalities was therefore positioned as essential. Third, the existing component technologies were combined to design an efficient operating system responsive to regional transport demand.

The output arising from these activities was the provision of a regional shared-ride transport service specialising in shopping and medical visits for older adults. Choisoko was not initially conceived as an all-purpose mobility service. Rather, it was designed to support forms of everyday travel essential to maintaining independent lives, particularly shopping and medical visits.

[11] Interview with an Aisin project member, 3 June 2026; see also Tokuda et al. (2026).

The initial logic model identified three immediate outcomes. The first was greater ability among older adults to travel independently without relying on family members or others. In one municipal survey, 59.2% of respondents reported being able to travel without depending on family members or acquaintances.[12] The second was an increase in opportunities to go out: survey data from two municipalities indicated that 32.55% of respondents had increased the frequency of their outings.[13] The third was the securing of essential mobility after voluntarily surrendering a driving licence. In another municipal survey, 55.2% of respondents identified Choisoko as a prospective means of transportation after surrendering their licence.[14]

Building on these immediate outcomes, the model identified several medium-term outcomes. One was increased consumption associated with travel. In one municipality, shopping accounted for 42.4% of recorded trip purposes, indicating that Choisoko facilitated access to local shopping opportunities, although this figure does not itself measure increased expenditure.[15]

A second medium-term outcome concerned increased communication and improved mental and physical well-being. Evidence supplied by Aisin indicated that some users began going out with acquaintances whom they had met through the service; in one case, 15 of 40 respondents reported such experiences or associated improvements in their emotional well-being.[16]

A third outcome was improved access to medical services. In one municipality, medical visits accounted for 66.4% of recorded trip purposes, demonstrating the importance of the service in facilitating access to healthcare.[17] The model also envisaged that mobility itself could encourage everyday physical activity and thereby contribute to maintaining mental and physical health.

Two further medium-term outcomes were anticipated. By providing an alternative means of transport, Choisoko was expected to reduce the need for older adults to continue driving when they no longer felt able to do so safely, thereby contributing to lower accident risk. A municipal survey found that 27.8% of respondents were considering voluntarily surrendering their driving licences.[18] Ridesharing was also expected to reduce the number of vehicles required for individual journeys and thereby contribute to lower CO_2 emissions. However, the available data provide evidence of shared use rather than a direct measurement of emissions reductions.[19]

The model positioned reduced medical expenditure and extended healthy life expectancy as longer-term intended outcomes. These outcomes were expected to arise cumulatively through increased opportunities to go out, improved access to medical services, greater physical activity, and expanded social interaction. They should therefore be understood as anticipated longer-term effects rather than outcomes directly demonstrated by the available data.

The model also envisaged the development of communities in which older adults could experience greater well-being and live in ways consistent with their own preferences. In one municipality, 67% of respondents reported feeling happier than before, providing an indicator of improved subjective well-being, although not conclusive evidence of community-wide impact.[20]

The ultimate intended impact was the alleviation of mobility difficulties among older adults (Figure 13). The initial logic model therefore envisaged Choisoko as supporting forms of mobility essential to everyday life, including shopping, medical visits, and other outings. This corresponds to the static logic model discussed in Chapter II: a representation of the social impact intended at a particular point in time.

[12] Internal survey data supplied by Aisin, Municipality C, 1 August 2021, p. 4.

[13] Internal survey data supplied by Aisin, Municipalities D and E, 25 February 2025, p. 5.

[14] Internal survey data supplied by Aisin, Municipality A, 31 May 2025, p. 12.

[15] Internal survey data supplied by Aisin, Municipality C, 1 August 2024, p. 4.

[16] Internal data supplied by Aisin concerning a community-led shared-transport initiative in Municipality F, 2023.

[17] Internal survey data supplied by Aisin, Municipality C, 1 August 2024, p. 4.

[18] Internal survey data supplied by Aisin, Municipality G, 17 December 2021, p. 10.

[19] Internal survey data supplied by Aisin, Municipality H, 31 May 2025, p. 1.

[20] Internal survey data supplied by Aisin concerning Municipality F, 2023.

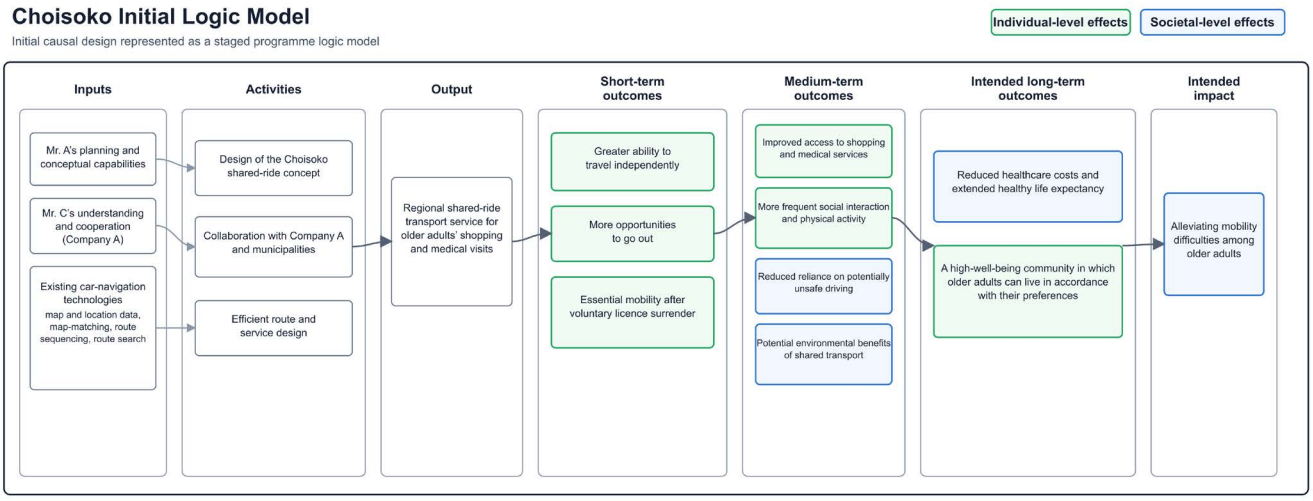


Figure 13. Choisoko Initial Logic Model

Source: Adapted and revised by the authors from Tokuda et al. (2026), based on interviews with Aisin project members, internal survey data, and company documents.

Figure 13. Choisoko initial logic model

(2) Impact of emergent evolution: an extended logic model towards broad-area mobility

By 2026, Choisoko's logic model had retained its original focus on supporting the mobility of older adults while expanding substantially in response to needs and institutional opportunities that emerged during the development of the business. This corresponds to the dynamic logic model discussed in Chapter II, which visualises how intended impacts, activities, outputs, and outcomes evolve over time.

One important organisational input added to the initial logic model was Mr Suzuki's strategic leadership. As discussed in Section IV.1, he recognised that Aisin's own sales network was insufficient to support nationwide expansion. Through interactions with managers outside the company, he developed the idea of using the regional networks of automotive-sales-related companies. This strategic judgement contributed to the development of the franchise model, through which Choisoko could draw on the sales channels, local knowledge, and established relationships of regionally embedded operators (Yamada, 2025; Tokuda et al., 2026).

Three further developments are better understood as changes in the external context rather than as organisational inputs. First, the policy environment changed as MLIT increasingly recognised regional mobility gaps as a social problem requiring national-level intervention rather than as an issue to be addressed separately by individual municipalities (MLIT, 2023). Second, municipalities expressed growing concern about retaining young people by ensuring access to education and other essential services. Third, demand increased for transportation serving non-resident users, including tourists and business travellers.[21]

These contextual changes did not replace Choisoko's original technological inputs. Its technological base continued to consist primarily of capabilities

[21] Interview with an Aisin project member, 27 May 2026; see also Tokuda et al. (2026).

accumulated through Aisin's car-navigation business, including map and location information, map-matching, route sequencing, and route search.

Against this changing context, Aisin undertook three principal activities. First, it designed and introduced the franchise model, enabling regionally embedded operators to participate in the deployment of Choisoko. Second, Aisin participated as a member of the MLIT-hosted Regional Public Transport Redesign Council following Mr Suzuki's successful proposal to senior management. These activities extended Choisoko's development beyond service provision within individual municipalities and connected it to broader regional networks and national policy discussions. Third, it developed transport services for high-school students and other user groups in response to emerging regional mobility needs.

Based on the authors' synthesis of interviews with Aisin project members and company documents, these activities produced two principal outputs beyond the original shared-ride transport service for older adults. First, the franchise initiative created a replicable delivery arrangement through which local franchisees and transport operators could introduce and operate Choisoko in additional regions. Second, the service offering expanded to include transport for high-school students and other user groups, thereby supporting access to education alongside shopping and medical visits.

These outputs contributed to several short-term outcomes. The franchise-based delivery arrangement made Choisoko easier for municipalities and local operators to adopt and enabled expansion into additional regions. Participation in the MLIT council increased Choisoko's institutional visibility and recognition among municipalities as a transport service addressing social challenges. The provision of transport for high-school students also improved access to local high schools and created conditions in which young people could continue living and studying in their home communities.

The extended model also broadens the scope of the medium-term outcomes identified in the initial model. As Choisoko expanded geographically and reached a wider range of users, these anticipated outcomes extended across more regions and beneficiary groups. They included improved access to shopping and medical services; increased physical activity and social interaction as users went out more frequently, including outings with acquaintances whom they had met through Choisoko; reduced reliance on potentially unsafe driving by older adults; and potential environmental benefits arising from shared transport. The model also identifies improved business viability as a medium-term organisational outcome arising from wider adoption and the use of a shared platform and franchise-based delivery arrangement. In addition, the extended model identifies two further medium-term outcomes. First, transportation services for high-school students and other young people were expected to reduce the burden on families responsible for providing transportation and widen young people's access to after-school activities and other educational opportunities. Second, improved access to education and regional mobility was expected to mitigate the out-migration of young people by creating conditions in which they could attend school and continue living in their local communities. These represent anticipated medium-term causal pathways rather than effects that have all been directly demonstrated by the available data.

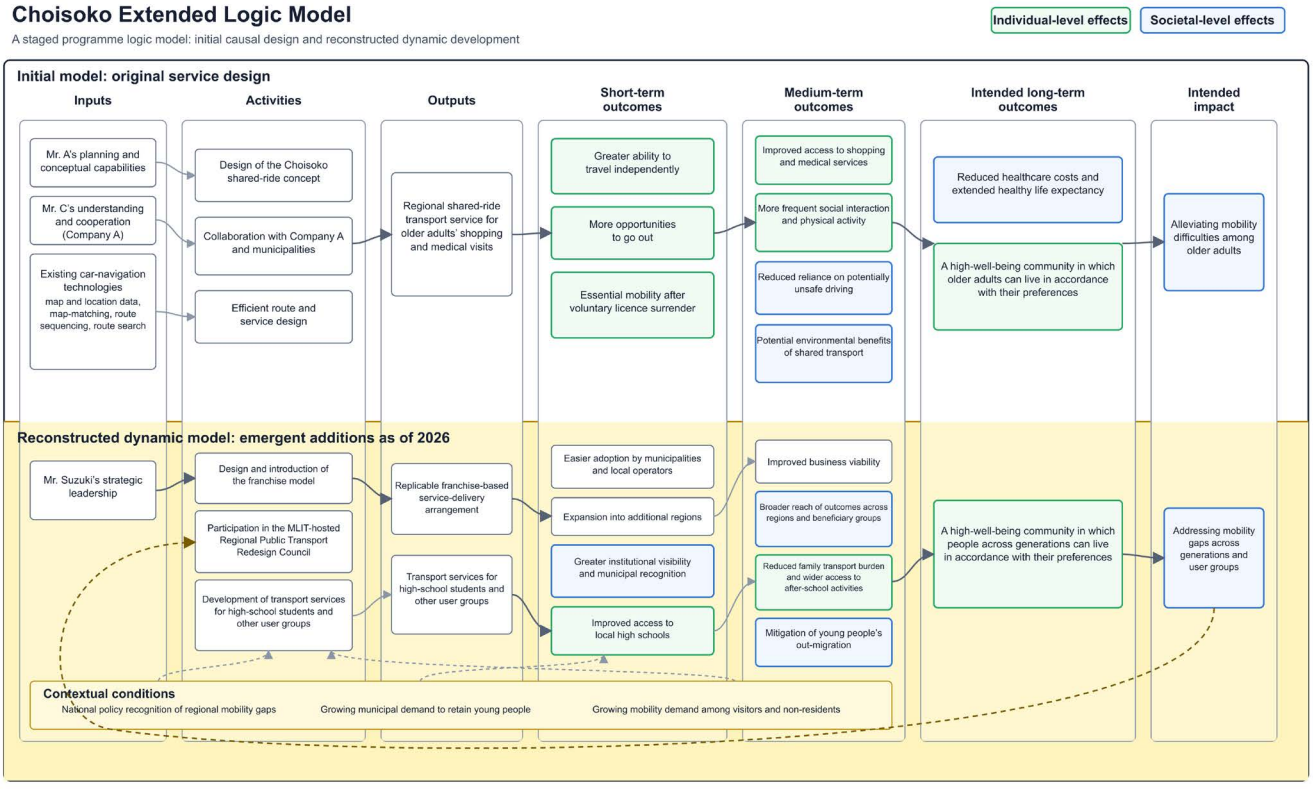
At the long-term level, the extended model broadened the strategic objectives identified in the initial model. The original model envisaged reduced medical costs, extended healthy life expectancy, and the development of a community in which older adults could experience high levels of well-being and live in ways consistent with their own preferences. The extended model retained these aspirations while broadening their intended beneficiaries. It envisaged a community in which all residents, rather than only older adults, could experience greater well-being and live in ways consistent with their own preferences. These are intended long-term outcomes represented in the reconstructed logic model, rather than achievements demonstrated by the available evidence.

In the reconstructed logic model, the intended ultimate impact broadened from alleviating mobility difficulties among older adults to addressing mobility gaps affecting people across generations and user groups (Figure 14). Choisoko was therefore no longer conceived solely as a service supporting older adults' shopping and medical visits. Instead, it came to be positioned as a broader regional mobility infrastructure serving residents and visitors with diverse mobility needs.

This shift from the static impact envisaged in the initial design to a dynamically evolving conception of impact illustrates the external-translator

function presented in Chapter II. In this case, the cumulative expansion of the service generated both economies of scale and network-related benefits.

As more municipalities adopted Choisoko, the fixed costs and operational capabilities of the shared MSPF could be distributed across a broader service base, while experience accumulated in one region could inform implementation in others. Franchise partners and local transport operators also contributed established networks, local knowledge, and relationships of trust. In addition, evidence from earlier implementations and recognition through national policy discussions reduced uncertainty and lowered adoption barriers for subsequent municipalities. Expansion therefore increased not only the scale of the service but also its operational efficiency, transferability, and institutional credibility.



Note: Outputs are direct products of activities; outcomes are changes experienced by beneficiaries or other actors. Long-term outcomes and impact are intended causal pathways unless otherwise evidenced.
The dashed arrow indicates an emergent feedback loop through which observed outcomes and field interaction inform later inputs, activities, and strategic decisions.

Source: Adapted and revised by the authors from Tokuda et al. (2026), based on interviews with Aisin project members, internal survey data, company documents, and publicly available sources.

Figure 14. Choisoko Extended Logic Model

Adapted and revised by the authors from Tokuda et al. (2026), based on interviews with Aisin project members, internal survey data, and company documents.

The static model represents the initial causal design at a single point in time, whereas the reconstructed dynamic model shows how contextual conditions, inputs, activities, outputs, and intended outcomes changed over time through interactions with field-level actors and strategic decision-making.

Figure 14. Choisoko extended logic model

Summary Comparison of Choisoko's Logic Models

A simplified overview of the detailed models presented in Figures 13 and 14

Dimension	Initial static model Initial causal design	Reconstructed dynamic model Emergent development over time
Primary focus	Mobility difficulties among older adults, particularly for shopping and medical visits	Mobility gaps across generations and user groups, including young people, visitors, and non-residents, together with growing policy attention
Main activities and outputs	Development of the shared-ride concept, collaboration with municipalities, and provision of transport for shopping and medical visits	Introduction of the franchise model, participation in the MLIT council, regional expansion, and provision of transport services for high-school students and other user groups
Intended outcomes	Independent mobility, more opportunities to go out, improved access to shopping and medical services, and improved well-being among older adults	Easier adoption and broader regional reach, improved access to education, reduced family transport burdens, improved business viability, and community well-being across generations
Development process	Initial service design represented at a single point in time	Emergent development through interaction with field-level actors, policy engagement, accumulated experience, and strategic decision-making

Source: Developed by the authors based on Figures 13 and 14.

Source: Developed by the authors based on Figures 13 and 14.

To facilitate comparison and provide a simplified overview of the detailed logic models presented in Figures 13 and 14, Table 1 summarises their principal differences.

Table 1. Summary comparison of Choisoko's initial and reconstructed dynamic logic models

3. Internal strategy design: the internal

Translation Function as a Strategy Design Tool
Whereas the dynamic-reconstruction analysis clarified what changed in Choisoko – namely, the content of its intended social impact and the trajectory of its expansion – this section examines how and why those changes became possible. It focuses on the structure of internal strategic decision-making that supported the development and expansion of the business.

(1) The strategic characteristics of inputs

To understand Choisoko's strategic characteristics, it is important to note that the reuse of existing technologies, personnel, and organisational capabilities substantially reduced the initial investment required for its development.

The initial service concept emerged through collaboration between Mr A and Mr C. Its feasibility, however, depended not only on the existence of a social problem but also on technological assets already accumulated within Aisin's car navigation business. These included positioning, map-matching, map rendering, map databases, point search, and route-search technologies that had already been implemented and validated in the market. The core functions had largely been developed by around 2007 and had evolved by around 2017 into a cloud-based SDK that could be used in external applications. Consequently, Choisoko could draw on this established technological base, while new development focused primarily on peripheral components such as the user reservation interface, the operator screen for managing bookings, and call-centre support functions.

Choisoko also leveraged competences accumulated through the car navigation business. These included quality-assurance experience developed through the long-term market use of navigation systems, system-operation experience involving smartphone applications and cloud services, and implementation knowledge concerning the launch and continued operation of digital services. Existing personnel with experience in these areas also participated

in the development and operation of Choisoko. The business therefore reused not an individual technology but a bundle of established resources and competences comprising technology, personnel, operational experience, and organisational capability.

According to Mr Suzuki, these features were central to the explanation provided to top management at the time. He explained that the location-information modules had already been used in car navigation systems supplied to Toyota, that Aisin had prior experience with smartphone application distribution and cloud-service integration, and that most of the relevant development investment had already been recovered through the car navigation business. Because Choisoko was primarily a software-based service, it also involved no finished-product inventory risk. The business therefore did not require substantial additional development investment compared with a conventional new business.

Although Choisoko leveraged proven technologies and therefore involved comparatively limited technological and initial financial risks, uncertainty remained regarding demand, institutional coordination, the establishment of a sustainable business model, and long-term profitability. This illustrates the strategic characteristic of 'depreciated technology' discussed in Chapter II: the strategic reuse of proven technological assets whose principal development costs had already been absorbed through an existing business.

The strategic significance of the franchise model lay in its transformation of Choisoko from a locally implemented service into a model capable of wider regional replication. Aisin faced the practical constraint that its own sales network was insufficient to support nationwide expansion. Rather than relying solely on the construction of an entirely new distribution network according to a predetermined plan, Mr Suzuki recognised the potential of his existing relationships with external managers and the regionally embedded networks of automotive-sales-related companies. The franchise model emerged through these interactions and enabled local operators to implement Choisoko in accordance with differing regional transport conditions. This means-driven and iterative response to available relationships and practical constraints is consistent with effectual decision-making (Sarasvathy, 2001).

The resulting model combined a standardised service platform with adaptation to local transport conditions. The use of established technology, the deployment of the franchise model, and institutional engagement contributed to strengthening Choisoko's business foundation. The business subsequently achieved single-year profitability in FY2023. This turn to profitability became an important legitimising achievement that supported top management's decision to continue the business (Tokuda et al., 2026).

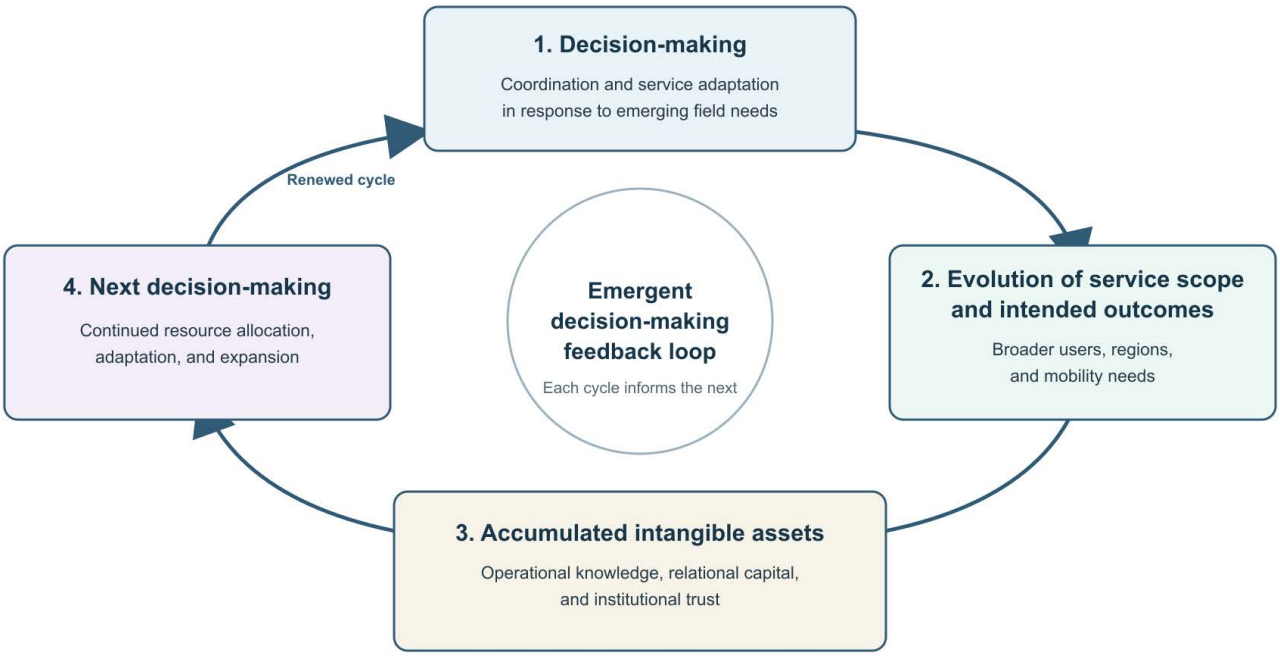
Aisin's participation in MLIT's Regional Public Transport Redesign Council was also strategically important to Choisoko's development. As described in Section IV.1, this participation repositioned Choisoko from a locally implemented transport service to a recognised participant in national policy discussions on regional mobility. It increased Choisoko's institutional visibility and recognition among municipalities, helping to reduce perceived adoption barriers and strengthen the conditions for wider diffusion.

(2) The emergent decision-making feedback loop

Building on the case account in Section IV.1 and the dynamic-reconstruction analysis in Section IV.2, this subsection focuses on the feedback mechanism underlying Choisoko's development. As new mobility needs emerged in the field, they were treated not as isolated exceptions but as signals for reconsidering the scope and operation of Choisoko. These needs also revealed operational and institutional challenges, including the need to adjust service areas, operating arrangements, and relationships with existing transport services. Aisin and its regional partners responded through local coordination, renewed decision-making, and the use of franchise relationships. The resulting implementation experience accumulated as operational knowledge, relational capital with regional actors, and institutional trust, thereby informing subsequent decisions. Feedback also operated internally. Choisoko's achievement of single-year profitability in FY2023 provided top management with a legitimising achievement that supported continued resource allocation and the continuation of the business (Tokuda et al., 2026). Externally, experience gained through implementation, responses from municipalities and users, and participation in national

[21] Interview with an Aisin project member, 27 May 2026; see also Tokuda et al. (2026).

policy discussions expanded the knowledge and relationships available for subsequent development. Through repeated iterations of this process – emerging needs → operational and institutional challenges → coordination and renewed decision-making → implementation and observed changes – Choisoko expanded beyond its initial focus on older adults to serve a wider range of users and mobility needs. At the conceptual level, this process represents a context-specific application of the dynamic spiral presented in Chapter II: decision-making → evolution of service scope and intended outcomes → accumulation of intangible assets → subsequent decision-making (Figure 15).



Source: Developed by the authors based on Tokuda et al. (2026).

Figure 15. Choisoko's emergent decision-making feedback loop

V. Case study: YYSystem (voice recognition business)

This chapter discusses the development of the voice-recognition business YYSystem, introduced in Chapter III, from its conception through demonstration to full-scale deployment. As in Chapter IV, the analysis applies two analytical lenses: the dynamic reconstruction of the logic model and the internal strategy design function. Unless otherwise indicated, the factual account in this chapter draws on interviews with Aisin project members, internal company documents, meeting records, and publicly available corporate sources. Specific quotations, quantitative claims, and figures are attributed separately to their underlying sources.

1. Business overview and development

Like Choisoko, YYSystem can be traced back to the concept of a 'horse-like car,' proposed at the Equos Research Laboratory on 17 April 1985. Research undertaken under this concept sought to enable vehicles to interpret and respond to users' needs, with voice technology serving as an important interface between vehicles and humans. In 1992, Aisin launched what it describes as the world's first voice-guided car navigation system, which provided spoken route guidance (Figure 16).[23]



Source: Aisin Corporation (n.d.).

Figure 16 shows the voice-guided car navigation system launched by Aisin in 1992. It represented an early commercial application of the voice-related technologies developed from the 'horse-like car' concept discussed in Chapter IV. These technologies subsequently formed part of the technological foundation from which YYSystem developed.

Figure 16. Aisin's world-first voice navigation system (1992)

[23] Interview with an Aisin project member conducted by the authors on 27 May 2026; Aisin Corporation (n.d.).

In 2000, the development of voice-operation functions enabled users to issue spoken instructions to the vehicle, extending the system from one-way route guidance towards more interactive communication between vehicles and humans. These developments reflected Aisin's continuing emphasis on voice as an interface for vehicle–human communication.[24]

In 2015, Aisin began exploring a new application for its voice-related technologies. The initiative arose from the recognition that insights generated in meetings were not being systematically retained within the organisation. The team therefore examined a mechanism for recording and analysing meeting discussions so that the resulting knowledge could be captured, structured, and accumulated. Building on the Equos Research Laboratory's longstanding interest in computers as intelligent agents supporting human activity, this initiative can be understood as an effort to 'turn meeting insights into organisational knowledge.'[25] One early idea was to 'make visible what high-performing employees said' by recording and analysing their spoken contributions so that the resulting insights could be retained and shared within the organisation.[26] This marked a shift in the application of Aisin's voice technologies from vehicle–human interaction towards interpersonal communication.

During the COVID-19 pandemic around 2020, mask-wearing created communication difficulties among employees, particularly on factory floors, including approximately 300 employees with hearing impairments. This situation revealed the potential for voice-recognition technology to support workplace communication. In response, Aisin developed YYProbe, the prototype application from which YYSystem subsequently evolved, and began testing it in its workplaces (Figure 17).[27]



Source: Courtesy of Aisin Corporation.

Figure 17 shows YYProbe being tested in an Aisin workplace. Employees with hearing impairments used the prototype during workplace conversations and morning briefings, and their experiences informed its subsequent development.

Figure 17. 'YYProbe' in use

[24] Interview with an Aisin project member conducted by the authors on 27 May 2026.

[25] Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

[26] Statements by Mr Suzuki and an Aisin project member at the fourth and fifth Aisin–Ritsumeikan meetings on the social-impact research project, April–May 2026. Quotations translated by the authors.

[27] Interview with an Aisin project member conducted by the authors on 27 May 2026.

Field trials involving employees with hearing impairments revealed needs that the development team might not otherwise have identified, including the need to understand conversations and morning briefings despite factory noise. These insights led to the development of an audio-analysis engine capable of filtering distinctive factory noise, alongside the speech-to-text engine. This work subsequently provided a technological basis for functions that visually represent non-speech sounds, including ambulance sirens, applause, warnings of an approaching train, and the sound of table tennis at the Deaflympics.[28]

Around 2021, YYSystem began providing its service and adopted a policy of offering the application free of charge to individual users. This decision reflected Developer E's concern that charging users would restrict access to only a subset of those who could benefit. The development team and other stakeholders shared the commitment to making the service widely accessible and also expected that free provision would broaden the user base and generate feedback. The application has therefore remained free for individual users.[29]

Until around 2023, YYSystem faced uncertainty over its continuation because it had not yet achieved profitability. Nevertheless, the executive responsible for the project judged that its social relevance would increase, particularly as a technology supporting communication and accessibility. The decision to retain YYSystem within the executive's division was therefore based primarily on anticipated social need and long-term strategic potential rather than on short-term commercial performance. This organisational protection enabled the project to continue despite the absence of short-term profitability. A similar protective arrangement was maintained during the merger of Aisin Seiki and Aisin AW, allowing the business to continue.[30]

Aisin subsequently recognised an opportunity to expand the internal use of YYSystem. Executives and the Corporate Planning Department noted that the product remained underused despite the availability of opportunities to test it within the company. YYSystem was therefore introduced into executive meetings, where its direct use deepened senior management's understanding of the product. It was subsequently featured in internal communications and used at the annual general meeting of shareholders, further expanding opportunities for its use both inside and outside the company.[31]

In 2023, Aisin also began collaborating with Microsoft. Following a presentation at a Microsoft event, Microsoft executives expressed support for the aims of YYSystem, and the relationship developed into technological collaboration. This collaboration strengthened YYSystem's technological foundation through the adoption of Microsoft Azure AI Speech, Azure OpenAI Service, and Azure AI Translator, supporting functions such as speech recognition, summarisation, and multilingual translation. The interview evidence further indicates that the collaboration contributed to the development of speaker-identification functions.[32] Microsoft's own account supports the use of Azure AI Speech, Azure OpenAI Service, and Azure AI Translator in YYSystem (Yee, 2023).

[28] Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

[29] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[30] Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

[31] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[32] Interview with an Aisin project member conducted by the authors on 22 May 2026.



Source: Adapted and translated by the authors from Equos Research Co., Ltd. (n.d.), Apple App Store (accessed 6 June 2026).

Figure 18 presents the YYProbe application interface and illustrates the expansion of its functions from real-time speech-to-text transcription to multilingual translation and AI-assisted summarisation.

Figure 18. YYProbe application interface: transcription, translation and AI-assisted summarisation

From late 2023 through 2024, YYSystem gained greater institutional visibility through engagement with the Ministry of Internal Affairs and Communications (MIC). As part of its initiative to promote accessible ICT products and services, MIC invited submissions for its Information Accessibility Good Practices 2023. According to the interview evidence, the Aisin employee responsible for deploying YYSystem was encouraged to submit the service for consideration, regarded this as an opportunity to increase its visibility, and obtained the necessary internal approval. YYSystem was subsequently selected for inclusion among the good-practice examples published by MIC (MIC, 2024).[33]

YYSystem gained further public-sector exposure in early 2024, ahead of the revised Act for Eliminating Discrimination against Persons with Disabilities taking effect on 1 April 2024. The amendment made the provision of reasonable accommodation mandatory for private businesses. At an online training programme organised by the Ministry of Economy, Trade and Industry (METI) in February 2024, Aisin presented YYSystem as an example of a corporate initiative supporting reasonable accommodation and information accessibility (METI, 2024b). This provided an opportunity to introduce the system to participants from public- and private-sector organisations.

[33] Interview with an Aisin project member conducted by the authors on 22 May 2026.

In 2024, YYSystem also began expanding into the railway sector through a universal-communication initiative promoted by Municipality I. In anticipation of international events including the Deaflympics, the municipality sought to create an environment in which people with diverse communication needs could access public services. As part of this initiative, it promoted the introduction of speech-to-text services at railway stations. YYSystem was identified as one of the candidate solutions and, following coordination with a railway operator, was subsequently installed at stations on a local line. The system was later introduced in other areas.[34]

In May 2025, Aisin held the Adding Subtitles to the World Exhibition at Harakado in Harajuku. An introduction facilitated by a Microsoft executive led to collaboration with consulting Company B in organising the event.[35] By locating the exhibition in a commercial complex rather than a facility specifically associated with welfare services, the organisers presented YYSystem to a broader public. The event helped to reframe YYSystem from a support tool primarily associated with hearing impairment towards a means of supporting communication among people with diverse hearing and linguistic needs (YYSystem, 2025a).

Later in 2025, Aisin became a Total Support Member of the Tokyo 2025 Deaflympics, and YYSystem was deployed as a communication-support tool in the athletes' village and at the competition venues (Aisin, 2025b).[36] Preparations for international use also led to the expansion of offline functions and the adaptation of non-speech-sound visualisation for users from different linguistic and cultural backgrounds. Japanese onomatopoeic expressions were supplemented or replaced with more widely recognisable icons and standardised labels, such as those representing applause and laughter.[37]

During the same period, Aisin explored applications in the entertainment and tourism sectors, including a speech-to-text trial at a live event operated by a major Japanese entertainment company.[38] In 2026, YYSystem was also integrated with portable display devices and AI smart glasses. A linked product that displays YYSystem's real-time transcription on the lenses of AI smart glasses became commercially available in June 2026 (Aisin, 2026b).[39] These developments extended YYSystem beyond smartphone-based transcription towards wearable communication support embedded more directly in users' immediate environments (Figure 19).

[34] Interview with an Aisin project member conducted by the authors on 22 May 2026.

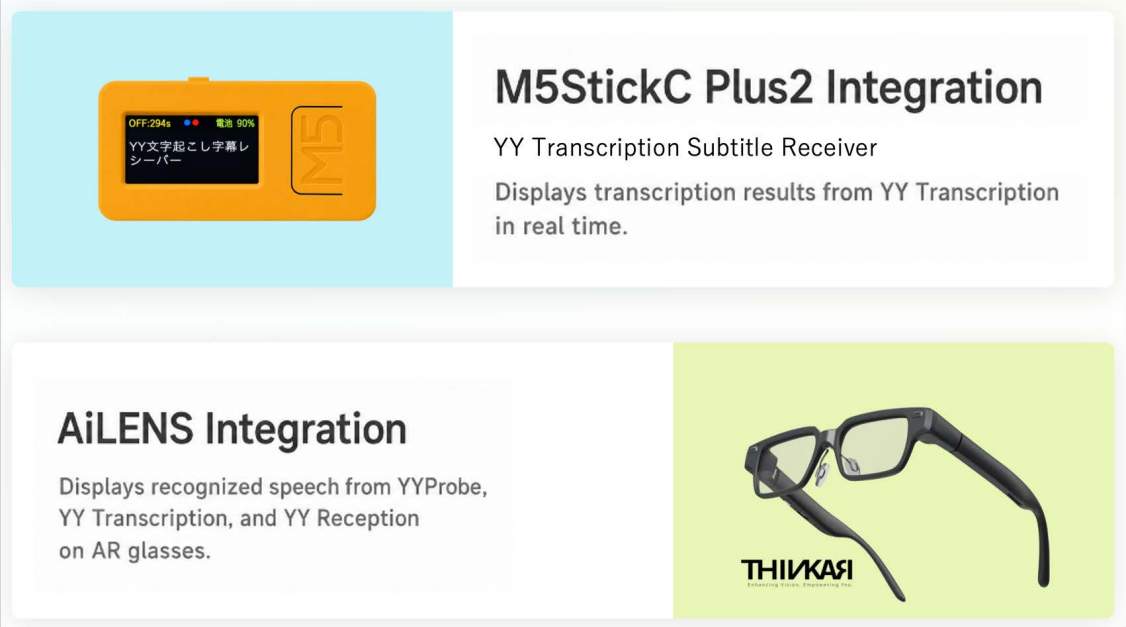
[35] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[36] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[37] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[38] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[39] Interview with an Aisin project member conducted by the authors on 22 May 2026.



Source: Adapted and translated by the authors from YYSystem (n.d.).

Figure 19 illustrates the integration of YYSystem with portable display devices and AI smart glasses. By displaying real-time speech-recognition results within the user's field of view, these devices extend YYSystem beyond smartphone-based transcription towards wearable communication support.

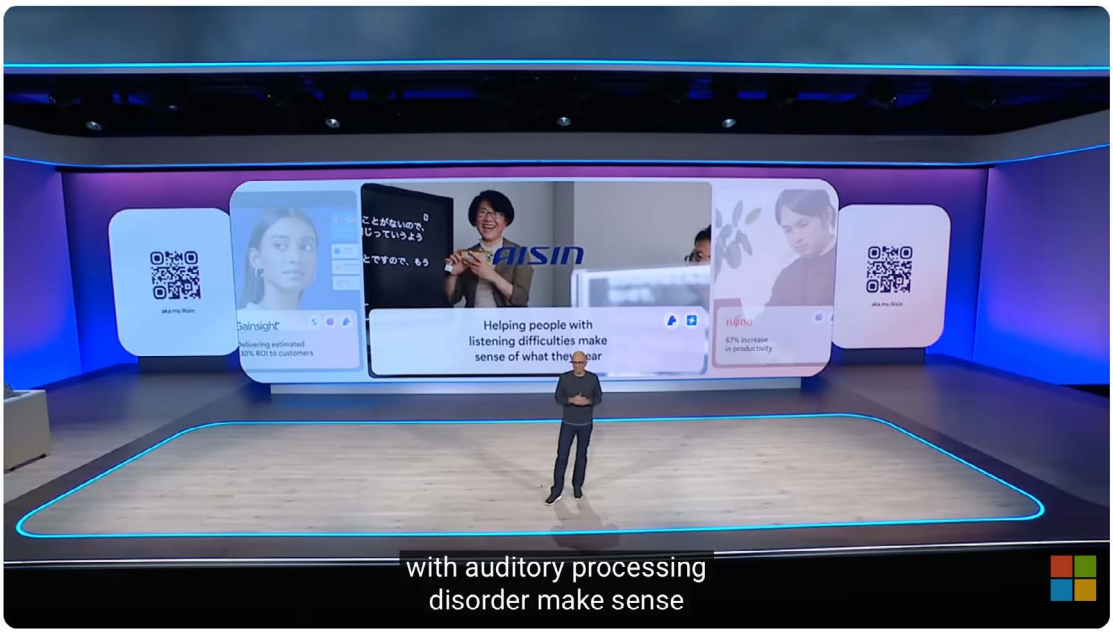
Figure 19. YYSystem integrated with portable displays and AI smart glasses

As of March 2021, YYSystem was intended primarily for approximately 300 employees with hearing impairments within Aisin.[40] Following its public release, however, its user base expanded beyond the company. In May 2025, Aisin's YYSystem and its related speech-recognition technology were featured in the opening keynote delivered by Microsoft CEO Satya Nadella at Microsoft Build 2025 (Figure 20). Their inclusion in this international technology event marked a significant expansion in YYSystem's visibility beyond Japan (Microsoft, 2025).

This growing use is reflected in the cumulative download figures for the YYSystem application series. Downloads exceeded 520,000 by December 2023, one million by November 2024, and three million in 2026 (Nakamura, Shinde and Kusaka, 2024; Aisin, 2024b; YYSystem, 2026). Interview evidence also indicates that the service spread through recommendations by existing users, word of mouth, and communication through social media, rather than solely through conventional corporate promotion.[41]

[40] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[41] Interview with an Aisin project member conducted by the authors on 22 May 2026.



Microsoft Build 2025 | Satya Nadella Opening Keynote

Source: Screenshot captured and adapted by the authors from Microsoft (2025), Microsoft's official YouTube channel (accessed 6 June 2026).

Figure 20 shows YYSystem being presented during the opening keynote at Microsoft Build 2025. Its inclusion in the keynote illustrates the increased international visibility that YYSystem gained through its technological relationship with Microsoft.

Figure 20. YYSystem presented at the Microsoft Build 2025 opening keynote

Overall, YYSystem developed from an internally oriented application into a communication-support service used more broadly in society. Building on Aisin's early technological interest in communication between vehicles and humans, the business evolved through the repurposing of voice technologies and subsequently expanded into diverse application fields through collaboration with users, public institutions, railway operators, Microsoft, and other external partners.

2. Dynamic reconstruction of the logic model

This section applies the staged programme logic model introduced in Section IV.2 to analyse YYSystem's social-impact strategy and development. Section (1) reconstructs the causal design underlying the initial workplace application, whereas Section (2) examines how that design subsequently expanded through interaction with users, organisational decisions, technological development, and external opportunities. The comparison operationalises the extension from static to dynamic explanation discussed in Chapter II.

As in Chapter IV, the logic model is used primarily as a strategic and analytical reconstruction of the intended causal pathway, rather than as evidence that all the outcomes represented in the model have been empirically demonstrated. Outputs refer to the services and functions directly produced through project activities, whereas outcomes refer to subsequent changes experienced by users or organisations. Where empirical evidence of such changes is available, it is identified separately.

(1) Impact of the initial design: a logic model originating in factory-floor communication support for employees with hearing impairments

The initial logic model presented here is the authors' analytical reconstruction based on interviews with Aisin project members, internal user-feedback records, and company documents. As described in Section V.1, its starting point was the communication difficulties experienced by employees with hearing impairments on Aisin's factory floors during the COVID-19 pandemic.

The initial model contained three principal groups of inputs. The first was the development team's recognition of the communication difficulties experienced in the workplace, together with Developer E's commitment to addressing them. The second consisted of the voice-recognition and voice-operation technologies, development personnel, and technical knowledge accumulated through Aisin's car navigation business. Although these resources had originally supported communication between vehicles and humans, they were reinterpreted and repurposed to support communication between people. The third input was the participation and feedback of employees with hearing impairments, whose workplace experiences enabled the development team to identify needs that might otherwise have remained unrecognised.[42]

The activities undertaken using these inputs included the development and workplace testing of YYProbe, the refinement of real-time speech-to-text transcription under conditions such as mask-wearing and factory noise, and the development of functions for visually representing selected non-speech sounds, including laughter and applause.[43] These activities sought to make not only spoken words but also relevant features of the surrounding communication environment accessible to users.

The principal output was a workplace communication-support service that provided real-time speech-to-text transcription and visual representations of selected non-speech sounds. The output was therefore more specific than the abstract 'visualisation of atmosphere': it consisted of concrete functions through which conversational content and relevant surrounding sounds could be communicated visually.

The anticipated short-term outcomes were an improved ability to follow workplace conversations and morning briefings, the ability to confirm spoken information in written form, and reduced anxiety about mishearing or requesting clarification. Qualitative feedback contained in Aisin's internal records provides some evidence of these immediate individual-level changes but does not indicate whether they were widely shared among users.[44]

At the medium-term level, the model anticipated increased participation in workplace conversations and meetings, together with more proactive engagement in communication by employees with hearing impairments. These represent anticipated causal developments from the short-term outcomes rather than effects that have been comprehensively demonstrated by the available evidence.

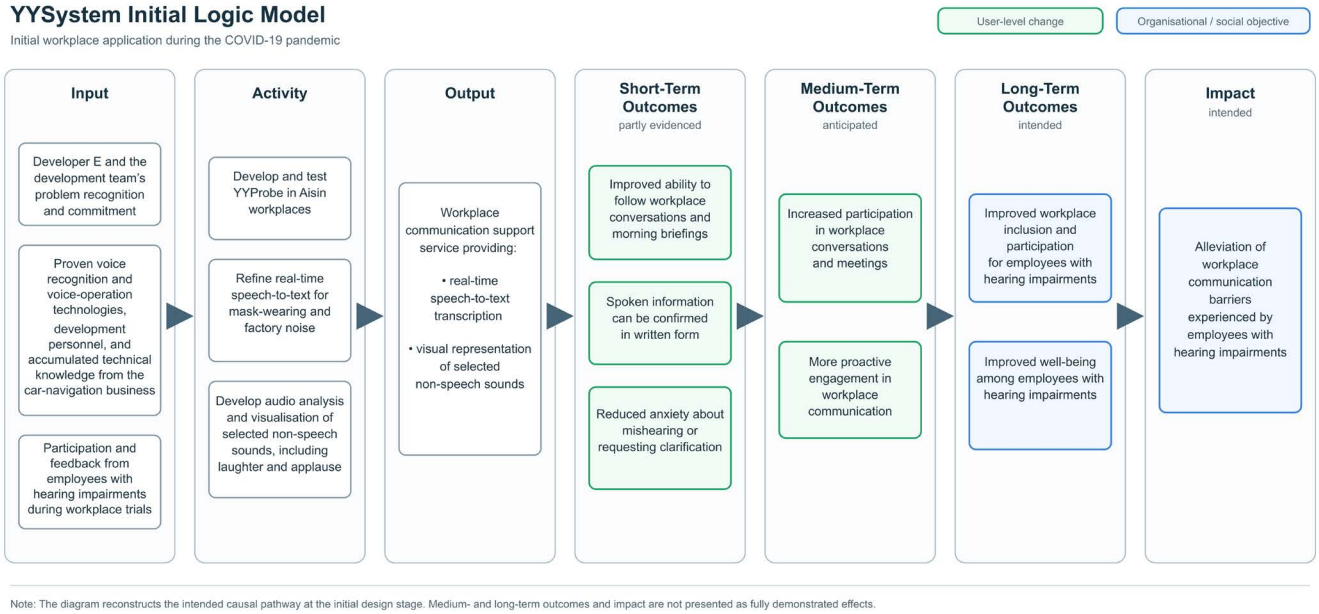
At the long-term level, the initial model envisaged improved workplace inclusion, participation, and well-being among employees with hearing impairments. These are strategic objectives represented in the reconstructed logic model, rather than achievements established through formal impact measurement.

The intended ultimate impact of the initial model was therefore the alleviation of communication barriers experienced by employees with hearing impairments in the workplace (Figure 21). The initial static model represents the causal design envisaged at this stage: existing technological and human resources supported the development of a workplace communication service, which was expected to improve access to communication and contribute over time to more inclusive workplace participation.

[42] Interview with an Aisin project member conducted by the authors on 22 May 2026.

[43] Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

[44] Aisin internal materials comprising a direct message from a YYSystem user and a compilation of qualitative user feedback collected in 2023, provided to the authors.



Source: Developed by the authors based on interviews with Aisin project members, internal user-feedback records, and company documents.

Figure 21 shows the causal structure reconstructed for YYSystem's initial design stage. It distinguishes the service and functions directly produced by the project from short-, medium-, and long-term outcomes, and clarifies which elements are partly evidenced and which remain anticipated or intended.

Figure 21. YYSystem initial logic model

(2) Impact of emergent evolution: an extended logic model towards improved information accessibility

By 2026, YYSystem's logic model had retained its original focus on supporting communication for employees with hearing impairments in factory settings while expanding substantially in response to user needs, technological opportunities, and institutional collaborations that emerged during the development of the business. This corresponds to the dynamic logic model discussed in Chapter II, which visualises how inputs, activities, outputs, outcomes, and intended impacts evolve over time.

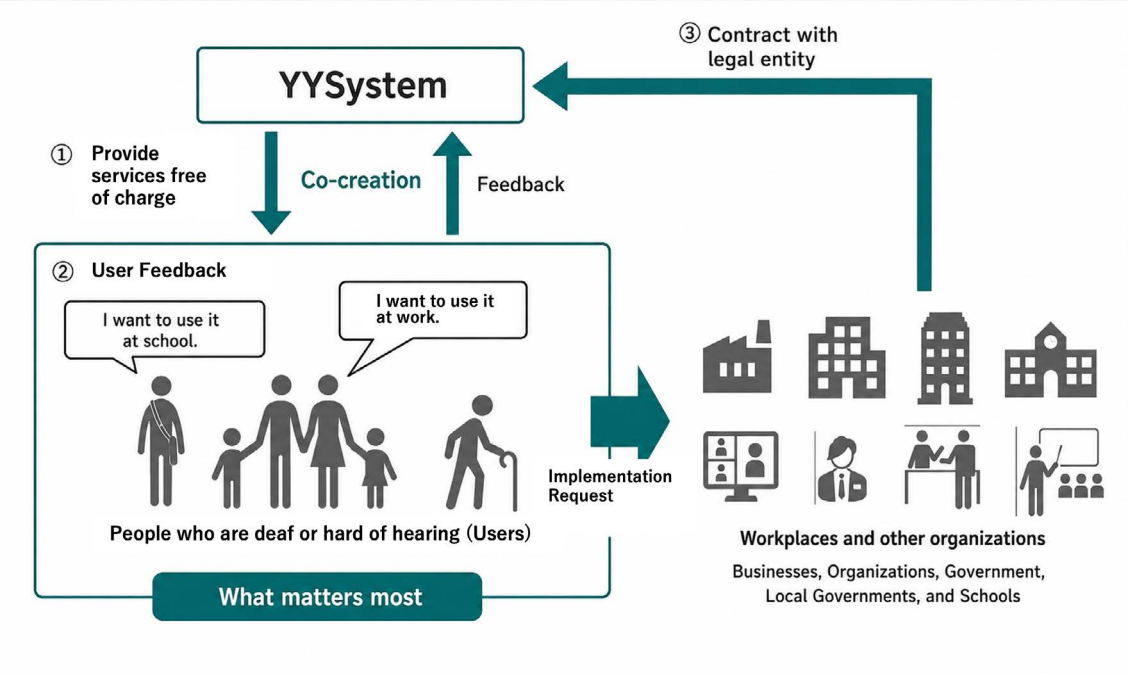
The extension of the model arose from a combination of additional organisational inputs and changes in the surrounding context. Continued support from the executive responsible for YYSystem enabled the project to remain within Aisin despite its limited short-term profitability. Collaboration with Microsoft subsequently provided additional technological capabilities and development resources. Relationships with government agencies, municipalities, transport operators, and other companies also became important relational resources for expanding the service.[45] At the same time, developments in public policy concerning disability and information accessibility created contextual opportunities for YYSystem to be presented and adopted as a response to broader social needs (MIC, 2024; METI, 2024b).

The activities undertaken through these additional resources and opportunities expanded beyond the original development of speech-to-text and non-speech-sound visualisation. They included providing the application free of charge to individual users, continually incorporating user feedback into

[45] Interview with an Aisin project member conducted by the authors on 22 May 2026; Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

product development, improving recognition and translation functions, developing AI-assisted functions through collaboration with Microsoft, extending service provision to municipalities and enterprises, and conducting public-outreach activities such as the 'Adding Subtitles to the World' exhibition.

YYSystem continued to employ a user-first co-creation approach during this expansion. Feedback from users informed the development and refinement of functions, while users and adopting organisations introduced YYSystem to other potential users. This created a recurring process in which wider use generated additional feedback, implementation knowledge, and opportunities for further adoption (Nakamura, Shinde and Kusaka, 2024).

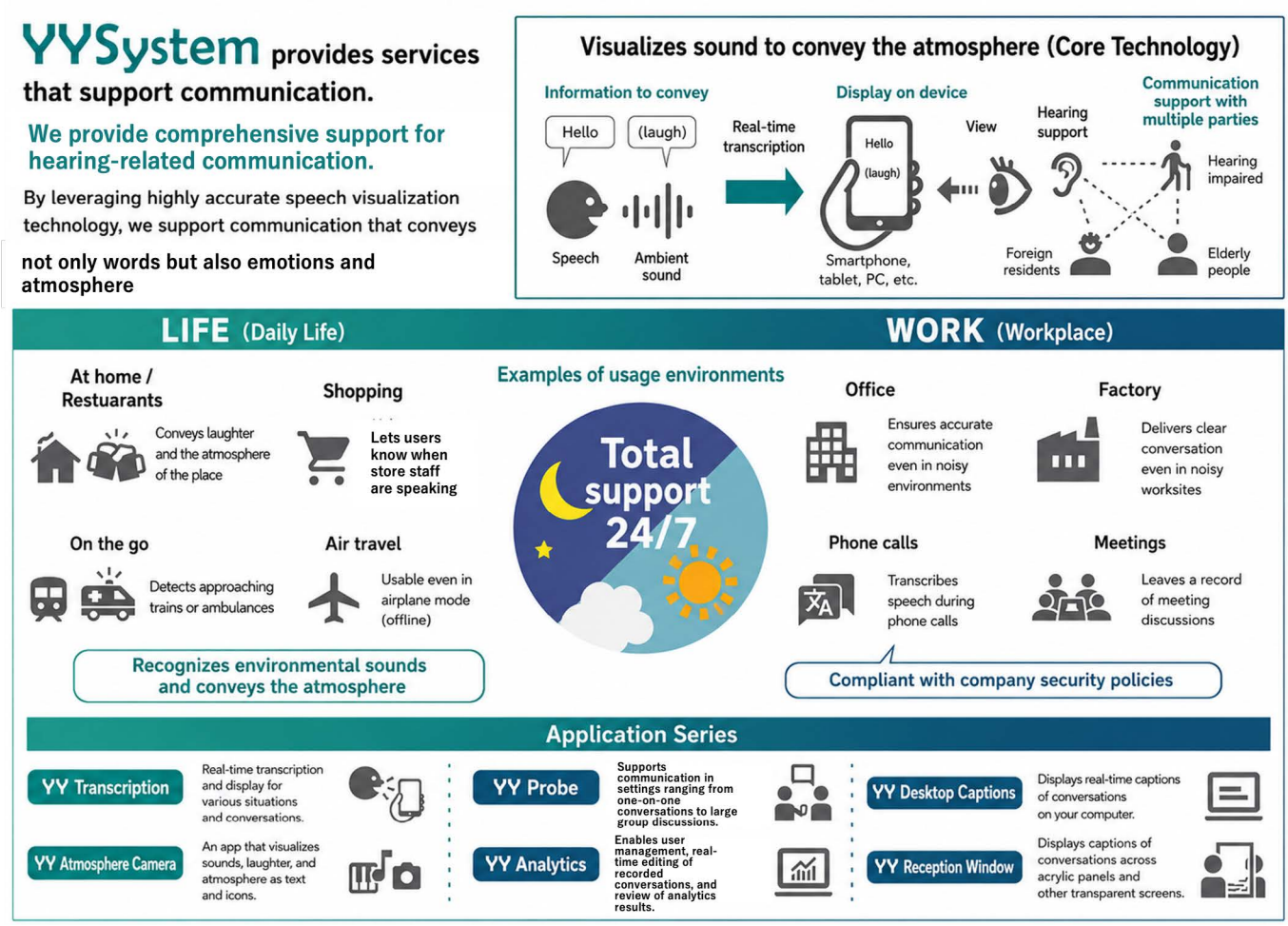


Source: Adapted and translated by the authors from Nakamura, Shinde and Kusaka (2024), p. 10.

Figure 22 shows YYSystem's user-first co-creation model. User feedback informs product improvements, while users introduce the service to potential new users, creating a cycle of functional refinement and wider adoption.

Figure 22. YYSystem's user-first co-creation model

Through these activities, YYSystem's service outputs expanded beyond its original workplace communication-support functions. Additional outputs included multilingual translation, AI-assisted summarisation and speaker identification, the visualisation of a wider range of non-speech sounds, and the provision of services adapted to different users and settings. YYSystem was also deployed in municipalities, enterprises, educational institutions, commercial facilities, railway stations, events, and other public settings. These developments represent an expansion of the services, functions, and settings directly provided through project activities, rather than evidence that all the intended social outcomes had been achieved.



Source: Adapted and translated by the authors from Nakamura, Shinde and Kusaka (2024), p. 10.

Figure 23 illustrates the diversification of YYSystem's user groups and settings of use. It shows that the service expanded beyond factory-floor support for employees with hearing impairments to municipalities, enterprises, educational institutions, commercial facilities, and communication support across languages. The figure documents the expansion of YYSystem's outputs and areas of application; it does not by itself demonstrate the achievement of the intended outcomes.

Figure 23. The diverse uses of YYSystem

These expanded outputs contributed to several short-term outcomes beyond those identified in the initial model. YYSystem enabled users to access spoken information not only in workplaces but also in educational and public settings. One user reported using YYSystem throughout three years of high school and being able to take at least brief notes during classes. Other qualitative user feedback indicated that improved access to spoken information reduced anxiety and made it easier for some users to go out.[46] These individual accounts provide partial evidence of immediate user-level changes but do not establish whether the experiences were widely shared among users.

[46] Aisin internal materials comprising a direct message from a YYSystem user and a compilation of qualitative user feedback collected in 2023, provided to the authors.

The extended model also identifies improved access to communication across linguistic boundaries as a short-term outcome. The expansion of multilingual translation functions created conditions in which foreign nationals and speakers of different languages could access spoken information more easily. Survey data collected at the 2025 'Adding Subtitles to the World' exhibition provide limited evidence of users' communication experiences in a public setting. In the survey, 36% of respondents reported that they had been able to communicate smoothly at Harakado.[47] This finding is treated as indicative user feedback rather than as evidence of a generalised impact (YYSystem, 2025b).

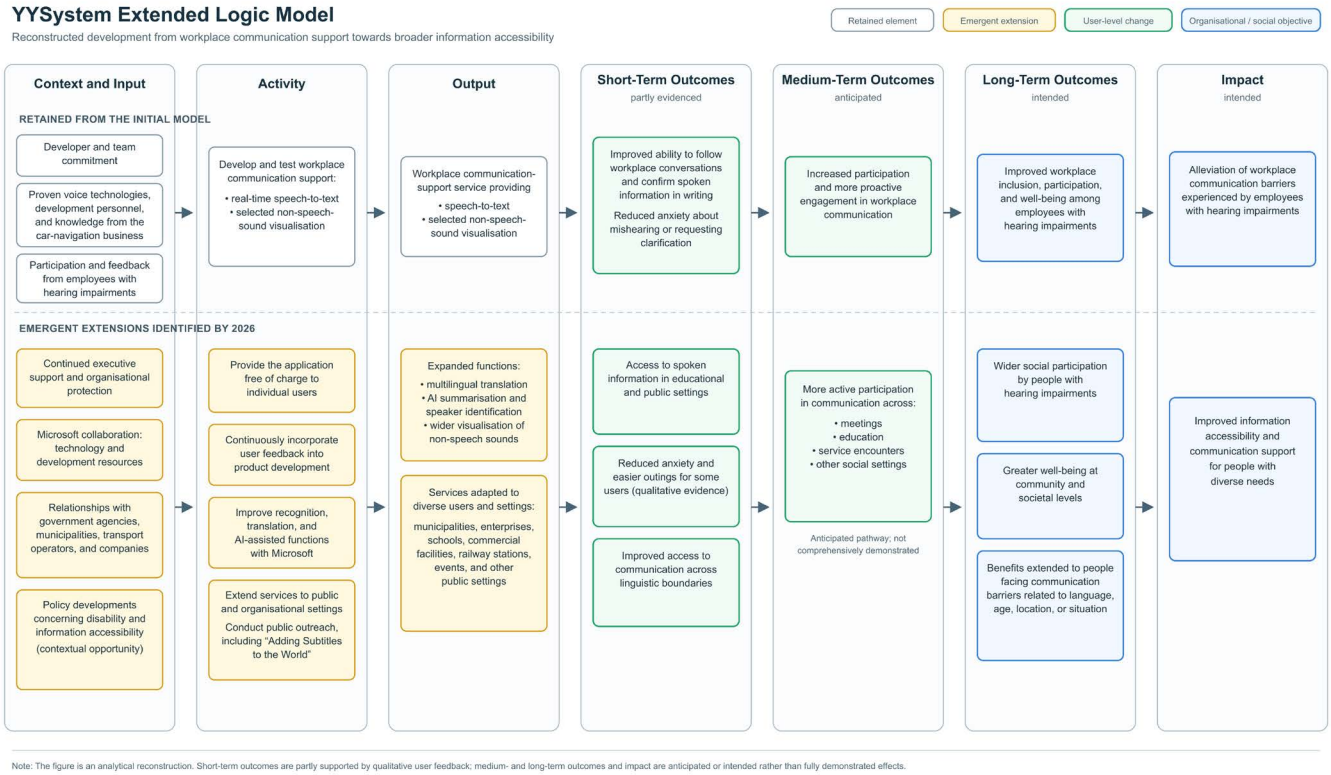
At the medium-term level, the extended model anticipated more active participation in meetings, education, service encounters, and other social settings. This included greater willingness and ability to participate proactively in communication at service counters and other public-facing settings. As YYSystem became available in municipalities, enterprises, educational institutions, commercial facilities, and transport settings, the potential scope of these participation-related outcomes expanded beyond employees with hearing impairments in Aisin's factories. These represent anticipated causal developments informed by selected user accounts and examples of adoption, rather than effects that have been comprehensively demonstrated through formal impact measurement.

At the long-term level, the extended model broadened the strategic objectives identified in the initial model. In addition to workplace inclusion, it envisaged wider social participation by people with hearing impairments and, ultimately, greater well-being at the level of communities and society. It also extended the intended beneficiaries beyond people with hearing impairments to include people facing communication barriers arising from language, age, location, or situation. These are intended long-term outcomes represented in the reconstructed logic model, rather than achievements established by the available evidence.

Accordingly, the intended ultimate impact broadened from alleviating factory-floor communication barriers for employees with hearing impairments to improving information accessibility and supporting communication for people with diverse needs. YYSystem was therefore no longer conceived solely as a workplace transcription service but as a broader communication-support infrastructure intended to facilitate participation across different social settings.

This transition from the static impact envisaged in the initial design to a dynamically evolving conception of impact illustrates the external-translator function presented in Chapter II. In the YYSystem case, wider use generated cumulative benefits: free individual provision increased opportunities to obtain user feedback; feedback informed functional refinement; experience in one setting supported adaptation to other settings; and recommendations by users and adopting organisations reduced barriers to subsequent adoption. Wider use therefore increased not only the reach of the service but also the knowledge, relationships, and institutional recognition available for its further development. The broader theoretical implications of this dynamic process are considered in the conclusion.

[47] Harakado is the abbreviated name of Tokyu Plaza Harajuku 'Harakado', a commercial and cultural complex in Tokyo's Harajuku–Jingumae district. The 'Adding Subtitles to the World' exhibition was held there from 12 to 18 May 2025 as a field-based social experiment using YYSystem (Tokyu Land SC Management Corporation, 2025).



Source: Developed by the authors based on interviews with Aisin project members, Aisin internal user-feedback materials, company documents, Nakamura, Shinde and Kusaka (2024), and the publicly available sources cited in Section V.1 and this section.

Figure 24 compares the original elements retained from the initial design with the additions identified in the reconstructed extended model. It shows how changes in contextual conditions and organisational inputs led to expanded activities and outputs, which in turn supported a broader set of partly evidenced, anticipated, and intended outcomes.

Figure 24. YYSystem extended logic model

3. Internal strategy design: the internal translation function as a strategy design tool

Whereas the dynamic-reconstruction analysis clarified what changed in YYSystem – namely, the content of its intended social impact and the trajectory of its expansion – this section examines how and why those changes became possible. It focuses on the internal strategic decision-making that supported the development and expansion of the business.

(1) The strategic characteristics of inputs

YYSystem was launched through the reuse and recombination of existing technological and organisational assets. According to Mr Suzuki's written account,[48] its technological base included voice-interface technology, integration with external voice-recognition engines, and cloud-distribution technology developed through Aisin's car navigation business. The basic software for voice guidance and voice operation had largely been completed by around 2007. This subsequently developed into an externally usable cloud-based software development

[48] Mr Suzuki's response to the authors' questions, provided via email on 5 June 2026.

kit (SDK) by around 2013 and, by around 2017, into a technological base that could operate across different types of hardware. YYSystem could therefore draw on technologies that had already been implemented and validated in existing markets without requiring the development of an entirely new technological platform.

Whereas Aisin's car navigation business had involved between 100 and 200 personnel, YYSystem was developed by a core team of only three. This was possible because the members could draw on knowledge accumulated through earlier car-navigation and SDK development, including smartphone application development and integration with external authentication systems and cloud-based AI engines. YYSystem thus illustrates a lean approach to innovation in which a small team recombined existing organisational capabilities and external technologies with limited initial resource commitments.

The principal investments in voice recognition and cloud distribution had already been recovered through the car navigation business. YYSystem primarily required additional functions and payments for external services rather than substantial new development investment or a large, dedicated organisation. Mr Suzuki explained to senior management that the technologies had established track records and therefore involved comparatively limited technological and product-quality risks. As a software-based service, YYSystem also required no physical inventory, thereby avoiding the residual-inventory risks associated with hardware products.

YYSystem could consequently be presented internally as a new business that reused technological and human assets whose principal development costs had already been recovered. This illustrates the strategic characteristic of 'depreciated technology' discussed in Chapter II: investment-recovered technology enabled the business to begin with comparatively limited technological and initial financial risks. However, uncertainty remained regarding the establishment of a sustainable business model and long-term profitability.

A second strategic feature was the decision to provide the application free of charge to individual users. Developer E argued that charging users would restrict access to the service. Free provision also increased opportunities to interact with users, obtain feedback, improve recognition accuracy, and identify applications that had not been anticipated at the outset. This means-driven and iterative approach is consistent with effectual decision-making (Sarasvathy, 2001).

As the user base expanded, YYSystem was applied in settings beyond its original focus on employees with hearing impairments. These included multilingual communication, municipal service counters, railway stations, and event operations. Such applications were not fully specified at the development stage but were progressively identified through interaction with users and adopting organisations.

When YYSystem continued to face profitability challenges, the responsible executive retained the project within their division. This organisational protection translated the project's anticipated social relevance and long-term strategic potential into continued internal resource allocation despite its limited short-term commercial performance. It therefore illustrates the internal-translator function discussed in Chapter II.

Collaboration with MIC and METI subsequently increased YYSystem's institutional visibility and positioned it as a potential response to broader information-accessibility challenges. Joint development with Microsoft also expanded its technological capabilities and international visibility, creating further possibilities for its development as a broader accessibility service.

This illustrates the expansion of the option value discussed in Chapter II. By retaining and further developing YYSystem despite its limited short-term profitability, Aisin preserved the possibility of applying the technology to uses and settings that had not been anticipated at the outset. Subsequent collaborations and user feedback enabled these latent strategic possibilities to be progressively identified and realised.

(2) The emergent decision-making feedback loop

Building on the case account in Section V.1 and the dynamic reconstruction in Section V.2, this subsection focuses on the feedback mechanism that supported YYSystem's development rather than repeating its chronology. In this mechanism, field experience, user feedback, and observed changes informed subsequent managerial decisions, leading to further adaptation and expansion of the service.

The first element of the feedback loop was the reinterpretation of the original problem through field use. YYSystem initially responded to communication difficulties experienced by employees with hearing impairments on Aisin's factory floors during the

COVID-19 pandemic. Workplace trials subsequently indicated that users required more than the transcription of spoken words; they also needed access to relevant features of the surrounding communication environment. This recognition informed the development of functions for visualising selected non-speech sounds.[49] Experience gained through field use and user feedback therefore led Aisin to redefine the original problem. What had initially been understood as a workplace communication barrier came to be understood as a broader information-accessibility challenge affecting diverse users across workplaces, public facilities, transport, entertainment, and other settings.

The second element was the accumulation of user feedback through free individual provision. By making the application freely available, Aisin expanded opportunities to interact with users and identify needs beyond those initially anticipated. Feedback from people with hearing impairments and adopting organisations informed product refinement, while a growing range of users and settings revealed additional applications for YYSystem. Wider use thus generated implementation knowledge that influenced subsequent development and deployment decisions (Nakamura, Shinde and Kusaka, 2024).

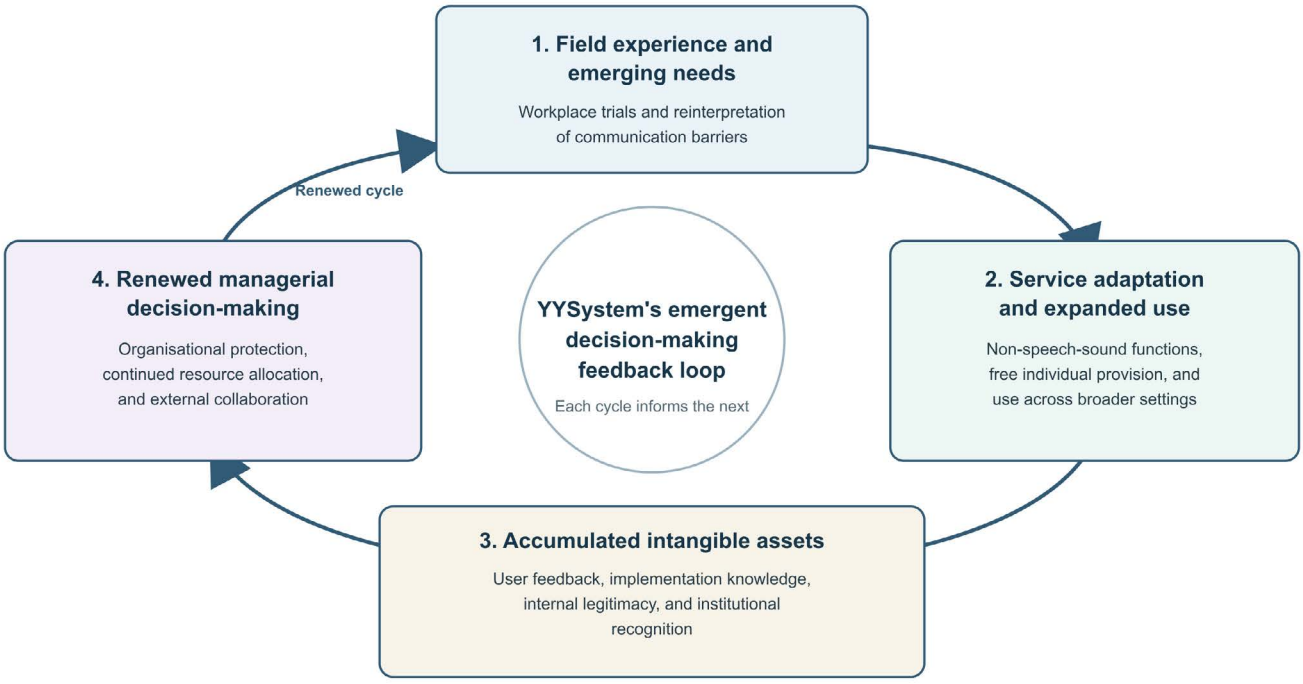
The third element was internal organisational protection and legitimacy-building. Because YYSystem had not yet achieved profitability, its continuation could not be justified solely by its short-term commercial performance. The responsible executive retained the project within their division on the basis of its anticipated social relevance and long-term strategic potential. Subsequent use in executive meetings and at Aisin's annual general meeting of shareholders also enabled senior management to experience the service directly. These experiences, together with user feedback and examples of external adoption, strengthened internal understanding of the project and supported continued resource allocation.[50]
The fourth element was the expansion of institutional and technological opportunities through external collaboration. Engagement with MIC and METI connected YYSystem with developments in public policy concerning disability and information accessibility (MIC, 2024; METI, 2024b). Implementation at Yurikamome station information desks in preparation for the Tokyo 2025 Deaflympics further extended its application beyond its original organisational context (Aisin, 2025b). YYSystem did not simply respond passively to these external developments; Aisin connected emerging public needs with the capabilities of the service and used the resulting implementation experience to inform further development.

Collaboration with Microsoft added technological capabilities and international visibility. The use of Microsoft Azure AI services supported functions such as summarisation and multilingual translation, while the collaboration created opportunities to apply YYSystem across a wider range of linguistic, cultural, and organisational settings (Yee, 2023). These developments further broadened the problem definition from workplace communication support for employees with hearing impairments towards information accessibility for people experiencing diverse communication barriers.

Through repeated iterations of this process – field experience and emerging needs → service adaptation and expanded use → accumulated user feedback, implementation knowledge, and institutional recognition → renewed managerial decision-making – YYSystem developed from a workplace communication-support service into a broader communication-support infrastructure. At the conceptual level, this process illustrates the dynamic spiral presented in Chapter II: decision-making → evolution of intended outcomes and observed changes → accumulation of intangible assets → subsequent decision-making.

[49] Interview with an Aisin project member conducted by the authors on 22 May 2026; Aisin internal materials comprising qualitative feedback from YYSystem users.

[50] Interview with an Aisin project member conducted by the authors on 22 May 2026.



Source: Developed by the authors based on the evidence and analysis presented in Sections V.1–V.3.

Figure 25 summarises this feedback loop. It shows how field experience and emerging needs led to service adaptation and expanded use, which generated user feedback, implementation knowledge, and legitimacy that informed renewed managerial decision-making.

Figure 25. YYSystem's emergent decision-making feedback loop

VI. Discussion and conclusion

1. What the second case is for

The Choisoko case has been reported previously. Tokuda et al. (2026) analysed it as a single case and drew three conclusions: that the strategic character of the inputs, in the form of investment-recovered navigation technology, supplied the decisive ground for internal justification; that a feedback loop of emergent decisions became the source of competitive advantage; and that single-year profitability in FY2023 functioned as a threshold of internal legitimacy without which the business could not have been sustained. That study noted that generalisation would require comparison, and identified the comparison with YYSystem as the task of the present article.

This chapter carries out that comparison, and it does not simply confirm the earlier findings. The first two hold across both cases. The third does not. YYSystem took root inside Aisin without ever reaching the threshold that the single-case study identified as indispensable, and it could not have reached it, because the decision to provide the application free of charge to individual users removed the possibility of demonstrating profitability at all. A business that cannot in principle produce financial proof nonetheless secured continued allocation for several years and expanded into fields its designers had not envisaged. The threshold of internal legitimacy is therefore not singular.

Establishing what the second form of legitimacy consists in, and what makes it affordable, is the contribution of this chapter. Table 2 summarises the two logic models in static and dynamic form. Section 2 develops the argument in four steps. Table 3 extracts the practice findings and academic contributions, and Sections 4 to 6 draw the implications, state the limitations and conclude. As in Chapters IV and V, changes supported by the available evidence are distinguished throughout from outcomes that are anticipated or intended.

Table 2. Static and Dynamic Logic Models in the Two Cases

	Choisoko – Static (initial design)	Choisoko – Dynamic (reconstructed, 2026)	YYSystem – Static (initial design)	YYSystem – Dynamic (reconstructed, 2026)
Inputs	Mr A's planning capability; Mr C's cooperation at Company A; car-navigation technologies (map and location information, map-matching, route sequencing, route search) whose development investment had already been recovered; engineers from the same business.	Adds Mr Suzuki's strategic leadership and the regional networks of automotive-sales-related companies. Contextual change: national policy recognition of mobility gaps, municipal concern over retaining young people, demand from non-residents.	Developer E and the team's problem recognition; voice-recognition and voice-operation technologies, personnel and knowledge from car navigation (basic software largely complete by 2007; cloud SDK by 2013; cross-hardware base by 2017); participation of employees with hearing impairments.	Adds continued protection by the responsible executive; Microsoft collaboration providing technological capability; relationships with government agencies, municipalities and transport operators. Public policy on disability and information accessibility forms the contextual opportunity.
Activities	Designing the shared-ride concept; collaboration with Company A and municipalities; efficient route and service design.	Designing and introducing the franchise model; participating in the MLIT Regional Public Transport Redesign Council; developing services for high-school students and other user groups.	Developing and testing YYProbe in Aisin workplaces; refining speech-to-text under mask-wearing and factory noise; developing audio analysis and visualisation of selected non-speech sounds.	Providing the application free of charge to individuals; continuously incorporating user feedback; developing AI-assisted functions with Microsoft; extending provision to municipalities and enterprises; public outreach including the 'Adding Subtitles to the World' exhibition.
Outputs	A regional shared-ride transport service for older adults' shopping and medical visits.	A replicable franchise-based delivery arrangement (approximately 70% of contracts as of 2025) and services for high-school students; 83 municipalities in FY2024, 97 as of May 2026; membership above 200,000.	A workplace communication-support service providing real-time transcription and visual representation of selected non-speech sounds.	Multilingual translation, AI-assisted summarisation and speaker identification; wider non-speech-sound visualisation; provision adapted to municipalities, schools, stations and events; cumulative downloads of three million in 2026.
Outcomes	Short-term: greater ability to travel independently (59.2%); more opportunities to go out (32.55%); essential mobility after licence surrender (55.2%). Medium-term: access to shopping (42.4% of trips) and medical services (66.4%); more social interaction; reduced reliance on unsafe driving.	Easier adoption by municipalities and local operators; greater institutional visibility; improved access to local high schools; improved business viability, with single-year profitability from FY2023. The medium-term outcomes extend across more regions and beneficiary groups.	Improved ability to follow conversations and morning briefings; spoken information confirmable in writing; reduced anxiety about mishearing, partly evidenced by qualitative feedback. Increased participation in meetings is anticipated rather than demonstrated.	Access to spoken information in educational and public settings; reduced anxiety and easier outings; communication across linguistic boundaries (36% of respondents at Harakado reported communicating smoothly). More active participation across settings is anticipated.
Impact	Intended: alleviating mobility difficulties among older adults.	Intended: addressing mobility gaps across generations and user groups, with Choisoko positioned as regional mobility infrastructure.	Intended: alleviating workplace communication barriers experienced by employees with hearing impairments.	Intended: improved information accessibility for people facing barriers arising from hearing, language, age, location or situation.

Source: compiled by the authors from Chapters IV and V. Outputs are the direct products of activities; outcomes are changes experienced by beneficiaries or other actors. Items marked as anticipated or intended represent causal pathways in the reconstructed models rather than demonstrated effects.

2. Discussion

2.1 Two thresholds of internal legitimacy

In Choisoko the threshold was financial. Concern had grown within the company by around 2023 as to whether the business could remain viable while continuing to generate social value, and single-year profitability in FY2023 answered that concern directly. It demonstrated that the business was self-sustaining, and it did so in the only currency that a resource-allocation process designed for volume production reads without translation.

In YYSystem no such demonstration was available. Developer E's judgement that charging would restrict access to only a subset of those who could benefit foreclosed the revenue line that would have produced financial proof. Until around 2023 the business faced uncertainty over its continuation, and in ordinary circumstances reduction or suspension would have been considered. What sustained it was of a different kind. The responsible executive judged that the social relevance of the technology would increase and retained the project within their division; senior management came to use the service directly in executive meetings and at the annual general meeting of shareholders; and external bodies, MIC, METI, Microsoft and the Tokyo 2025 Deaflympics, recognised it publicly. Each of these made the impact of the business visible inside the firm, and visibility, accumulating, performed the function that profitability performed in the other case.

The distinction is not merely descriptive. Financial proof is a discrete event: it arrives in a particular year and settles the question. Visibility is cumulative and reversible, and it depends on individuals who are willing to carry the business until enough of it has accumulated. This is why the second form is more fragile, and why a firm that recognises only the first will terminate businesses of the YYSystem type without ever registering what it has lost. It is also why the extended logic model matters more, not less, where profitability is unavailable: where there is no financial fact to report, the translation of accumulated outcomes into terms the firm recognises is the only route to legitimacy that remains.

2.2 What depreciated-technology reuse buys

Tokuda et al. (2026) identified the reuse of investment-recovered technology as the ground of internal justification at the point of entry, and this study confirms that account in both cases. The comparison, however, shows that its more consequential effect comes later. Because the principal development investment had already been recovered through the car-navigation business, neither venture made a large recurring claim on corporate resources, and the annual decision not to stop it was correspondingly cheap. In Choisoko this kept the cost of replication low enough that reach could grow ahead of revenue. In YYSystem it did something more specific: it made the years before legitimacy accumulated affordable. Reuse did not merely lower the barrier to entry; it bought the time that visibility requires.

The reuse was also bundled. What travelled from the car-navigation business was not an isolated technology but quality-assurance capability developed through long-term market use, operational experience with cloud services and smartphone applications, and the personnel who held that experience. The consequence is visible in the extreme in YYSystem, where a core team of three developed a business that the parent line had required 100 to 200 people to run. This is a lean innovation model in a precise sense: leanness is achieved not by working with fewer resources but by working with resources whose cost has already been absorbed elsewhere in the firm. The recombination of assets already to hand also places both cases close to bricolage (Baker and Nelson, 2005), with the distinguishing feature that the assets are corporate rather than scarce.

Two clarifications follow. First, the reduction in risk is partial. Because the technologies were proven, technological and market-quality risk was low; uncertainty over the establishment of a sustainable business model and long-term profitability remained undiminished in both cases, and in YYSystem it was never resolved. Second, this account differs from conventional models of technological diffusion in two respects. In the standard case a mature technology is redeployed into a second commercial market where it still commands price-competitive value, and the logic is amortisation and margin. Here the asset moves towards a domain that ordinary screening had excluded, and what makes the move viable is not that the technology is inexpensive but that its cost has already been borne, which removes the hurdle-rate test rather than passing it. And what returns is not only revenue: municipal trust, operational data, user feedback and institutional recognition re-enter the firm's decision process as grounds for continued allocation. A linear diffusion model has no representation for that return path.

2.3 Effectual decisions and the accumulation of option value

The decisive moves in both cases were means-driven. The franchise model arose from Mr Suzuki's recognition that Aisin's own sales network could not support nationwide expansion, together with the regionally embedded networks that were available to him. Free provision arose from a commitment to access, and had the further effect of multiplying opportunities to interact with users, accumulate feedback, improve recognition accuracy and identify applications that had not been foreseen. Both are effectual rather than causal decisions (Sarasvathy, 2001).

Their cumulative consequence is option value, and the comparison shows why this matters most in the case that lacked financial proof. Because the initial commitment was small, YYSystem functioned as a low-cost call option on possibilities invisible at the outset, and each year of continuation widened rather than narrowed the set: collaboration with MIC and METI, the partnership with Microsoft, deployment at the Deaflympics, and integration with wearable devices were all realised from possibilities that retention had preserved. Where profitability cannot serve as the argument for continuation, expanding option value is what an executive protecting such a business is in effect defending.

2.4 Reinterpretation of the problem through practice

In both cases the trajectory of outcomes did not merely extend but changed in kind, and with it the definition of what the business was for. Choisoko began as support for older adults' shopping and medical visits and became regional mobility infrastructure addressing gaps across generations and user groups. YYSystem began as factory-floor communication support and became information accessibility for people facing barriers of hearing, language, age, location or situation. Field experience redefined the problem rather than only enlarging the service.

This redefinition is what makes the two thresholds comparable. In Choisoko the widening of beneficiaries drove adoption, and adoption produced the revenue that crossed the financial threshold. In YYSystem the widening of use contexts was itself the evidence: each new field in which the service proved necessary added to the visible case for its continuation. In both, the extended logic model's return path is what converted the redefinition into an internal argument. The difference lies only in the currency in which that argument was finally denominated.

3. Practice findings and academic contributions

Table 3 extracts from the two cases the strategic innovations, the actors and actions through which they were realised, the institutional settings that conditioned them, the literatures within which they can be framed, and the contributions of this study, distinguishing what the second case confirms from what it qualifies.

Table 3. Practice findings and academic contributions from the two cases

	Strategy innovations	Key actors	Key actions	Institutional settings	Academic framing	New academic contributions
Choisoko	Entry on investment-recovered car-navigation assets, reused as a bundle of technology, personnel, quality-assurance experience and operational capability; the franchise model; revenue combining fares, area-sponsor contributions and franchise revenues.	Mr A and Mr B in new-business planning; the senior executive who received the direct presentation and circulated it; Mr C at Company A; Mr Suzuki; the outside director; municipalities; area sponsors; franchisees and local taxi operators; MLIT.	Repurposing the location-information suite; presenting directly to a senior executive after limited interest from the immediate superior; co-designing with a municipality; introducing the franchise model; joining the MLIT council.	Regional depopulation and licence surrender by older adults; mobility policy fragmented across MLIT, MHLW and MEXT; municipal subsidy and comprehensive-agreement arrangements; incumbent operators, relative to whom the service is complementary.	Depreciated-technology reuse; effectuation (Sarasvathy, 2001); bricolage (Baker and Nelson, 2005); network externalities; the extended logic model.	Confirms the threshold of internal legitimacy reported for this case: single-year profitability in FY2023 supplied financial proof and secured continued allocation. Adds that the reuse was bundled, competences travelling with the technology, which is what made replication affordable.
YYSystem	Redeployment of voice technologies from vehicle–human to interpersonal communication; free provision to individuals as a means of widening access and generating feedback; development by a core team of three, against 100–200 in the car-navigation business.	Developer E and the three-person team; employees with hearing impairments as co-developers; the executive who retained the project within their division; the Corporate Planning Department; MIC and METI; Microsoft; municipalities and railway operators.	Reusing the voice SDK; visualising non-speech sounds in response to field trials; adopting free provision; using the service in executive meetings and at the shareholders' meeting; submitting to MIC good practices; collaborating with Microsoft; deploying at the Deaflympics.	COVID-19 mask-wearing on the factory floor; the revised Act for Eliminating Discrimination against Persons with Disabilities, mandatory for private businesses from April 2024; MIC's information-accessibility programme; the Deaflympics; no paying individual user.	Depreciated-technology reuse; lean innovation; effectuation; option value; organisational legitimacy; the extended logic model.	Qualifies that threshold. The business took root without ever reaching profitability, because free provision removed the possibility of financial proof. Legitimacy came instead from making the impact visible, and the reuse of recovered assets is what made the intervening years affordable. Also demonstrates lean innovation: a three-person team.
Cross-case	Both enter on assets whose development costs had already been recovered; the difference lies in whether the business could subsequently generate revenue from its beneficiaries.	In both, an individual manager absorbed the risk of an unproven proposition at a decisive moment: a direct presentation in one case, retention within a division in the other.	Both convert accumulated outcomes into grounds for the next allocation decision, through the feedback loops set out in Figures 15 and 25.	A large manufacturer's resource-allocation routines, designed for volume production, for which neither business was a natural fit.	The extended logic model as an internal translator, giving CSV a logic of implementation (Porter and Kramer, 2011; Menghwar and Daood, 2021; Nicholls and Tomkinson, 2015).	The threshold of internal legitimacy is not singular but takes two forms, financial proof and visibility, and each requires a different evaluation regime. Depreciated-technology reuse is distinguished from conventional technological diffusion by the direction of redeployment and by what returns from it.

Source: compiled by the authors from Table 2 and Chapters III–V.

4. Implications

For research, the study qualifies the single-case account from which it proceeds. The threshold of internal legitimacy is not singular: financial proof and visibility are alternative currencies, and the second is available to businesses for which the first is foreclosed by design. It specifies what depreciated-technology reuse buys in each case, namely affordable replication where revenue is possible and affordable patience where it is not, and it identifies bundled reuse and lean innovation as the organisational forms this takes. It also distinguishes this mode of reuse from conventional technological diffusion by the direction of redeployment and by the return path. Together these give the extended logic model, as an internal translator, the empirical content that a single case could not supply, and thereby give CSV the implementation logic it left unspecified.

For practice, three implications follow. First, evaluation gates should be matched to the currency available to the business: a venture that has foreclosed revenue by design will fail a gate built for financial proof, and asking instead whether the definition of the problem is still expanding is the more informative test. Second, because visibility accumulates only if someone carries the business meanwhile, the protective role that both cases depended upon should be made explicit rather than left to individual disposition. Third, investment-recovered assets should be valued not only for the entry they permit but for the patience they finance.

5. Limitations and further research

Four limitations bear on these claims. Both cases are businesses that took root, so the study identifies conditions present where this occurred rather than conditions distinguishing them from ventures that did not. Both are drawn from a single firm in a single national context, so the institutional settings in Table 3 are held constant rather than varied. The logic models are analytical reconstructions in which short-term outcomes are partly evidenced by survey and qualitative data while medium- and long-term outcomes remain anticipated or intended. And the reconstruction of decision processes relies substantially on retrospective interviews and internal materials, corroborated by documentary sources where available.

Four lines of further work follow: a design incorporating terminated ventures, which would allow the two thresholds to be tested rather than illustrated; extension to firms without substantial investment-recovered technological stock, which would establish the scope of the depreciated-technology argument; longitudinal study of whether a business sustained by visibility later crosses the financial threshold, or the reverse; and operationalisation of the return path, so that the extended logic model becomes usable in ongoing management rather than only in retrospective reconstruction. The quantitative substantiation of the financial rationale for reused assets, identified as an open question by Tokuda et al. (2026), also remains outstanding.

6. Conclusion

This article set out to test, through a second case, an account of how social impact businesses take root inside large corporations. Two of the three earlier findings hold: the strategic character of investment-recovered inputs, and the feedback loop of emergent decisions, operate in both cases. The third requires qualification. Profitability was decisive for Choisoko, but YYSystem took root without crossing that threshold, and by design could not have crossed it, being sustained instead by the accumulation of visible impact, carried by an executive's protection until external recognition made the case unarguable.

What the two cases share is more fundamental than what divides them. Each began from assets whose cost had already been borne, which permitted entry into domains that ordinary screening had excluded and, more importantly, kept the recurring claim on corporate resources small enough that continuation remained affordable while outcomes accumulated. Each redefined its own problem through practice. And each converted what accumulated into grounds the firm's decision process could recognise. The extended logic model, understood as an internal translator rather than an external report, is what performs that conversion, and the comparison shows that it does so in more than one currency.

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