



# Business plan and Growth potential

ACSL Ltd.  
February 14<sup>th</sup>, 2022

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## Company Outline

Industrial drone manufacturer



|                                |  |
|--------------------------------|--|
| <b>Corporate Name</b>          | ACSL Ltd.  |
| <b>Representative</b>          | Satoshi Washiya (President and COO)  |
| <b>Established</b>             | November 2013  |
| <b>Location</b>                | Hulic Kasai Rinkai Building 2F, 3-6-4 Rinkaicho, Edogawa-ku, Tokyo 134-0086, Japan                                 |
| <b>Capital</b>                 | 4.5 bn JPY (as of Sept. 2021)  |
| <b>No. of employees</b>        | 74 (as of Dec. 2021)   |
| <b>Description of Business</b> | Manufacturing and providing industrial drones. Providing automation solution services using autonomous technology. |

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- 1 Corporate overview, Core competency, and Business model**
- 2 Market overview**
- 3 Medium-term management policy “ACSL Accelerate FY22”**
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**Eliminate “severe labor shortage” to  
realize a free, open and sustainable world**

# The Problem– Disequilibrium in the Labor Market

Labor-savings and unmanned operations are an urgent social issues to solve, as demand and supply of labor force is becoming more and more imbalanced

## Demand for Labor

50-yr old  
infrastructure<sup>1</sup>

**x 2.5**  
(2018~2023)

Logistics flow<sup>2</sup>

**x 5**  
(1988~2018)

## Supply of Labor

Rate of population  
decline<sup>3</sup>

**-26%**  
(2020~2060)

Labor force<sup>4</sup>

**-35%**  
(2020~2060)

1: Ministry of Land, Infrastructure, Transport and Tourism, "Social Infrastructure Today and in the Future, Social Infrastructure Today and in the Future"

2: Ministry of Land, Infrastructure, Transport and Tourism, "Fiscal Year 2018 Delivery Service Performance Data" (Japanese only)

3: "White Paper on Aging Society 2019" by the Cabinet Office

4: "White Paper on Aging Society (Entire Version)", Cabinet Office





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## MISSION

**Liberate humanity through technology**

## VISION

**Revolutionizing social infrastructure by pursuing cutting-edge robotics technology**

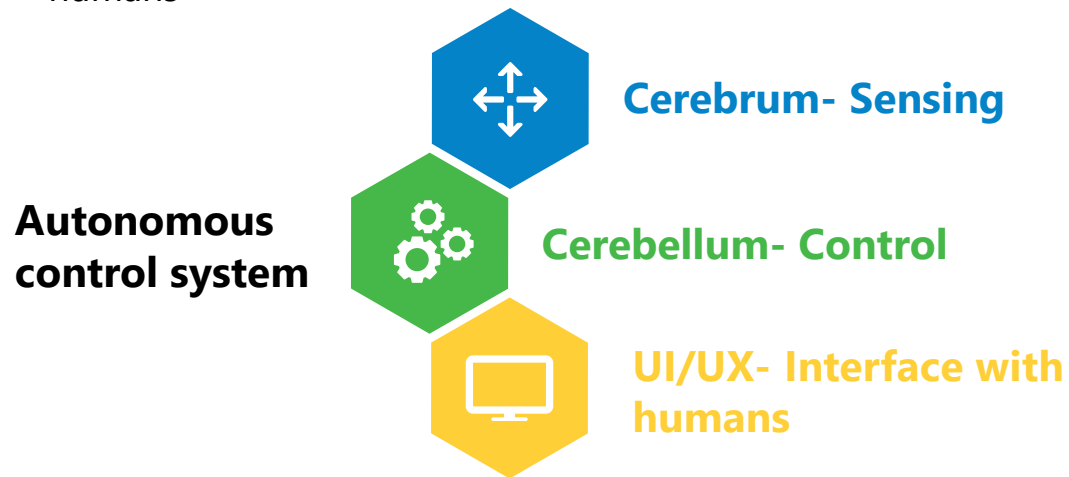
# ACSL - a pioneer in drone manufacturing in Japan



ACSL manufactures application-specific drones using proprietary autonomous control technology, and upgrades operations at client site

## Core technology: Autonomous Control System

Our proprietary control technology consists of the "cerebrum", which actively grasps the surrounding environment, the "cerebellum", which controls movement of robotics and "UI/UX" that serves as the interface with humans



## Competitive advantage: Knowing our Client

ACSL works closely with clients to understand their operations and the difficulties they face. We develop drones tailored to individual applications through trials and testing.



# ACSL - What we do

Our business constitutes demonstration and sales of platform drones and promoting development, mass production, and sales of application-specific drones.



## Solution development

Sales of evaluation and platform drones for technology verification, as well as proof-of-concept trials and custom development based on customer requests



## Sales of application-specific drones

Development, mass production, and sales of application-specific drones using the knowledge gained from demonstration tests



# Drone market value-chain and where ACSL stands

ACSL, the only listed drone manufacturer, has the capability to provide both agile prototyping and mass production to meet a wide-range of customer demands



## Solution development

Sales of platform drones for testing, trials and customized developments



## Application-specific drone sales

Development, production and sales of mass-produced drones for specific-applications

**The only listed drone manufacturer out of 700 drone related companies**

**Using Japanese mass production capability**

**ISO 9001 (Quality)  
ISO 27001 (Security)**

**Proprietary autonomous control system**

# Potential of our autonomous control system

ACSL's proprietary autonomous control system is being applied in drones, one of the most difficult robotics environments, and this technology can be adapted to a wide variety of robotics

## Autonomous control system

### Cerebrum- Sensing

Technology that uses sensors such as cameras and lidar to actively understand one's surrounding environment.

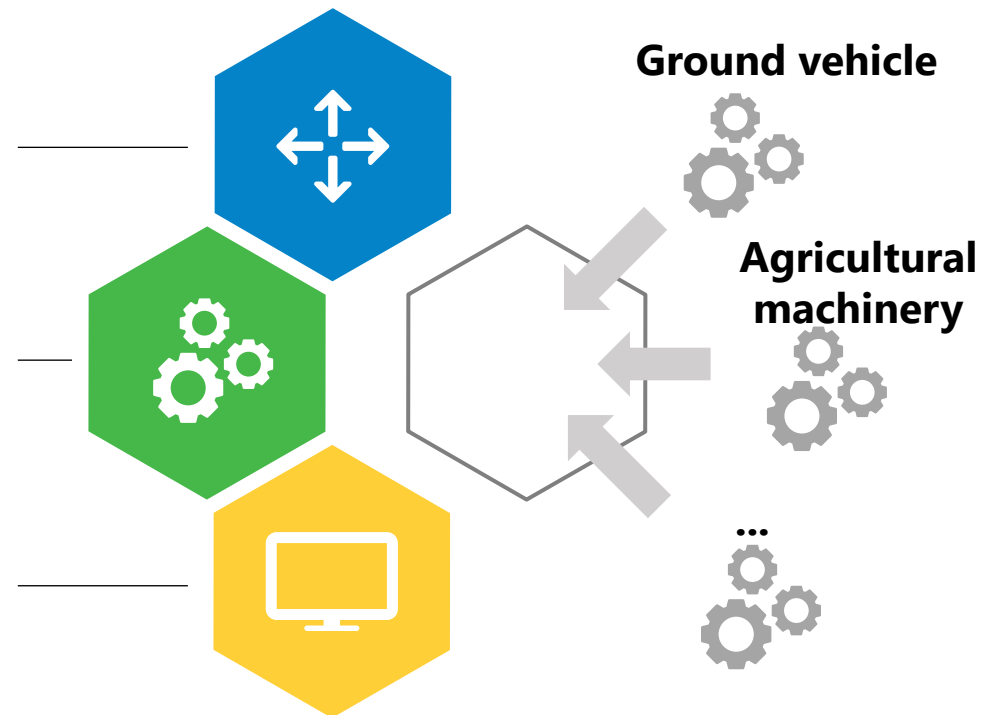
### Cerebellum- Control

Technology that controls operations such as posture, orientation changes, and movement based on information from the cerebrum.

### UI/UX- Interface with humans

Technology that enables humans to interact with robots, such as monitoring their status and issuing commands.

## Adaptation

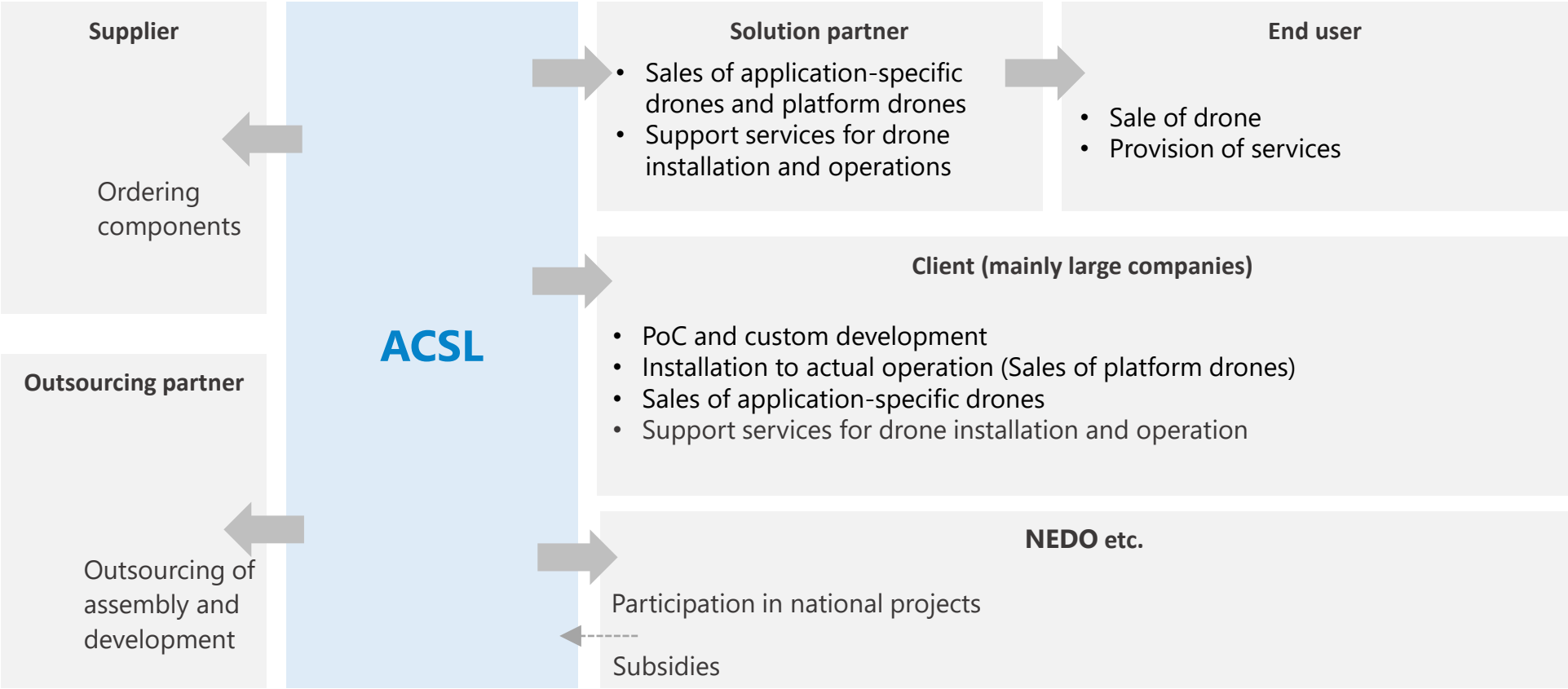


Autonomous control systems can be adapted to a wide variety of robotics to enable them to be autonomous

# ACSL - Our Business Model



The main source of revenues is from the provision of demonstration services and the sale of drones our clients



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# Macro environment surrounding drone market

There have been changes in the macro environment surrounding the drone market in Japan, all of which are tailwinds for growth.

# 01

## Economic Security

Awareness increasing around data security and technology leaks, leading to domestication and demand for secure drones

# 02

## De-carbonization Clean Energy

Increase in clean energy investing creating more O&M demand. . Trend to see drones as de-carbonization technology

# 03

## Digital Garden City, Smart city

Increase in the use of drones for deliveries and inspections to achieve sustainable, regional development

# 04

## Aviation Law revision (aka Level 4)

Aviation Law revised to allow flight over manned areas and establish official drone pilot license in FY22



# Increased economic security and security awareness

The Japanese government is demanding security measures for drones as well as 5G devices, and is becoming increasingly conscious of economic security

## Regulation to promote drone security

The Japanese government passed legislation to promote adoption of drones and 5G, while ensuring cyber security<sup>1</sup>

February 2020

## Government policy of procuring "secure" drones

The Japanese government has announced that it will procure only "secure drones" and will "promptly replace existing drones that are already in place"<sup>3</sup>

June 2020

September 2020

December 2021

## "Secure" drone development for government procurement

NEDO has allocated 1.61 billion JPY for development of a high-security, low-cost standard drone and a standard flight controller aiming for government procurement<sup>2</sup>

## Presentation of a secure drone intended for government procurement

ACSL released a high-security aerial photography drone "SOTEN", which was mass-produced using the results developed by the NEDO project

1: "Outline of the Draft Law on Promotion of Development, Supply and Introduction of Specified Advanced Information and Communications Technology Systems" February 19, 2020 Ministry of Economy, Trade and Industry

2: "Development of Basic Safety Drone Technology" June 25, 2020 New Energy and Industrial Technology Development Organization (NEDO)

3: "Policy on the Procurement of Unmanned Aircraft by Government Agencies, etc." September 14, 2020 Liaison Conference of Relevant Government Agencies on Small Unmanned Aircraft

# Great market momentum as we enter an “Era of the Drones”<sup>ACSL</sup>

Top-tier companies and governments have shifted to implementing drones for practical use.  
In addition, we see huge replacement demand arising from economic security needs.

## 1 Commitment to practical implementation

- Top-tier companies have made official decisions to implement drones to their practical operations (e.g., Japan Post Capital has invested 3 bn JPY into ACSL)
- Fire department has announced the use of drones at all 700 fire stations across Japan

Quality  
Mass production, ISO  
Maintenance  
After service

## 2 Domestication driven by need for security

- Top-tier companies (e.g., NTT/Utility company)<sup>2</sup> made decisions to procure domestic drones for security reasons
- Government announced to only procure “secure” drones and replace all non-secure drones

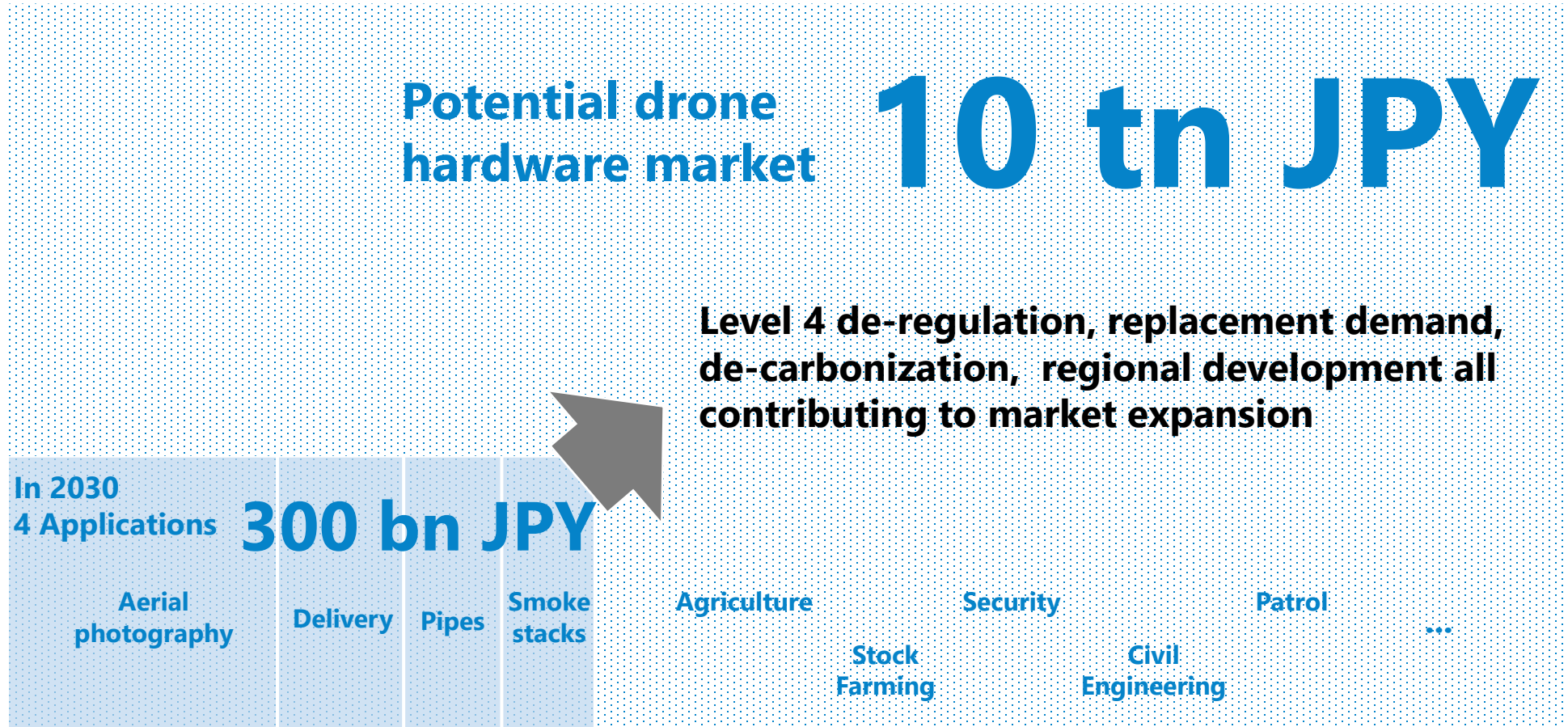
Domestic products  
Security  
Procurement assurance  
Safety and security

1: NHK, "Drones to be deployed at firefighting headquarters nationwide to assess damage in the event of a disaster."

2: Nihon Keizai Shimbun, "Chinese drones are being eliminated."

# Potential drone hardware market

Macro environment will accelerate the growth of drone hardware market in Japan, unlocking a huge potential

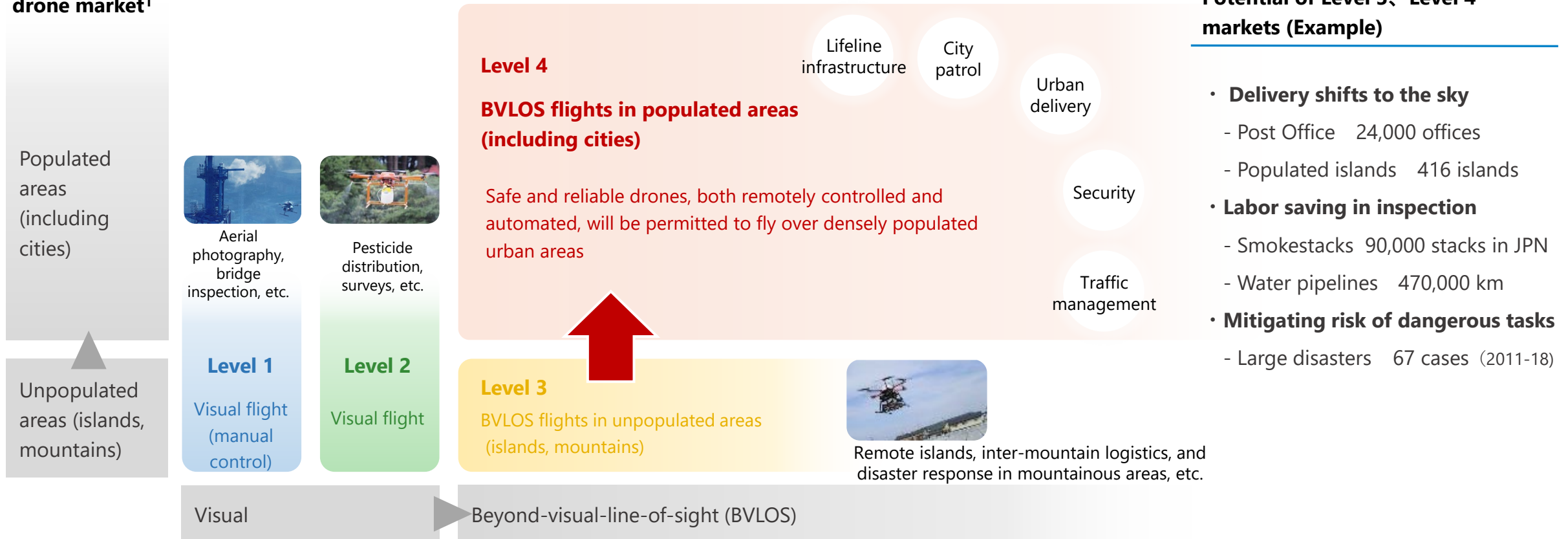


Note: Company estimates based on the following information  
 Ministry of Land, Infrastructure, Transport and Tourism, "Trends Surrounding Logistics"  
 Ministry of Land, Infrastructure, Transport and Tourism, "Conditions Surrounding Infrastructure Maintenance"  
 Cabinet Secretariat, "Estimation of the size of the private sector market for national land fortification"

# Deregulation of Level 4 flights

Regulations for level 4, beyond-visual-line-of-sight (BVLOS) flights in populated areas (including urban areas), are expected to be in place by FY2022, creating a huge market

## Classification of industrial drone market<sup>1</sup>



1: Roadmap for Small UAV Utilization and Technological Development (April 28, 2016, Public-Private Sector Council for the Improvement of the Environment for Small UAVs)

# Key enablers of future expansion of the drone market

The development and launch of technologies and products in sync with changing regulations, and highly specialized operational and implementation support, will be important.

|   | Regulation   | Technology & Products   | Operation and implementation   |
|---|--|---|--|
| <b>Level 1 and 2<br/>Visual Flight</b><br>Majority of the current market                                      | <ul style="list-style-type: none"> <li>Relevant regulations are in place</li> <li>Application-specific guidelines will be developed in the future</li> </ul> | <ul style="list-style-type: none"> <li>Mostly foreign-made general-purpose GPS-type machines</li> <li><b>Application-specific / non-GPS / secure drones required</b></li> </ul> | <ul style="list-style-type: none"> <li>Prepared for general-purpose drones</li> <li><b>Specialized operations and solutions</b> are important</li> </ul>                 |
| <b>Level 3<br/>Beyond visual line of sight / Uninhabited areas</b><br>Current market is limited               | <ul style="list-style-type: none"> <li>Related regulations are expected to continue to be revised</li> </ul>   | <ul style="list-style-type: none"> <li>Mostly application-specific drones</li> <li>Need to <b>improve basic performance and safety</b></li> </ul>                               | <ul style="list-style-type: none"> <li>Mainly individual efforts by individual companies</li> <li><b>Systematized operations, training, etc. are</b> required</li> </ul> |
| <b>Level 4<br/>Beyond visual line of sight / Inhabited areas</b><br>A huge market to be created in the future | <ul style="list-style-type: none"> <li>Regulations expected to be in place by FY2022</li> </ul>  | <ul style="list-style-type: none"> <li><b>Development and commercialization of technologies in line with regulations</b> is essential</li> </ul>                                | <ul style="list-style-type: none"> <li>Need companies that can <b>respond to regulations and build operations</b></li> </ul>   |











# Competitive environment of ACSL

In industrial drone market, specification of drone are required to be adapted to each application, and it is difficult to introduce a one-fits-all drone in actual operations.

ACSL is developing application-specific drones for actual operations with a platform drones

## Major market and major drone

ACSL product

|   | Consumer (B to C)   | Industrial (B to B)   |   |   |
|---|---|---|---|---|
|   | Aerial  | Inspection  | Logistics   | Disaster Prevention   |
| <p><b>General purpose</b><br/>Can be applied for multiple purpose</p>                               | <p>Mainly inexpensive foreign-made general-purpose drones</p> | <p> <b>Platform PF2</b><br/>Other companies: Mostly foreign-made general-purpose drones with GPS support</p>   | <p> <b>Platform PF2</b><br/>Other companies: Mainly large logistics aircraft such as foreign-made VTOL aircraft</p>            | <p> <b>Platform PF2</b><br/>Other companies: Mainly foreign-made general-purpose drone</p>   |
| <p><b>Application-specific</b><br/>Optimized performance and specification for each application</p> | <p>No application-specific drone for consumer use</p>         | <p> <b>Small aerial</b></p> <p> <b>Smokestack</b></p> <p> <b>Enclosed environ.</b><br/>Other companies: Limited number of drone for each inspection application</p> | <p> <b>Delivery (Level 4)</b><br/>Other companies: Very limited number of drone with Level 3 or higher safety performance</p> | <p> <b>Small aerial</b><br/>Other companies: Limited number of drone with flight performance and safety features for disaster prevention applications</p> |

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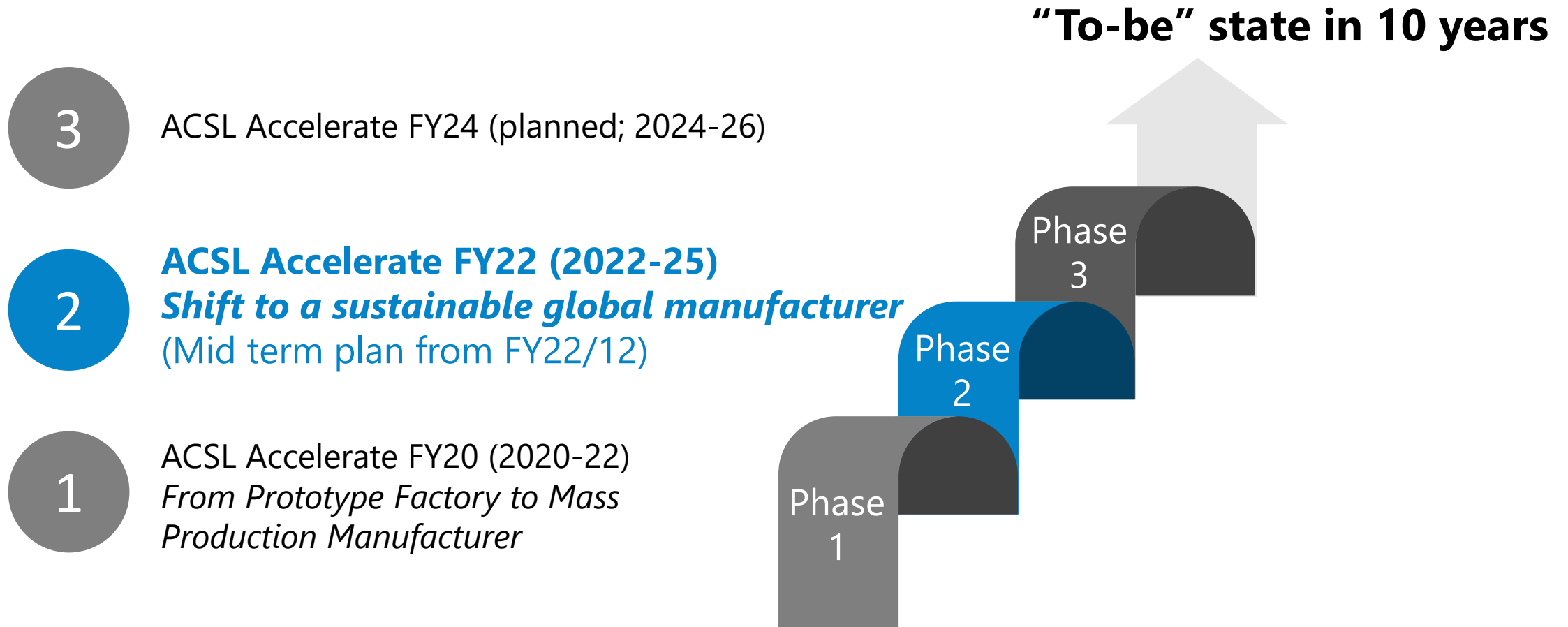
# “To-Be” state in 10 years

In August 2020, ACSL announced its master plan that sets out its goals over the next decade. 100 bn JPY , 10 bn JPY.

- 1 Global Pioneer in solving social infrastructure issues
- 2 More than 100 bn JPY sales, 10 bn JPY sales profit
- 3 Mass production manufacturer that produces 30,000 units/year
- 4 Supporting the country with de facto standards
- 5 Developing cutting-edge technologies for autonomous control
- 6 Nurturing the industry's most advanced and talented human resources
- 7 Constantly working to improve its corporate value and financial KPIs

# Mid-term plan “ACSL Accelerate”

To realize the “To-Be” state in 10 years, ACSL has defined a mid-term plan called the “ACSL Accelerate”. It is a rolling plan that adapts to rapid changes in the business environment



The background of the slide is a close-up, high-angle photograph of a blue drone. The drone's body is the primary focus, showing various mechanical details and a black propeller. A red LED light is visible on the bottom of the drone's fuselage. The lighting is soft and even, highlighting the textures of the plastic and metal components.

# Shift to a sustainable global manufacturer



# ACSL Accelerate FY22 Business Strategy and Goals

In addition to developing mass production drones, ACSL will accelerate its entry into the Indian market, reinforce ESG initiatives, and seek the adaption of our core technologies into other fields.

ACSL Accelerate FY22

## Shift to a sustainable global manufacturer



# Commercialization of four application-specific drones

The focus is to bolster nationwide commercial activities for the two launched products SOTEN and Fi4, and accelerate development of mass production models for the remaining two applications



**Aerial photography**  
(SOTEN)

- Launched Dec. 2021
- Secure small aerial photography drone for governments and private companies



**Pipe inspection**  
(Fi4)

- Launched May 2021
- Drones to inspect pipe structures such as sewers and drains



**Smokestack inspection**

- Under development to be launched 2022
- Drones capable of flying in GPS-denied cylinder structures, smokestacks and water-pressure towers



**Delivery**

- Under development to be launched 2023
- Specialized drones for delivery capable of carrying a 5 kg payload, with 20+km flight distance

# Development of new application drones

ACSL will initiate development of additional application-specific drones based on intel gathered from various successful trials. Furthermore, all products will comply with the market security trends

## Demonstrated applications (examples)



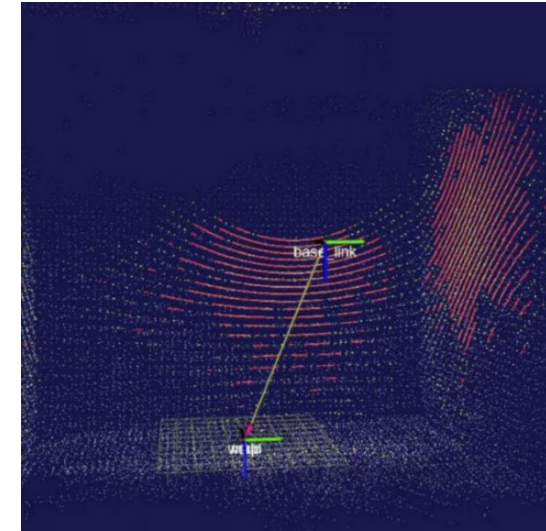
### Wind turbines

Automated blade inspection for wind power generation



### Indoor inspection

Automation of indoor inspection at construction sites, power plants, etc.



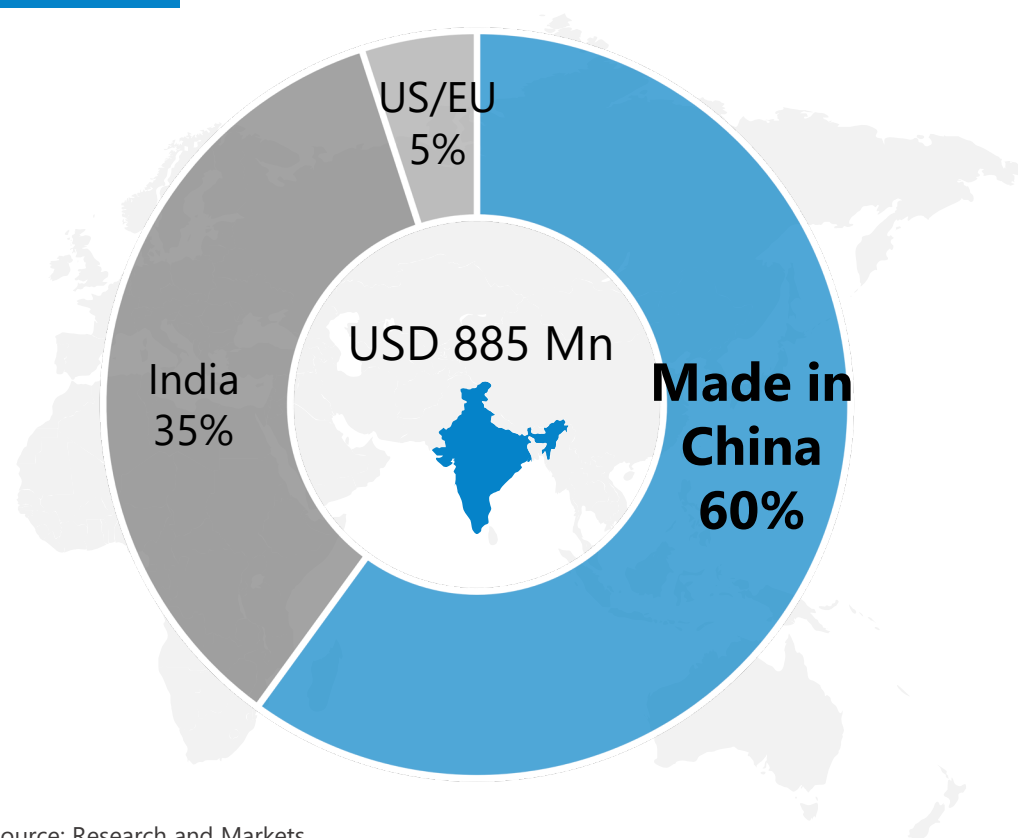
### Ships

Cargo hold inspections for tankers and cargo ships

# Full-scale launch into the Indian market

With increasing awareness for economic security, ACSL will partner with local companies to capture the replacement demand for Chinese drones

## Drone origin in the India Market (2021)



### Launch of ACSL India, a local JV

Active recruitment of local talent and establishment of manufacturing, sales, and maintenance operations

### Launch of secure drones, SOTEN and PF2

Obtain local sales certification (QCI) for SOTEN and PF2, both of which comply with the demand for higher security

### Business collaboration with local companies

Build local use cases through collaboration with local companies and participate in major drone related exhibitions in India

### Public affairs

Actively share information with local regulators to accelerate deregulation and technology adaptation of Japanese drones

# Reinforcing ESG initiatives

To build our competitive advantage, ACSL will reinforce ESG initiatives that will ultimately contribute to upscaling clients' competitiveness and social resilience.

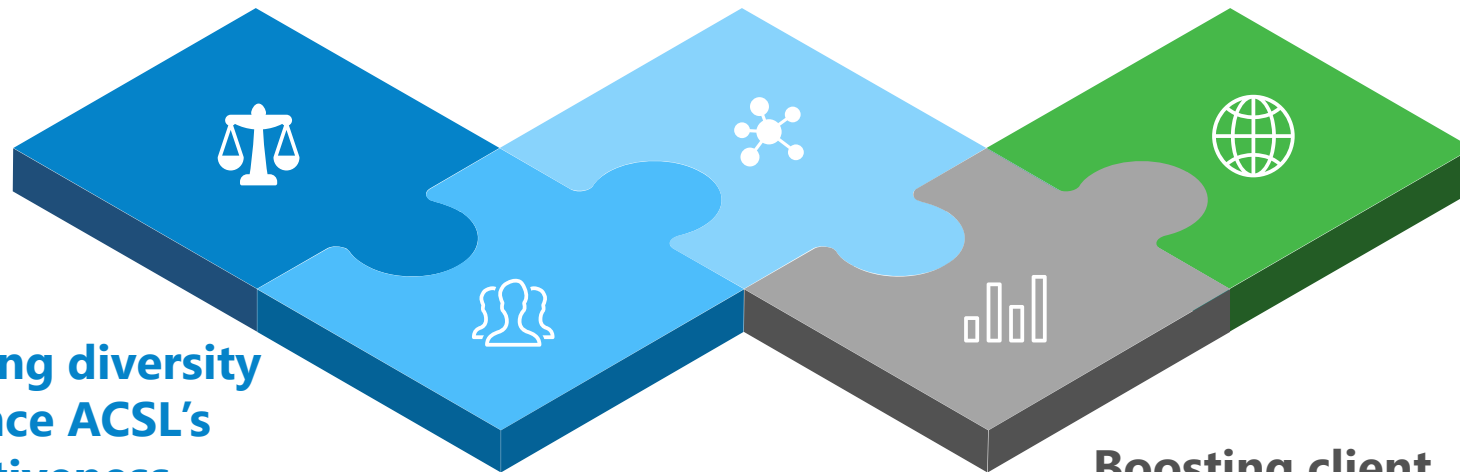
## Adherence to Strong Governance

Maximize organizational robustness and boost governance as the foundation of ACSL's corporate activities

## Technology for sustainability

- Regional revitalization and development
- Reinforce disaster prevention/response and environmental initiatives

**Achieving a free, open and sustainable world**



## Leveraging diversity to enhance ACSL's competitiveness

- Broaden diversity
- Diversify work styles and further enhance career development

## Boosting client competitiveness and social resilience

# Examples of existing ESG initiatives

ACSL has been already working on a number of ESG initiatives, most of which have turned into positive output and competitive advantages



## Disaster relief support : Marine garbage identification

As part of a CSR initiative, ACSL offers free drone support in times of disaster. A disaster treaty with Self Defense Force.



Development of solutions to solve marine garbage issues in Project IKKAKU



## A Diverse R&D Team

**Ph.D. holders**      Approx. **15 %**

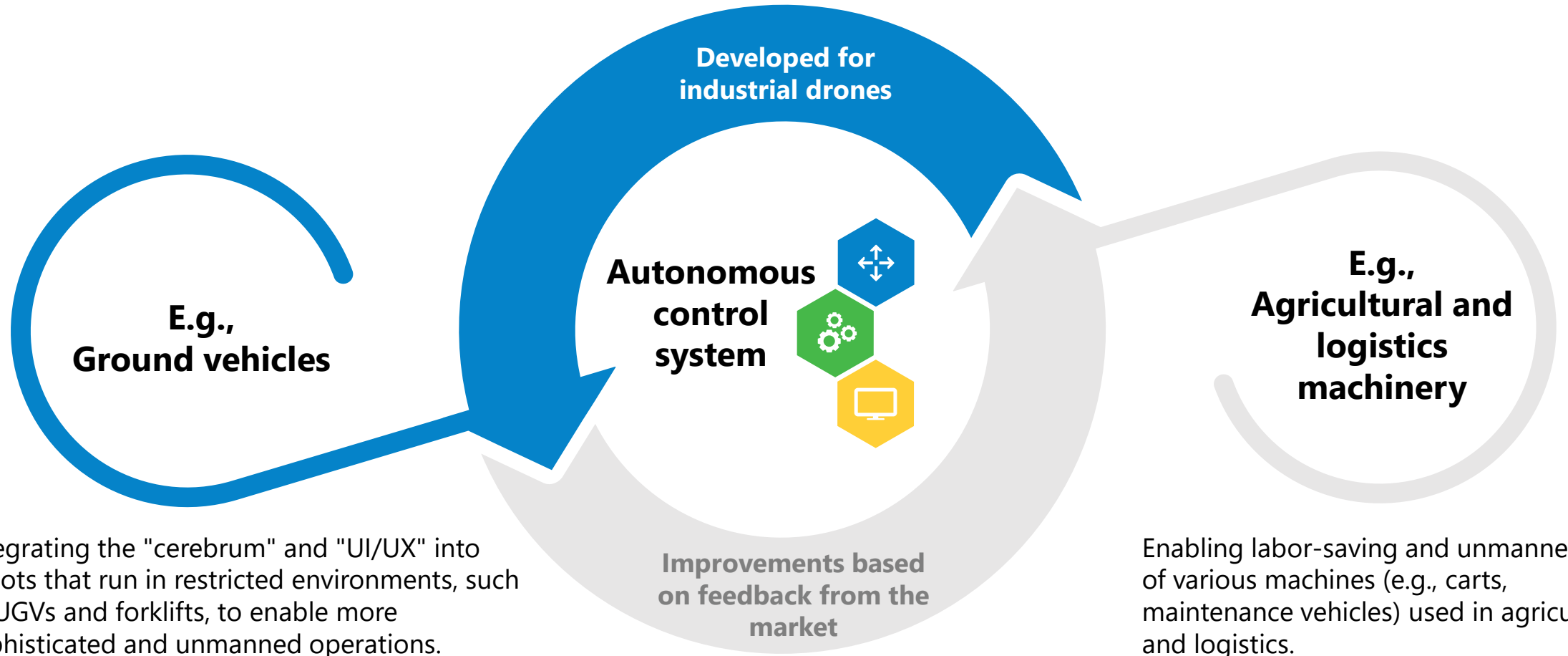
**Foreign nationals**      Approx. **50 %**

**Nationalities**      **17**



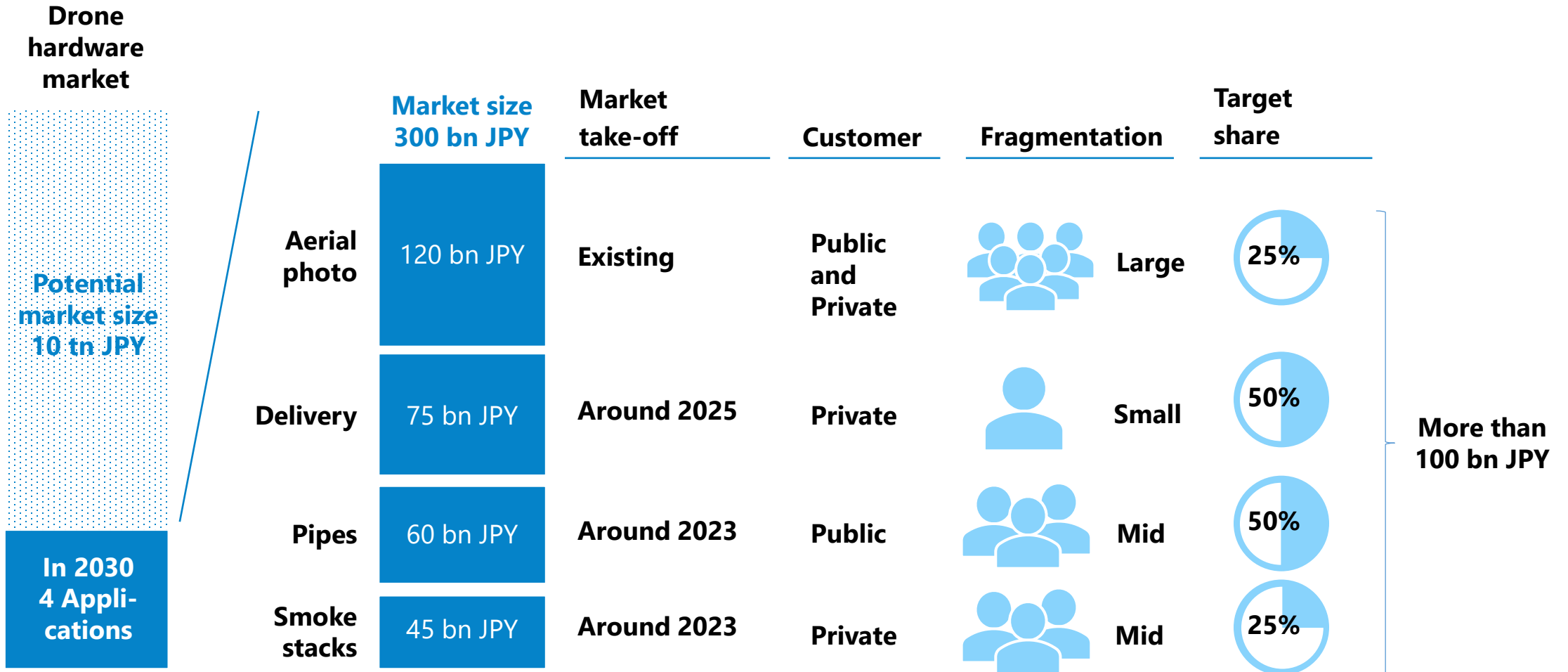
# Exploring adaptation of autonomous control systems

ACSL will explore the adaptation of autonomous control systems through industrial drone development to other robotics to promote unmanned systems in other fields



# Targeting 100 bn JPY sales in 2030

By 2030, ACSL will mass-produce four application-specific drones to achieve total sales in excess of 100 bn JPY

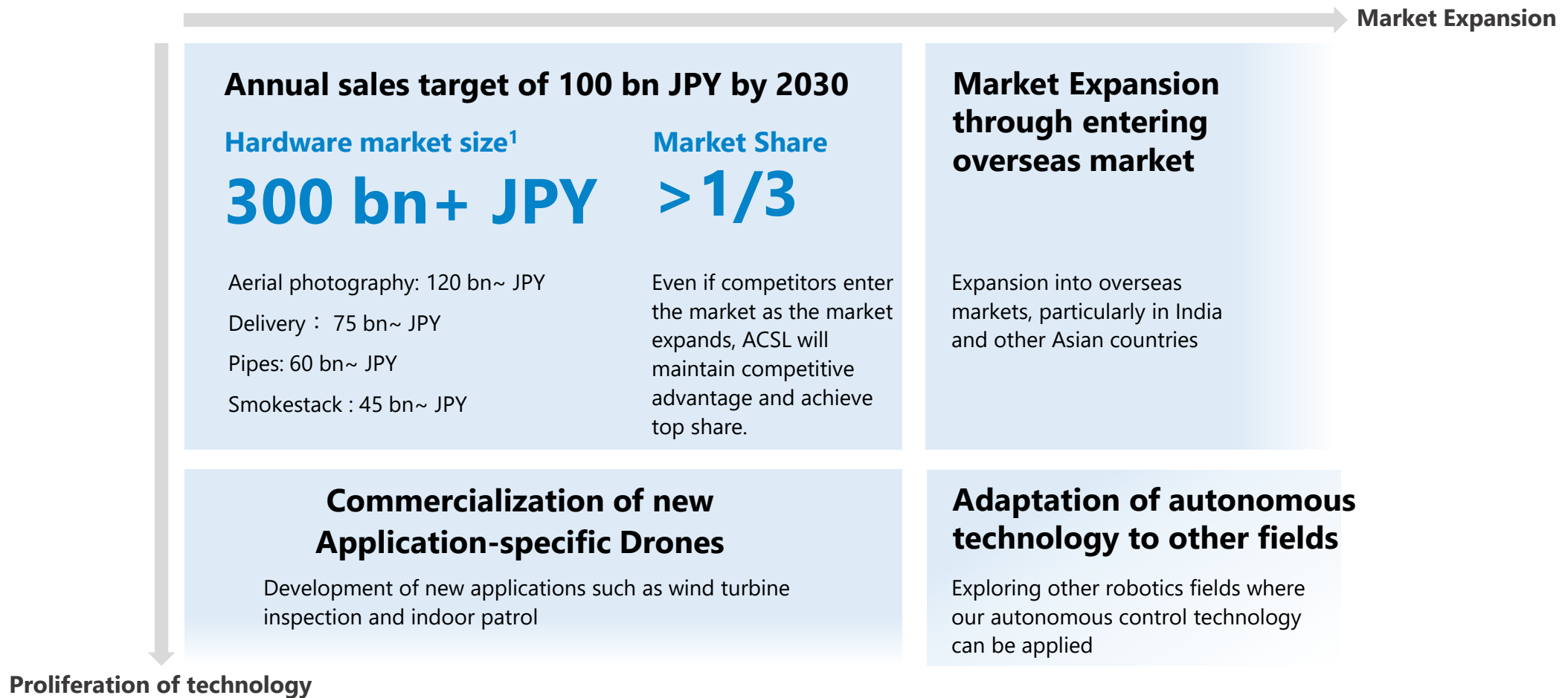


1: Estimated by ACSL assuming the total number of equipment, facilities, services, etc., frequency of use, unit cost etc. for each use case.



# Further expansion through successful initiatives

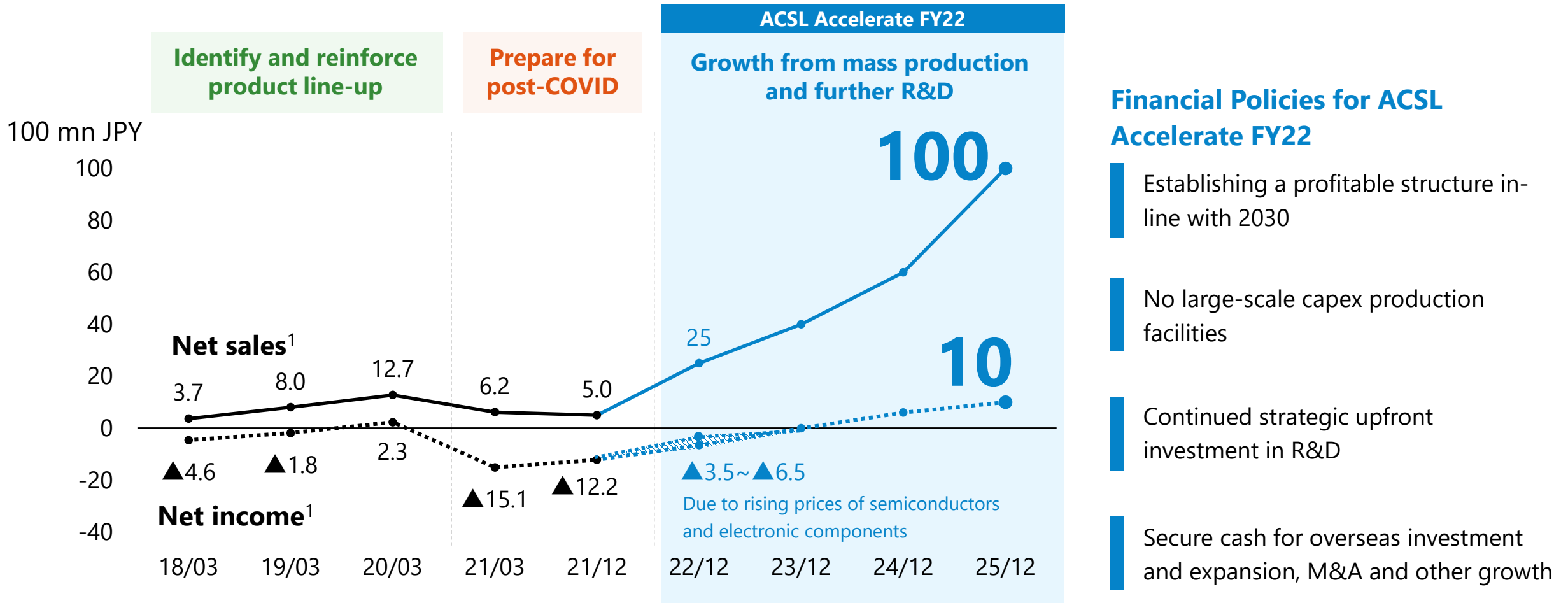
Overseas market entry, development of new applications, and adaptation of autonomous control systems to other fields will provide opportunities for further growth.



1: ACSL estimate

# ACSL Accelerate FY22 financial target

At the end of the mid-term plan, ACSL aims to achieve sales of 10 bn JPY and net income of 1 bn JPY in 2025



1: Actual results by FY 21/12 and FY 21/12 is irregular 9-month results

# Financial plan for FY22/12

In 2022, with the start of mass production of application-specific drones, ACSL will increase drone sales and ship more than 1,100 units in total

| Target figures          |   | Sales composition                    |        |                       |
|-------------------------|---|--------------------------------------|--------|-----------------------|
| Net sales               | 2.5 bn JPY<br>(of which 1.0 bn orders received) |                                      | Units  | Sales<br>(100 mn JPY) |
| R&D expenses            | 600 mn JPY~                                     | Sales of application-specific drones | 1,100~ | 12                    |
| Net income <sup>1</sup> | ▲650 ~▲350 mn JPY                               | Aerial photography                   | 1,000~ | 10                    |
|                         |   | Other applications                   | 100~   | 2                     |
|                         |   | Solution development                 | ~150   | 12                    |
|                         |   | PoC and custom development           | -      | 7                     |
|                         |   | Sales of platform/evaluation drones  | ~150   | 5                     |
|                         |   | Other                                | -      | 1                     |

1: The upper limit of net income assumes that the impact of the semiconductor shortage and soaring prices of electronic components will be resolved by the end of the year, and the lower limit assumes that the impact of the semiconductor shortage will continue throughout the year and that we will flexibly invest in R&D upfront.

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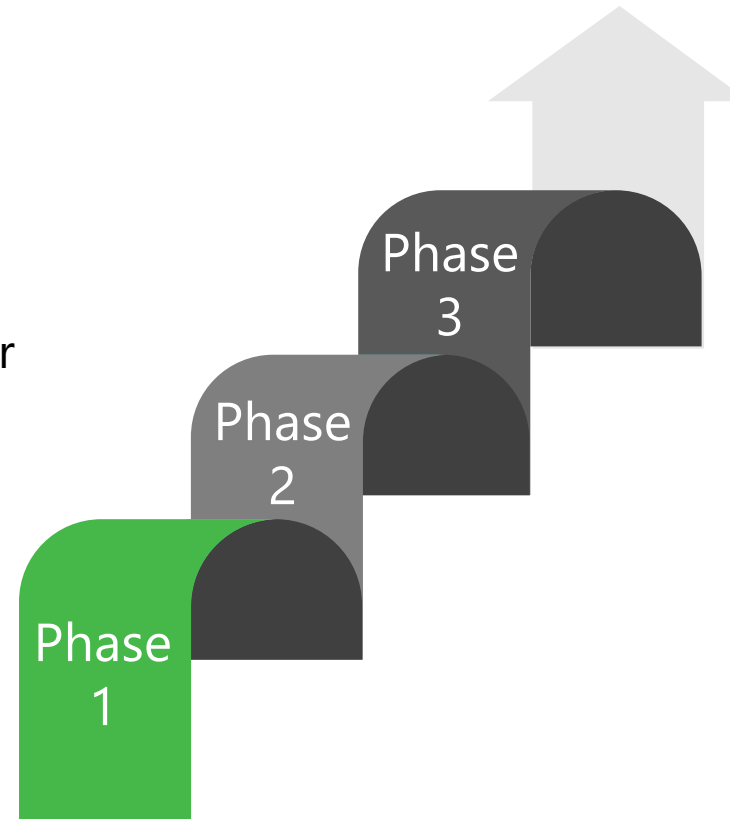
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# Mid-term plan “ACSL Accelerate”

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- 3 ACSL Accelerate FY24 (planned; 2024-26)
- 2 ACSL Accelerate FY22 (2022-25)  
Shift to a sustainable global manufacturer
- 1 ACSL Accelerate FY20 (2020-22)  
*From Prototype Factory to Mass Production Manufacturer*  
**(FY21/12 Business highlight)**

“To-be” state in 10 years



# FY22/12 Highlights

Steadily conducted the 4 strategic pillars defined in ACSL Accelerate FY20

## Strategies in Medi-term Management Policy

## Progress

### Development of application-specific drones

Commercialization of small aerial drones, medium delivery drones (Level 4 compliant), smokestack inspection drones, and enclosed environment inspection drones

**Orders received for small small aerial drone is on track. Closed environment inspection drone is launched** and aim to expand sales. Medium-sized delivery drone being developed to be released in 2023.

### Introduction of subscription model

Subscription-based fixed income/recurring sales model to be introduced to meet various customer needs, in addition to one-off drone sales

**Announced the launch of a subscription model in May 2021.** On-going discussion with multiple clients.

### Full-scale expansion into ASEAN and other Asian countries

Establish an office in Singapore, the core city in the ASEAN region, and India and hire local talents to conduct development and sales activities, and begin full-scale overseas expansion

**Established a JV in India in September 2021 and initiated marketing activities** to replace Chinese drones. ACSL drones already imported to India.

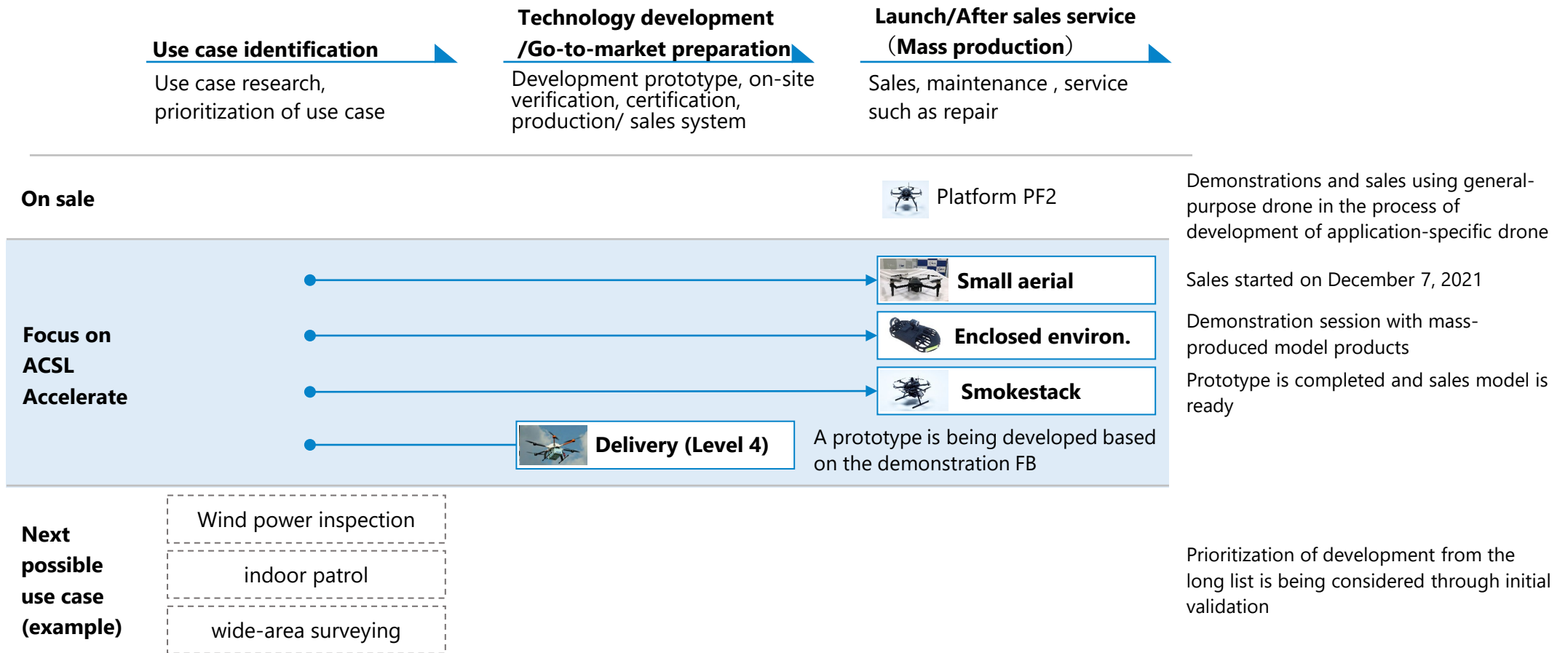
### Technology procurement through CVC

Establish CVC and actively procure technologies with potential for technology synergies, such as AI, blockchain, security, image processing and sensors

Established CVC in December 2020, and **invested in several companies including overseas companies**

# Application-specific drones : Steps toward launch

After identifying and prioritizing applications, ACSL is working with customers to develop application-specific drones for mass production. Out of application-specific drones, small aerial drones to be launched in December following the closed environment inspection drone



# Released aerial photography drone “SOTEN”

Released aerial photography drone “SOTEN” and started to receive orders.  
Significant market reaction to the secure and reliable drone

1

**Secure:** Data security, domestic and reliable components, encryption, etc.

2

**Usability:** One-touch interchangeable camera, clip-on propellers

3

**Flight performance:** Max 15m/s wind tolerance, SLAS/SBAS QZSS accuracy

4

**Peripherals:** Offline map, Secure LTE network, extension mounts



# SOTEN



# Launch of the closed environment inspection drone

Launched the closed environment inspection drone “Fi4” that has been jointly developed with NJS and established a JV with NJS to provide services, including support.

## Background and objectives

- **The total length of sewerage systems** in Japan is **approximately 480,000 km<sup>1</sup>** , and the burden of inspection work due to aging is a serious issue
- **Jointly developed a closed environment inspection drone with NJS since 2015**, and improved its durability, maintainability, and usability for actual field use through demonstration tests
- **Establishment of a JV in May 2021** to provide services, including support



Joint investment



# FINDi

Provision of inspection and other services using closed environment inspection drones

## Launch of Fi4 closed environment inspection drone

- **Launch of the new Fi4**, a package that includes an airframe designed for harsh research environments and a dedicated operating application with improved usability
- Based on the images taken by the drone, **data analysis and functional diagnosis services to determine abnormalities such as deterioration status** are also provided at the same time
- In the future, the JV will **expand lineup of drone** to include pipeline facilities with flowing water, external inspections of facilities, and other application scenarios



1: Ministry of Land, Infrastructure, Transport and Tourism website

# Smokestack inspection

Smokestack inspection drone developed by KEPCO. using the ACSL-PF2 as a base drone has been continuously demonstrated and Prototype is completed and sales model is ready

## Background and objectives

- Issues such as the **safety risks of working at high elevations** and the need for **several weeks of work**
- **Provided ACSL-PF2** as the base drone for the development of **an autonomous drone to inspect the inside of a smokestack** at a thermal power plant of **KEPCO** in August 2020
- Kansai Electric Power, KANSO Technos and ACSL will collaborate to promote the inspection work inside the chimney



## Overview of smokestack drone

- Controlled to **always be in the center of the chimney, enabling stable flight even in non-GPS environments**
- Equipped with high-intensity LEDs and a high-definition camera (60 megapixels), it can inspect interior walls and detect micro-cracks in dark environments



Top left: Smokestack inspection drone (ACSL-PF2)

Top right: LiDAR technology which realized drone to estimate its own location, even in dark, hard-to-recognize smokestacks

Bottom: Image of the movie taken from PF2. The upper center is the entrance to the top of the smokestack

# Delivery : Progress in development for Level 4

Began development of a medium-sized delivery drone. In addition, through a business and capital alliance with Japan Post, social implementation are being promoted

2020  
November

## Launched development of delivery drone for social implementation with VFR

Aiming to develop a drone optimized functionality and performance that can be used in drone logistics

2020  
December

## Successful demonstration of delivery drone with a 5kg payload

In cooperation with ANA HD and others, conducted a demonstration of a 5kg payload prototype drone in a real environment, and successfully flew a total of 65 times over a total distance of more than 160km in 4 days

2021  
June

## Concluded a capital and business alliance with Japan Post and Japan Post Capital

Concluded a capital and business alliance with Japan Post and Japan Post Capital through the practical application of drone delivery. Promoting the social implementation of drone utilization



Actual cargo being transported in a medium-sized delivery drone demonstration with a 5 kg payload



Press Conference on Capital and Business Alliance

# Advanced delivery with Japan Post using Drones x UGV

Continued to promote advanced delivery networks by combining Drones and UGV<sup>1</sup> to conduct autonomous deliveries in rural areas



Collaboration between Drone and UGV

1: Unmanned ground vehicle

- ACSL entered **business partnership** with **Japan Post** and **Japan Post Capital** in Jun-21.
- Delivery trials having **drones and UGV collaboration** took place at Okutama, Tokyo in Dec-21.
- Concept is to **build an unmanned delivery model for rural mountainous areas**, through combining drones and UGV

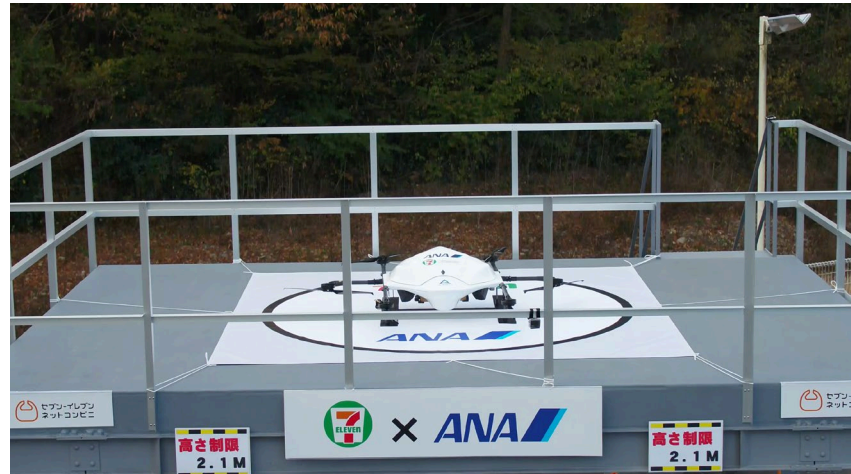


# Realizing social implementation of drone deliveries

In sight of the de-regulation of Level 4 expected to take place in FY22, ACSL actively took part in drone delivery projects that tested practical service operations

## Trials to do drone food delivery in central Tokyo

- First trial conducted at **manned areas** in Nov-21, together with **East Japan Railway Company** and **KDDI**.
- Scope also considered business model of drone deliveries after Corona



Trials of drone delivery service

## Trials to do drone delivery service

- Immediate drone delivery service to 4 locations conducted in Nov-21 with **ANA HD** and **Seven Eleven Japan**.
- Scope considered **practical service implementation** such as delivery fees, Seven Eleven staff handling goods, take-off locations, etc.

# Strengthened 3<sup>rd</sup> part certification - ISO27001

To comply with the increasing demand for quality control and security management, ACSL is actively getting 3<sup>rd</sup> party certification to strengthen governance



JQA-IM1838



JQA-QMA15911

## Information Security Management Certification

- Received Information Security Management Certification **ISO/IEC 27001:2013<sup>1</sup>** on Nov-21
- **Increasing demand towards higher security** to secure flight information and digital data captured by drones
- Continue to provide “safe and secure” drones by promoting **Quality Management Certification ISO9001:2015** that ACSL received in 2018

1: International standard that defines the framework for managing information security, developed by ISO (International Standards Organization)

# Expansion into Asia: Establishment of a JV in India

Established a local JV to capture the huge market in India, where Chinese drone is expected to replace.

## Trend in the Indian drone market

- **Cybersecurity risks in drones are also noted in India.** The move to **replace Chinese drones**, which account for a large share of the general-purpose drone market<sup>1</sup>
- The Indian government has significantly revised its policy on the introduction and use of drones, and **new drone regulations were issued in August.**
- With the revision of drone regulations, the Indian government is reportedly planning to **promote the drone industry more**

## ACSL activities in India

- **Established ACSL India**, a JV in India with Aeroarc, a local drone company
- Selected by Japan External Trade Organization (JETRO) for "Subsidy for Promotion of New Business Creation in Asia DX (**Japan-India Economic and Industrial Cooperation Project**)"
- **Began dialogue with the** Directorate General of Civil Aviation (DGCA), **the regulatory authority**, to comply with local regulations



1: The Nikkan Kogyo Shimbun

# CVC : Investing in domestic and overseas companies

Established a corporate venture capital (CVC) in December 2020 and has invested in several companies in Japan and overseas

## Business collaboration and CVC investment related to drone and peripheral technologies

|                 | Control and Communication  | Propulsion, on-board equipment and sensors   | Analysis and operation support                                |
|-----------------|--|--|---|
| In-house        | <b>ACSL Core Technology</b><br>Proprietary "cerebrum" and "cerebellum" control and communication | Developing technologies for specific applications through collaboration with external partners |   |
| Main investment | AutoModality<br>Perceptive Navigation  | unfunded   | FINDi<br>Closed environment Inspection<br>ACSL INDIA<br>India |
| CVC             | VFR Inc.<br>manufacturing and development collaboration  | Actively reviewing potential investments   | aerodyne : WorldLink & Company<br>AERONEXT                    |

### Purpose and overview of CVC

- Accelerated development **through technology synergies**
- Investment target are domestic and overseas **companies with unique technologies** that accelerate ACSL development through technical synergies (e.g., image processing, AI, blockchain, and security)
- As a basic policy, **minority investments in from seed to early phase**

### Major investment history

- Aerodyne: Asia's No. 1 drone service company<sup>1</sup>.** collaboration for overseas expansion
- Aeronext: With Seino HD, aim to create a drone logistics market** by verifying economic rationality and building a stable supply system
- VFR:** Leveraging the **advanced design and manufacturing technologies** cultivated through VAIO's PC business, further strengthen collaboration through joint development

1: Frost & Sullivan "Asia-Pacific Best Practices Awards 2019" Asia-Pacific Unmanned Aerial Vehicle (UAV) Services Company of the Year



# Major business highlights

In addition to the development of application-specific drones, strengthen demonstration and collaboration with existing and new customers to develop new applications

|   |  |   |                          |
|---|--|---|--------------------------|
| 2020  | Apr.   | <b>Small aerial drones</b> Adopted in New Energy and Industrial Technology Development Organization (NEDO)'s project " <b>Development of Secure Drone Infrastructure Technology</b> " |                          |
|   | May.   | <b>Enclosed environment</b> Collaboration began with <b>VFR</b> for joint development of <b>application-specific commercial drone</b>   | VFR Inc.                 |
|   | Aug.   | <b>smokestack</b> KEPCO developed autonomous flight drones that can <b>inspect the inside of smokestack at thermal power plants</b> . The ACSL-PF2 is provided as a base drone        | 関西電力<br>power with heart |
|   |  | <b>Delivery</b> Selected for <b>Tokyo Metropolitan drone delivery project</b>   |                          |
|   |  | <b>Delivery</b> <b>4D GRAVITY® License Agreement with AERONEXT</b>  |                          |
|   | Oct.   | <b>Delivery</b> AIRDs and JUAVAC <b>began offering specialized curriculum in drone delivery</b>   |                          |
| <b>Delivery</b> Built a remote island model of telemedicine using drone logistics and other services in Goto City, Nagasaki, and <b>ACSL provided delivery drones and operational support</b> |  | <br><br>  |                          |
| Nov.  | <b>Delivery</b> <b>Started collaboration with Aerodyne</b> for continuous flight tests <b>in ASEAN</b> |   |                          |

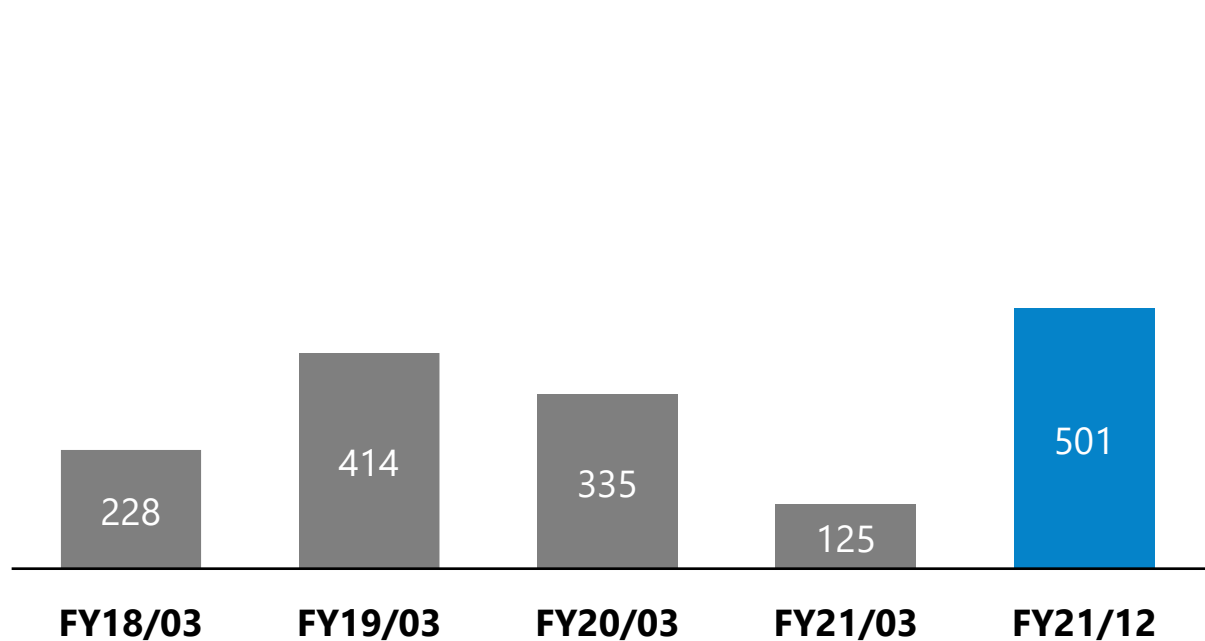
|      |  |  |                   |
|------|--|--|-------------------|
| 2020 | Nov.   | <b>Delivery</b> <b>Started delivery drone development</b> for social implementation with VFR   | VFR Inc.          |
|      | Dec.   | <b>Delivery</b> <b>Successful site demonstration with a 5 kg payload drone</b> with ANA HD   |                   |
| 2021 | Mar.   | <b>smokestack</b> <b>Development of "Non-GPS Compatible Autonomous Drone" for Inspection of Water Regulating Tanks</b> with Hokkaido Electric Power                        |                   |
|      | Apr.   | <b>Small aerial drones</b> Introduction prototype drone developed in " <b>Development of Safe and Secure Drone Basic Technology</b> "                                      |                   |
|      | May.   | <b>Enclosed environment</b> <b>Established FINDi as a JV</b> with NJS for the full-scale deployment of closed environment inspection drones                                | FINDi             |
|      | Jun.   | <b>Enclosed environment</b> <b>Launched the new AirSlider® Fi4</b> , a drone for closed environment survey and inspection with <b>NJS</b>                                  |                   |
|      |  | <b>Delivery</b> Toward social implementation of drone delivery at <b>Level 4</b> , formed a <b>capital and business alliance with Japan Post and Japan Post Capital Co</b> | 日本郵便<br>日本郵政キャピタル |
|      | Oct.   | <b>Enclosed environment</b> <b>Hands-on experience operating a closed environment inspection drone</b>   |                   |
| Nov. | <b>Small aerial drones</b> "Secure Domestic Drones " <b>teaser site released</b> |  |                   |
| Dec. | <b>Small aerial drones</b> Launched sales of secure small aerial drone           |  |                   |

# Sales and Order Received recorded highest

FY21/12 Sales (Apr~Dec) was 501 mn JPY, and Orders Received at the end of December was 1,077 mn JPY, both of which is the highest in ACSL history

## Cumulative sales (Apr~Dec)

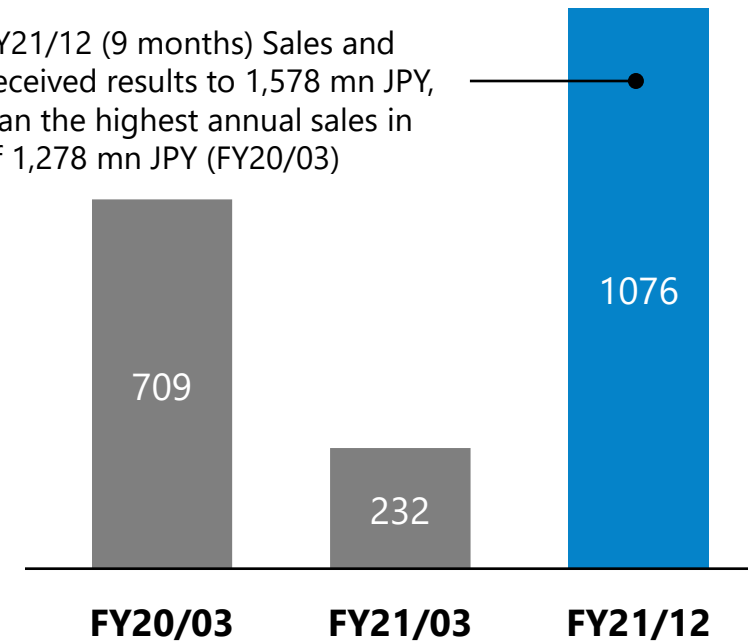
Mn JPY



## Orders Received in December<sup>1</sup>

Mn JPY

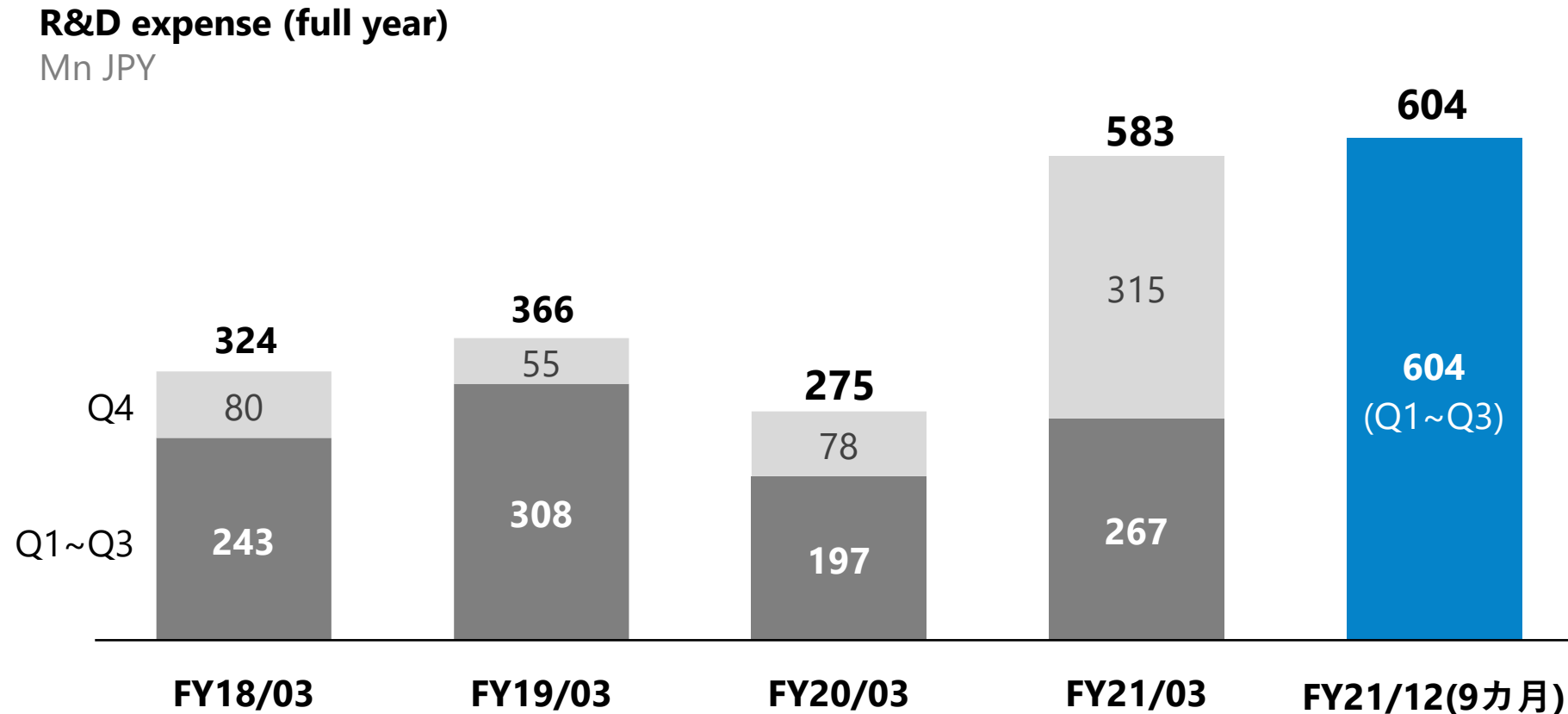
Sum of FY21/12 (9 months) Sales and Orders Received results to 1,578 mn JPY, higher than the highest annual sales in history of 1,278 mn JPY (FY20/03)



1:Orders Received is the sum value of projects that Purchase Order is received at the end of December

# Active investment in R&D in sight of FY22

Continued to actively invest into R&D, regardless of revenue results,  
to capture in coming market opportunity in FY22



# FY21/12 Cumulative (21/04-12) Results



Sales between Apr-Dec 9 months was 501 mn JPY, and net income was ▲1,226 mn JPY.  
Increased R&D expense compared to previous full year.

| Mn JPY            | FY21/12<br>Cumulative (21/4~21/12) |                |                 | Q1~Q3 cumulative<br>(20/4~20/12) | FY21/3 <sup>1</sup><br>Q4<br>(21/1~21/3) | Full year<br>(20/4~21/3) |
|-------------------|------------------------------------|----------------|-----------------|----------------------------------|--|--------------------------|
|                   | Actual                             | YoY (9 months) | YoY (full year) | Actual                           | Actual                                   | Actual                   |
| Sales             | <b>501</b>                         | +375           | ▲119            | 125                              | 495                                      | 620                      |
| Gross Profit      | <b>0</b>                           | +27            | ▲67             | ▲26                              | 94                                       | 68                       |
| Gross profit rate | <b>0%</b>                          | +21 pt         | ▲11 pt          | ▲21%                             | 19%                                      | 11%                      |
| R&D Expense       | <b>604</b>                         | +336           | +20             | 267                              | 315                                      | 583                      |
| Operating Profit  | <b>▲1,188</b>                      | ▲443           | ▲49             | ▲745                             | ▲393                                     | ▲1,139                   |
| Net Income        | <b>▲1,226</b>                      | ▲413           | +285            | ▲812                             | ▲699                                     | ▲1,511                   |

1: Figures for the third quarter of the fiscal year ending March 31, 2021 and thereafter are based on consolidated financial statements and figures for earlier quarters are based on non-consolidated financial statements

# Difference between actuals and forecast for FY21/12

Sales overachieved previously announced forecast.  
 Cost increased to accelerate R&D and mass production setup for SOTEN.

| mn JPY           | Actual | Previously announced forecast | Difference | Remarks   |
|------------------|--------|-------------------------------|------------|---|
| Sales            | 501    | 480                           | +21        | Positive trend in PoCs and platform drones sales  |
| Operating profit | ▲1,188 | ▲980                          | ▲208       | R&D for Level 4 and mass production setup accelerated in sight of positive market reaction after releasing SOTEN. Profit declined due to semicon procurement challenges |
| Ordinary income  | ▲1,213 | ▲1,020                        | ▲193       | Additional income in non-operating income   |
| Net income       | ▲1,226 | ▲1,020                        | ▲206       | Impairment of fixed assets  |

| Mn JPY              | FY21/12<br>3Q (21/12) |                          | FY21/03<br>3Q(20/12) | FY21/03 |
|---------------------|-----------------------|--------------------------|----------------------|---------|
|                     | Actual                | YoY<br>Increase/Decrease | Actual               | Actual  |
| Current assets      | 4,177                 | + 21%                    | 3,454                | 3,257   |
| Cash                | 2,759                 | + 8%                     | 2,566                | 1,891   |
| Fixed assets        | 1,537                 | + 59%                    | 965                  | 751     |
| Current liabilities | 287                   | + 58%                    | 181                  | 432     |
| Fixed liabilities   | 8                     | -                        | -                    | 3       |
| Total liabilities   | 295                   | + 63%                    | 181                  | 436     |
| Net assets          | 5,419                 | + 28%                    | 4,238                | 3,572   |
| Total assets        | 5,715                 | + 29%                    | 4,420                | 4,008   |

Note: Figures for the third quarter of the fiscal year ending March 31, 2021 and thereafter are based on consolidated financial statements and figures for earlier quarters are based on non-consolidated financial statements

| Index   |                       | FY18/03 | FY19/03 | FY20/03 | FY21/03 | FY21/12<br>(9 months) | FY22/12  |
|---|-----------------------|---------|---------|---------|---------|-----------------------|----------|
|   |                       | Actual  | Actual  | Actual  | Actual  | Actual                | Forecast |
| <b>Sales of application-specific drones</b>                   |                       |         |         |         |         |                       |          |
| Small aerial photo<br>(low ASP)                               | Unit                  | -       | -       | -       | -       | -                     | 1,000~   |
|   | Value<br>(100 Mn JPY) |         |         |         |         |                       | 10       |
| Other application-specific<br>drones<br>(high ASP)            | Unit                  |         |         |         |         |                       | 100~     |
|   | Value<br>(100 Mn JPY) |         |         |         |         |                       | 2        |
| <b>Development of application-specific drones<sup>1</sup></b> |                       |         |         |         |         |                       |          |
| PoC and Development   | Project               | 60      | 81      | 112     | 82      | 41                    | -        |
|   | Value<br>(100 Mn JPY) | 2.1     | 2.9     | 8.6     | 3.7     | 1.2                   | 7        |
| Sales of Platform/<br>Evaluation drones <sup>1</sup>          | Unit                  | 40      | 106     | 101     | 46      | 16                    | -        |
|   | Value<br>(100 Mn JPY) | 0.9     | 3.8     | 3.0     | 1.4     | 0.6                   | 5        |
| Number of shipments <sup>1</sup>                              |                       | -       | 136     | 128     | 71      | 23                    | ~150     |

1: The number of Sales of Platform/Evaluation drones represents drone sold in the platform sales (former STEP 3 and 4), and the number of shipments represents the total number of drones shipped including the demonstration experiments (former STEP 1 and 2)

# Sales by quarter

| Fiscal Year  |                                       | FY18/03    |    |    |     | FY19/03    |    |    |     | FY20/03 |            |     |     | FY21/03    |    |    |     | FY21/12      |            |    |
|--|---------------------------------------|------------|----|----|-----|------------|----|----|-----|---------|------------|-----|-----|------------|----|----|-----|--------------|------------|----|
| Quarterly Results  |                                       | 1Q         | 2Q | 3Q | 4Q  | 1Q         | 2Q | 3Q | 4Q  | 1Q      | 2Q         | 3Q  | 4Q  | 1Q         | 2Q | 3Q | 4Q  | 1Q           | 2Q         | 3Q |
| Demonstration Experiment <sup>1</sup><br>• Proof of Concept<br>• Custom Development  | Sales Mn JPY                          | 6          | 37 | 57 | 116 | 25         | 59 | 75 | 133 | 27      | 65         | 102 | 671 | 1          | 22 | 22 | 323 | 14           | 42         | 67 |
|  | Number of projects                    | 8          | 6  | 27 | 19  | 6          | 16 | 22 | 37  | 14      | 22         | 21  | 55  | 2          | 11 | 15 | 54  | 6            | 14         | 21 |
| Platform Selling the drone <sup>2</sup><br>• Sales of standard and general-purpose drone<br>• Drone modified for customers based on the standard drone | Sales Mn JPY                          | 16         | 25 | 32 | 16  | 10         | 67 | 80 | 225 | 24      | 48         | 19  | 212 | 4          | 10 | 13 | 116 | 15           | 34         | 17 |
|  | Number of units                       | 7          | 10 | 18 | 5   | 8          | 20 | 31 | 47  | 6       | 12         | 9   | 74  | 1          | 3  | 5  | 37  | 6            | 6          | 6  |
| Other <sup>3</sup><br>• Sales of parts<br>• Fuselage repair service<br>• Some national projects  | Sales (of which, national pro) Mn JPY | 30<br>(27) | 6  | 16 | 9   | 68<br>(65) | 14 | 12 | 33  | 9       | 29<br>(18) | 9   | 59  | 30<br>(21) | 8  | 10 | 55  | 237<br>(219) | 55<br>(50) | 15 |

1: Solution development (STEP1, 2) was renamed to "Demonstration Experiment" from FY21/03 Q1

2: Mass production (STEP3, 4) was renamed to "Platform Selling the drone" from FY21/03 Q1

3: For national projects, subsidies received are generally posted as non-operating income. On the other hand, some projects whose main purpose is to conduct commissioned experiments are recorded as sales



# Major financial items by quarter

| Fiscal year <sup>1</sup>           | FY18/03 |     |      |     | FY19/03 |     |     |     | FY20/03 |     |     |     | FY21/03 |      |      |     | FY21/12 |      |      |
|------------------------------------|---------|-----|------|-----|---------|-----|-----|-----|---------|-----|-----|-----|---------|------|------|-----|---------|------|------|
| Quarterly Results                  | 1Q      | 2Q  | 3Q   | 4Q  | 1Q      | 2Q  | 3Q  | 4Q  | 1Q      | 2Q  | 3Q  | 4Q  | 1Q      | 2Q   | 3Q   | 4Q  | 1Q      | 2Q   | 3Q   |
| Sales<br>Mn JPY                    | 53      | 68  | 106  | 141 | 104     | 141 | 168 | 392 | 60      | 143 | 130 | 943 | 36      | 42   | 46   | 495 | 267     | 133  | 100  |
| Gross profit<br>Mn JPY             | 4       | 40  | 63   | 68  | 13      | 83  | 101 | 204 | 8       | 69  | 75  | 655 | ▲ 6     | ▲ 6  | ▲ 13 | 94  | 17      | 5    | ▲22  |
| Gross profit margin                | 9%      | 60% | 60%  | 48% | 13%     | 59% | 60% | 52% | 14%     | 48% | 58% | 70% | ▲19%    | ▲16% | ▲28% | 19% | 7%      | 4%   | ▲23% |
| SG&A<br>Mn JPY                     | 149     | 165 | 218  | 186 | 157     | 172 | 244 | 159 | 205     | 171 | 201 | 213 | 230     | 173  | 314  | 488 | 325     | 321  | 515  |
| of which R&D<br>expenses<br>Mn JPY | 67      | 62  | 113  | 80  | 85      | 94  | 127 | 58  | 66      | 54  | 76  | 78  | 60      | 77   | 129  | 315 | 153     | 165  | 285  |
| R&D expense ratio<br>to Sales      | 127%    | 91% | 107% | 57% | 82%     | 67% | 76% | 15% | 109%    | 38% | 59% | 8%  | 167%    | 183% | 278% | 64% | 57%     | 124% | 285% |

1: Figures for the third quarter of the fiscal year ending March 31, 2021 and thereafter are based on consolidated financial statements and figures for earlier quarters are based on non-consolidated financial statements

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- 2** Market overview
- 3** Medium-term management policy “ACSL Accelerate FY22”
- 4** Business highlights and current progress
- 5** Risk information
- 6** Appendix

# Key risks and management for them

| Item  | Key Risks   | Risk Management  | Possibility | Impact |
|---|---|--|-------------|--------|
| Drone Safety  | <ul style="list-style-type: none"> <li>In the event of a serious drone crash, not only at ACSL(the Company) but also at other companies, public trust in the safety of drones may be eroded, leading to a decline in demand from customers and a slowdown in market growth due to stricter regulations, which may affect the Company's business and earnings. In this case, our business and business performance may be affected.</li> <li>In the unlikely event that a drone manufactured by our company crashes and causes damage to people, property, etc., there is a possibility that our business and business performance will be affected due to significant product liability compensation, large payments and expenses due to a recall, and loss of public trust.</li> </ul> | <ul style="list-style-type: none"> <li>We are striving to realize drones that can coexist safely with people without causing accidents. In addition to promoting intrinsically safe design based on risk analysis, we are developing drones that can fly safely even in environments where GPS cannot be reached or in bad weather by utilizing some of our technologies.</li> <li>In preparation for any eventuality, we are working with insurance companies to develop dedicated insurance for drone and operations to cover liability and expenses incurred in the event of a serious accident.</li> </ul> | Middle      | High   |
| Drone Safety  | <ul style="list-style-type: none"> <li>In the event that security is compromised by malicious hackers, etc., the drone may become uncontrollable, causing damage to people and property, or data leaks may cause damage to users, etc., which may have an impact on our business and business performance due to large payments and expenses for serious product liability compensation and recalls, and loss of public trust.</li> </ul>   | <ul style="list-style-type: none"> <li>Our company places a high priority on safety in the selection of components related to data security, and we are working on the advancement of security technology on the drone side, such as communication encryption to prevent hijacking. In addition, we have selected solution partners and are able to identify all of our sales partners through direct transactions with our customers.</li> </ul>  | Low         | High   |
| Laws and regulations surrounding the drone business | <ul style="list-style-type: none"> <li>With regard to the Product Liability Law, since we manufacture products such as drones, if a victim proves that they have suffered life, body, or damage due to a defect in our products, etc., a claim for damages may be recognized.</li> </ul>  | <ul style="list-style-type: none"> <li>With regard to the Civil Aeronautics Law and the Radio Law, we have obtained permission and approval based on the said laws.</li> <li>To mitigate risks, we have had our instruction manuals reviewed by an external technical writer and have worked with an insurance company to develop a dedicated insurance policy. We have also acquired ISO 9001 certification for quality management and airframe certification from the Japan Unmanned Aircraft Manufacturers Association (JUAV).</li> </ul>   | Low         | High   |
| Laws and regulations surrounding the drone business | <ul style="list-style-type: none"> <li>With respect to the Foreign Exchange and Foreign Trade Law, some of the products and parts sold by the Company may be subject to regulations. In the future, it is assumed that unexpected regulations may be enacted, revised or abolished, or that planned deregulation may not proceed as planned. In such cases, if the Company is unable to flexibly respond to the relevant laws and regulations, the Company's activities may be restricted due to the revocation of permits and licenses, which may affect the Company's business and earnings.</li> </ul>   | <ul style="list-style-type: none"> <li>When we export drones or provide related technologies to overseas markets, we comply with the Law and strive for appropriate export control.</li> <li>We have established a system to check compliance with laws and regulations not only internally, but also with outside experts such as legal counsel.</li> </ul>   | Low         | High   |

# Key risks and management for them

| Item   | Key Risks  | Risk Management   | Possibility | Impact |
|--|--|---|-------------|--------|
| Intellectual Property Rights                               | <ul style="list-style-type: none"> <li>• There is a possibility that intellectual property rights of which we are not aware have already been established, or that new intellectual property rights of third parties may be established, and it is extremely difficult to completely eliminate the risk of such infringement.</li> <li>• In the event that the Company is involved in a legal dispute with a third party in the future, the Company will consult with lawyers and patent attorneys and consider specific measures to be taken depending on the details of the dispute. However, the Company may incur a large human or financial burden to deal with the dispute, and in some cases may be subject to claims for payment of damages, etc. or injunctions against the manufacture and sale of products, etc., which may affect the Company's business and business performance.</li> </ul>  | <ul style="list-style-type: none"> <li>• With regard to intellectual property rights such as patent rights related to our business, we have not received any indication of infringement of intellectual property rights from a third party, and we will continue to manage our intellectual property rights appropriately in order to prevent any infringement.</li> <li>• We will continue to invest in patent development as we expand our business.</li> </ul>   | Low         | Middle |
| Procurement, pricing, and inventory of parts and materials | <ul style="list-style-type: none"> <li>• The Company procures most of the parts and materials necessary for its production and R&amp;D activities from external suppliers. However, in the event of interruptions in supply from suppliers or supply shortages due to a rapid increase in product demand, various activities may be restricted, which may have an impact on the Company's business and earnings.</li> <li>• In the event of quality problems, problems with the production system and quality control system at the supplier of the procured products, or other events that may have a significant impact on our business operations, our business performance may be affected.</li> <li>• There is a possibility of opportunity losses and lost profits due to inventory shortages, or additional expenses such as inventory management costs and impairment due to excess inventory, which may occur due to demand being different than initially expected.</li> </ul> | <ul style="list-style-type: none"> <li>• In the procurement process, we carefully conduct quality checks and other incoming inspections.</li> <li>• Inventory will be maintained at an optimal level in line with product plans and sales scale with regular revision according to the demand forecast.</li> <li>• We conduct regular audits of our major business partners to confirm the status of their production, development and other activities.</li> </ul> | Middle      | Middle |

# Key risks and management for them

| Item                                   | Key Risks  | Risk Management  | Possibility | Impact |
|--|--|--|-------------|--------|
| Product Quality                        | <ul style="list-style-type: none"> <li>In the unlikely event that a product defect occurs, depending on the nature of the defect, it could result in the incurrence of significant costs and loss of trust, which could have a negative impact on our business performance and financial position. Specifically, if the incidence of product defects within the warranty period exceeds our expectations, or if unforeseen defects occur, we may incur after-sales service costs, free repair costs, recall costs, and other expenses.</li> <li>In the event that a victim proves that they have suffered damage to life or limb due to a defect in one of our products, etc., there is a possibility that a claim for damages will be approved based on the Product Liability Law. In the event that our response to these risks is prolonged and exceeds the scope of coverage by our insurance, our business activities may be hindered and our business performance and financial position may be affected.</li> </ul>   | <ul style="list-style-type: none"> <li>We have established quality assurance management rules and production management rules, and are striving to maintain and improve the quality of our products through manufacturing and quality control in accordance with these rules.</li> <li>We will continue our efforts to improve the quality of our products, especially with regard to continuous improvement against defects, promotion of product designs that are less prone to defects, reinforcement of testing during development and prior to shipment, including the introduction of reliability testing, continued development of emergency countermeasure functions for our products, establishment of rules for operations such as flight and drone management, and strengthening of processes for handling customer complaints, malfunctions, and crashes.</li> </ul> | Low         | High   |
| Uncertainty about business performance | <ul style="list-style-type: none"> <li>Sales volume may fall short of expectations due to a mismatch with customer needs, changes in epidemics, the emergence of competitors, economic fluctuations, restrictions on economic activities due to the spread of new coronavirus infections, etc. In addition, budget approval and execution timing on the part of customer companies may also affect our performance trends.</li> <li>The Company was established in November 2013 and has been in business for only about eight years. Therefore, the operating results of the Company for the past fiscal years are not sufficient to make comparisons between periods, and the operating results for the past fiscal years alone may not be sufficient information to judge the future performance of the Company.</li> <li>If we are unable to keep up with the rapid evolution of technology, or if we are unable to introduce new products or technologies that will win the support of our customers and the market, and if our R&amp;D activities are not fully effective, we may incur expenses related to investments that exceed our expectations. In such cases, the Company may not be able to achieve the plan it is aiming for, or it may take time to return to profitability in operating income, etc., which may affect the Company's financial position and operating results.</li> <li>As a result, there is a possibility that the numerical targets set forth in the medium-term management plan policy will not be achieved due to various factors, including the risks described in "Business and Other Risks."</li> </ul> | <ul style="list-style-type: none"> <li>For continuous growth, we are engaged in research and development of hardware and software for drones as autonomous control robot systems. Based on the idea that it is necessary to continue research and development activities that are essential for the development of new products or technologies, we have been actively investing costs related to research and development expenses, and will continue to promote research and development activities in the future.</li> <li>Our policy is to build a system that can generate sustainable profits and cash flow through sales growth.</li> <li>Together with internal and external stakeholders, all parties involved will work as one to create customer value and enhance corporate value.</li> </ul>  | Middle      | Middle |

※ Among the contents of "Business and Other Risks" in the Annual Securities Report, major risks that may affect the execution of the business plan and the realization of growth are extracted and described. For other risks, please refer to "Business and Other Risks" in the Annual Securities Report.

# Key risks and management for them

| Item  | Key Risks   | Risk Management   | Possibility | Impact |
|---|---|---|-------------|--------|
| Risks related to fluctuations in business performance | <ul style="list-style-type: none"> <li>As the Company sells drone and provides proof-of-concept (PoC) services mainly to large corporations or projects related to public offices, sales tend to be concentrated in March, which is the end of the fiscal year for many customers. The reason for the high weighting of the accounting period from January 1 to March 31 is that the Company's sales are concentrated in this period. The reason for the higher weighting of the accounting period from January 1 to March 31 is that it is linked to the budget spending cycle of many of our clients, and the acceptance inspection of annual contracts is concentrated at the end of the accounting period for many of our clients. In addition, there are many cases in which we conclude large contracts, such as annual contracts, with government agencies, public institutions, and companies engaged in large-scale projects, in which case the acceptance inspection period falls at the end of the fiscal year, such as February and March. Therefore, due to such seasonal fluctuations, the Company's business results at a single point in time may not provide sufficient information for the analysis of full-year business results.</li> </ul> | <ul style="list-style-type: none"> <li>The Company changed its fiscal year end (the last day of the fiscal year) to December 31 from the 10th fiscal year in order to improve the transparency of full-year business results, and therefore the accounting period will be from January 1 to December 31.</li> </ul> | High        | Low    |
| Securing working capital                              | <ul style="list-style-type: none"> <li>Since our main business flow involves the purchase of parts, development, manufacturing, sales, acceptance inspection, and collection of funds, working capital tends to increase in conjunction with business expansion, and cash flow from operating activities may be negative. In addition, the Company participates in various projects through industry-academia-government collaboration to develop cutting-edge technologies, and receives subsidies and grants from the government. Receipt of such subsidies, etc., will be credited after the amount is fixed after the audit by the competent authorities is completed, but funds for conducting R&amp;D activities will be required during the implementation period, and R&amp;D expenses will be incurred upfront.</li> </ul>   | <ul style="list-style-type: none"> <li>We will strive to secure working capital by securing profits through improvement of our profit structure and efficiency of working capital, as well as borrowing from financial institutions when it becomes necessary to raise funds.</li> </ul>                            | Middle      | Low    |

# Key risks and management for them

| Item  | Key Risks   | Risk Management   | Possibility | Impact |
|---|---|---|-------------|--------|
| Overseas Expansion                              | <ul style="list-style-type: none"> <li>In order to expand our business in overseas markets, we are collaborating with local companies to promote overseas development, mainly in Asia and the United States. In India, we have established a joint venture with a local company. However, in the event of unexpected social or political changes, changes in taxation systems or rates, or other changes in economic conditions in India, such events may have a negative impact on our business development. In addition, the Company's business development may also be adversely affected by changes in policies and laws and regulations in each country or economic zone, including import and export regulations and environmental protection regulations, in connection with the procurement of parts from foreign companies and the sale of the Company's products or technologies to foreign companies.</li> </ul> | <ul style="list-style-type: none"> <li>It is our policy to work closely with local companies so that we can respond immediately to any changes in policies and regulations in each country or economic zone.</li> </ul>   | Low         | Middle |
| Investment Activities                           | <ul style="list-style-type: none"> <li>As part of our growth strategy, we will actively consider corporate acquisitions, business alliances, and strategic investments, including those of overseas companies. In addition, the Company has established ACSL No. 1 Limited Liability Partnership as a corporate venture capital (CVC). In the event that the financial condition or business performance of the investee deteriorates due to changes in the business environment or preconditions, the Company's financial condition and business performance may be affected. In addition, for assets recorded in connection with investments, etc., if the expected cash flow cannot be generated due to deviations from future performance plans or changes in the market, an impairment loss may be recorded.</li> </ul>  | <ul style="list-style-type: none"> <li>The Company and CVC will make decisions on investments, etc., after giving due consideration to investment risks, etc., and will periodically check the possibility of recovering the investment value.</li> </ul>   | High        | Low    |
| Management system in a small-scale organization | <ul style="list-style-type: none"> <li>As of March 31, 2021, the Company operates as a small-scale organization with 6 directors (2 of whom are outside directors), 3 corporate auditors (1 of whom is a full-time corporate auditor), and 65 employees, and the internal management system is in line with the size of the organization.</li> <li>In the event that we are unable to strengthen our workforce as planned, or in the event that unforeseen circumstances arise in the core personnel of our business that hinder the execution of operations, our business activities may be hindered and our business and business performance may be affected.</li> </ul>   | <ul style="list-style-type: none"> <li>In response to the future expansion and diversification of our business, we plan to increase the number of personnel and further enhance our internal management system.</li> <li>With regard to personnel involved in development, which is the core of our competency, we are actively recruiting from a broad pool of human resources, both domestic and overseas, in order to acquire personnel with global and cutting-edge knowledge.</li> </ul> | Low         | High   |

※ Among the contents of "Business and Other Risks" in the Annual Securities Report, major risks that may affect the execution of the business plan and the realization of growth are extracted and described. For other risks, please refer to "Business and Other Risks" in the Annual Securities Report.

# Key risks and management for them

| Item  | Key Risks  | Risk Management  | Possibility | Impact |
|---|--|--|-------------|--------|
| Impact of the spread of the new coronavirus infection | <ul style="list-style-type: none"> <li>However, delays in vaccination and the spread of mutated strains of the virus may cause prolonged stagnation of economic activities, which may lead to restrained new investments by our customers, a decline in our business activities, and an impact on our supply chain. In particular, from January to March is the months when sales are concentrated. In particular, if economic activities are curtailed due to restrictions on movement or the declaration of a state of emergency from January to March, when sales are concentrated, the financial position and operating results of the Group may be affected.</li> </ul> | <ul style="list-style-type: none"> <li>We will continue to promote our business activities, including the use of remote work in our research and development.</li> <li>By further promoting these efforts, we are working to ensure the safety and security of our employees and continue to provide services to our customers without delay.</li> </ul> | Middle      | Low    |



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# Management Team (as of Dec 31, 2021)



**President  
and COO**

**Satoshi Washiya**

M.S. in Architecture from Waseda University. Served both domestic and multinational companies in corporate wide transformation projects at the Tokyo and Stockholm office of McKinsey & Company. Joined ACSL in July 2016.



**Chairman**

**Dr. Hiroaki Ohta**

Ph.D. from Kyoto University. Assistant professor at Department of Aeronautics and Astronautics, Kyoto University, followed by research scientists at University of California, Santa Barbara. Also served as Technical Advisor for a start-up in Silicon Valley. McKinsey & Company from 2010. Joined ACSL as in July 2016.



**CFO**

**Kensuke Hayakawa**

M.S. in Management of Technology from Tokyo institute of technology. Implemented operational improvement/transformation of portfolio companies at KKR Capstone. Joined ACSL as CFO in March 2017.



**CTO**

**Dr. Chris Raabe**

Ph.D. from University of Tokyo. Embedded software engineer at Boeing from 2006. Assistant professor at Department of Aeronautics and Astronautics, University of Tokyo from 2014. Joined ACSL as CTO in April 2017.

**External  
Director**

**Masanori Sugiyama**

**Audit & Supervisory  
member**

**Akira Ninomiya**

**Audit & Supervisory  
member**

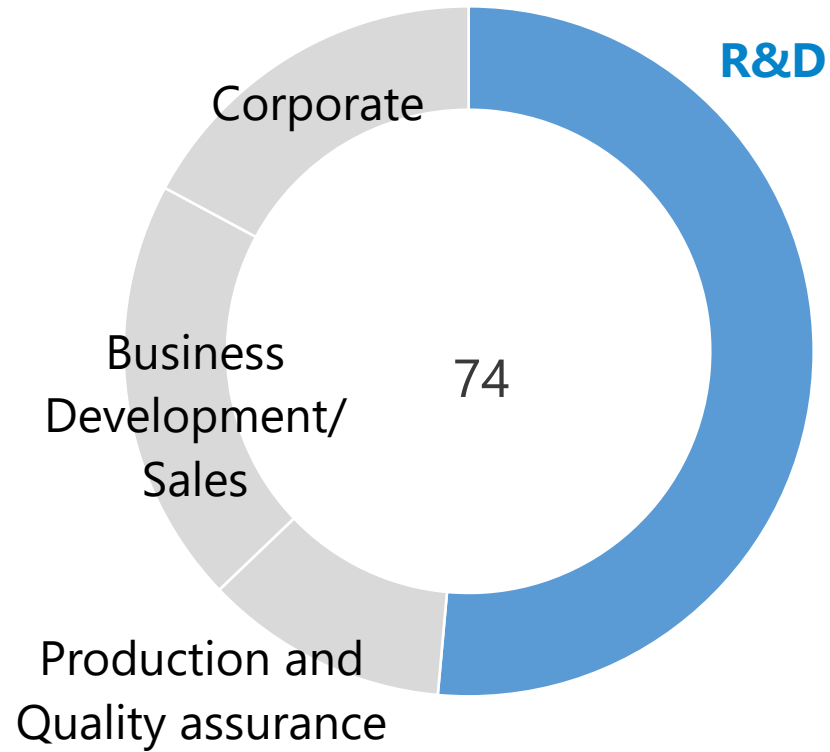
**Hideki Shimada**

**Audit & Supervisory  
member**

**Takeshi Ohnogi**

# R&D team (as of Dec 31,2021)

Continued to expand the team by selecting and hiring top talented engineers to build a competitive R&D team . The team consists of a diverse group of highly skilled engineers.



**Development System**

**Ph.D. holders** **Approx. 15 %**

**Foreign nationals** **Approx. 50 %**

**Nationalities** **17**

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