

August 17, 2020

Autonomous Control Systems Laboratory Ltd.

## **Notice of Partial Correction of Medium-Term Management Direction ACSL Accelerate 2020**

Autonomous Control Systems Laboratory Ltd. (ACSL) has made the following corrections to "Notice of Medium-Term Management Direction ACSL Accelerate 2020" disclosed on August 14, 2020 since some parts should be corrected. The corrections are underlined, and areas that have not been corrected are omitted.

### **I. Reason for correction**

ACSL has discovered that the "Notice of Medium-Term Management Direction ACSL Accelerate 2020", which was disclosed on August 14, 2020, contains items that should be corrected.

### **II. Details of Corrections**

(Appendix, page 3) Highlights of ACSL Accelerate FY20

#### **Before correction**

Annual 2,500 drones shipped, 50% gross profit margin, 0.8 Bn JPY for R&D investment

#### **After correction**

Annual 1,600 drones shipped, 50% gross profit margin, 0.8 Bn JPY for R&D investment

(Appendix, page 20) Sales breakdown

#### **Before correction**

Aiming for an annual shipment of more than 2,000 units by commercialization and mass production of application-specific drone toward FY22, with a significant increase in sales of drones, including subscription

#### **After correction**

Aiming for an annual shipment of more than 1,600 units by commercialization and mass production of application-specific drone toward FY22, with a significant increase in sales of drones, including subscription

The revised medium-term management direction is shown in the Appendix.

### *Attention*

*This document is an unofficial translation of the timely disclosure on August 17, 2020 by ACSL and this is for reference purpose only. In case of a discrepancy between the English and Japanese versions, the Japanese original shall prevail*

# ACSL Accelerate FY20

Autonomous Control Systems Laboratory  
2020年8月14日



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# Objective of the “ACSL Accelerate”

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While the drone market shifts from a “Trial” phase to “Social Implementation” phase, new lifestyle and measures against infectious diseases and progression of Society 5.0 have brought great changes to our business environment.

ACSL has developed a set of mid-term management directions, goals and key milestones to ensure that all stakeholders involved, both internal and external, focus on common value creation for our clients and continuous corporate value growth:

- A **Masterplan** defining the “To-Be” State in 10 years, and
- A **Mid-term Management Direction (FY20-22)** to realize the masterplan

# Highlights of ACSL Accelerate FY20

**The market environment for industrial drones is likely to change significantly in three years, unlocking an unprecedented market**

1. Regulations enacted by 2022 to enable beyond-visual-line-of-sight flight over manned areas
2. Drone security becoming more essential for both the public and private sectors
3. Drones gain attention for new use cases to combat the spread of infectious diseases

**In ten years, ACSL will shift its core business area to flight over populated areas, which will constitute the majority of the market, and aim to achieve 100 Bn JPY sales and 10 Bn JPY profit**

**Mid-term Management Direction aims for 5.5 Bn JPY sales and 0.75 Bn JPY profit**

- Commercialization of application-specific drones, introduction of subscription models, full-scale entry into ASEAN region, and establishment of CVC for technology procurement
- Annual 1,600 drones shipped, 50% gross profit margin, 0.8 Bn JPY for R&D investment



## Agenda

1. Business environment
2. Changes in the industrial drone market environment
3. Masterplan
4. Mid-term Management Direction

# 1. Business environment

# Megatrend

With its declining birthrate and aging population, Japan is expected to be one of the first countries in the world to face a variety of social issues, and the imbalance between supply and demand of labor is fast approaching

## Supply of labor force

Population decline rate<sup>\*2</sup>

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

Labor force<sup>\*1</sup>

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

## Demand for labor force

50-yrs old infrastructure<sup>\*3</sup>

**x 2.5**  
(2018~2023)

Logistics flow<sup>\*4</sup>

**x 5**  
(1988~2018)

\*1: White Paper on Aging Society (Entire Version), Cabinet Office, Government of Japan

\*2: White Paper on Aging Society 2019" by the Cabinet Office

\*3: Ministry of Land, Infrastructure and Transport, "Social Infrastructure Today and in the Future, Social Infrastructure Today and in the Future

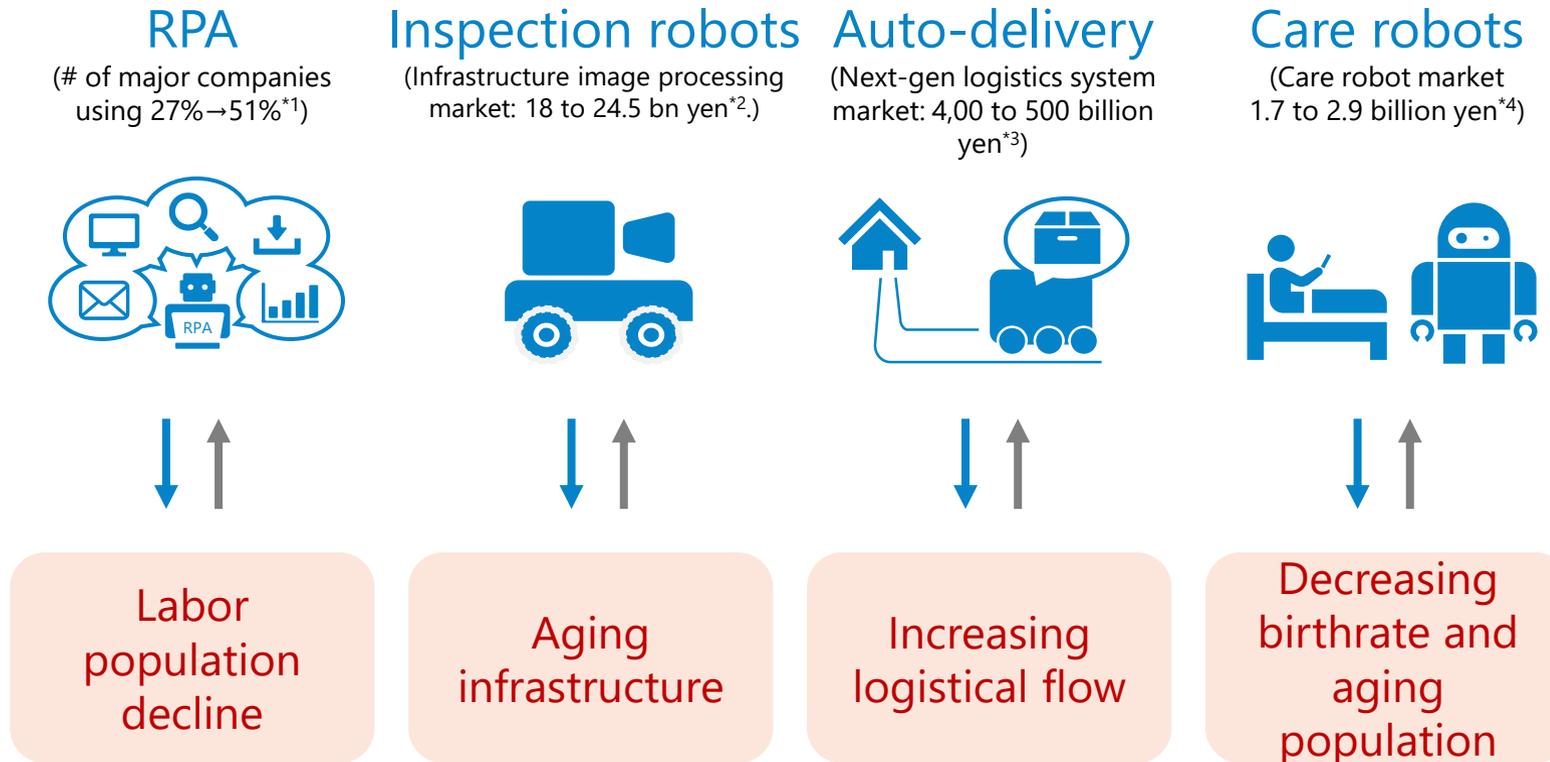
\*4: Ministry of Land, Infrastructure, Transport and Tourism, "Fiscal Year 2018 Delivery Service Performance Data" (Japanese only)

# Robotics technology to solve social issues

The use of robotics technology to solve social problems is being addressed in many areas, and the push for labor-saving and unmanned systems is underway. Drones are also beginning to attract attention as a new potential solution

## Robotics Technology (Example)

## Social Issues



\*1: MM Research Institute, "RPA Domestic Usage Trend Survey 2020" (June 2018 to November 2019)

\*2: Fuji Research Institute, "2018 Edition of Next Generation Infrastructure Maintenance and Management Technology and System-Related Market Status and Future Prospects" (2015 to 2018)

\*3: Fuji Research Institute, "Next Generation Logistics Business Systems and Future Prospects 2019," January 23, 2020 (transition from 2016 to 2019)

\*4: Yano Research Institute, "The Potential and Future of Nursing Care Robots 2018" (transition from 2016 to 2019)

# What Drones as next-gen social infrastructure can do

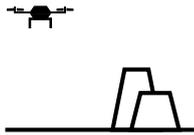
Drones can overcome the limitations of surface area, both indoors and outdoors, to achieve automation and labor savings. The potential fields of application of drones for labor-saving and unmanned systems are many

**Movement in 3D space**



**Remote Control/Automation**

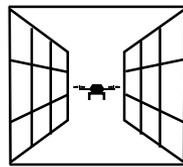
**“Void”**



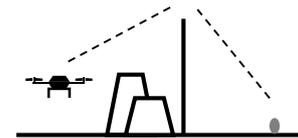
**Outdoor**



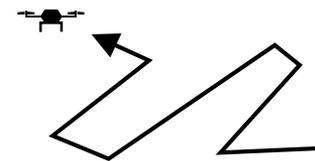
**Semi-Indoor**  
(e.g., Tunnels)



**Indoor**  
(e.g., factories)



**Remote control**  
(4G, 5G / radio communication)

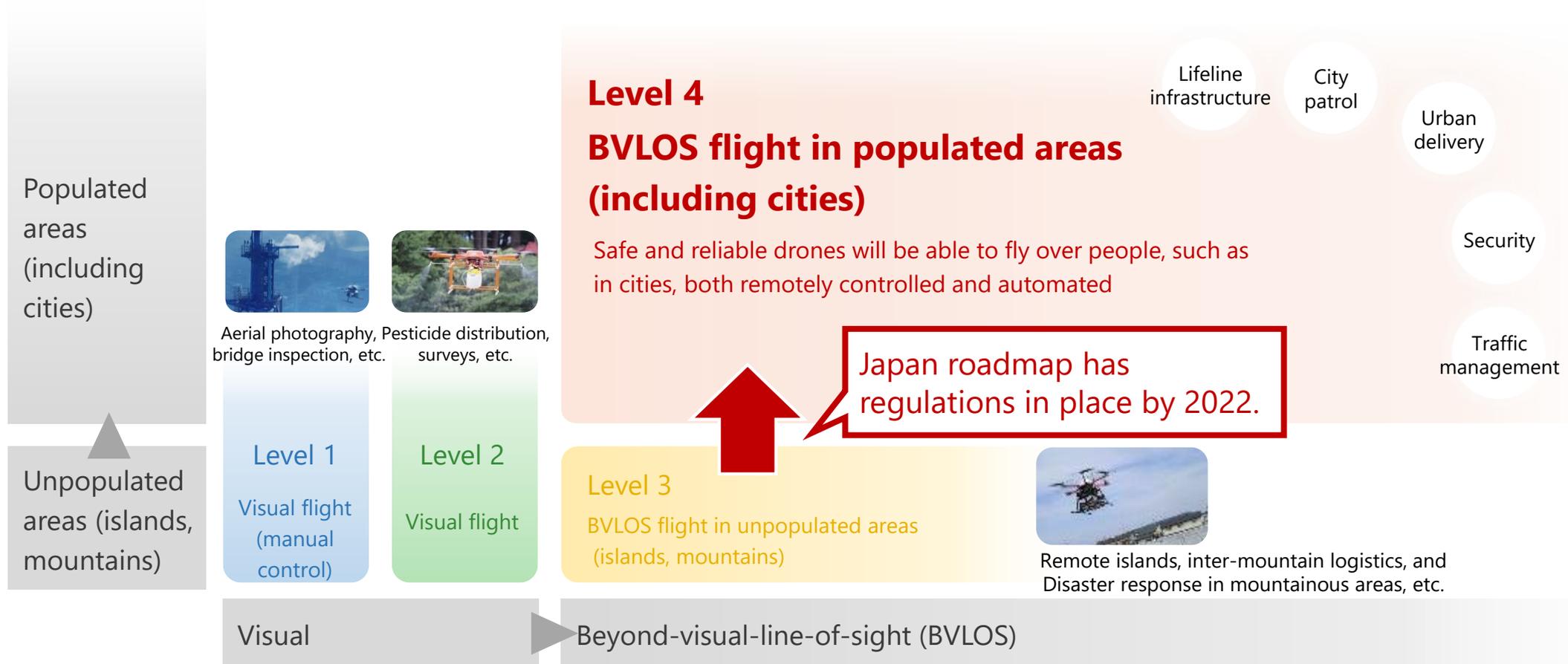


**Autonomous Flight**  
**Automated Controls**

## **2. Changes in the industrial drone market environment**

# Expanding market opportunities through legislation is advancing

Regulations for beyond-visual-line-of-sight (BVLOS) flight in populated areas (including urban areas) are expected to be in place soon, allowing drones to fly in environments where they could not be flown before, opening a huge market



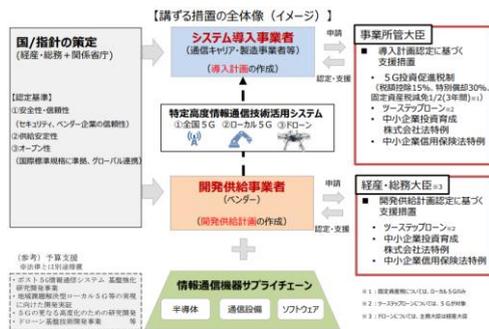
1: Roadmap for Small UAV Utilization and Technological Development (April 28, 2016, Public-Private Sector Council for the Improvement of the Environment for Small UAVs)

# Increasing demand for drone security as an IoT device

Drones are being recognized as an IoT device and accordingly the demand for cyber security is increasing. Both public and private sectors are increasing awareness towards data security for image and operational location data.

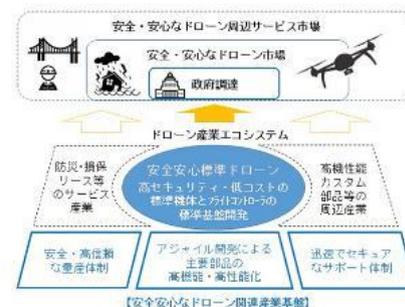
## Legislation to promote drone security\*1

Government passed legislation to promote adoption of 5G and drones while ensuring cyber security



## Drone development intended for government procurement

NEDO has allocated 1.61 billion yen\*2 for development of a high-security, low-cost standard drone and a standard flight controller designed for government procurement.



## Chinese drone security risk reports

The New York Times reports that personal information is being collected in Chinese drone Android applications

*"Google's Android operating system that powers drones made by China-based... collects large amounts of personal information that could be exploited by the Beijing government"*

*(The New York Times; 2020年7月23日; Popular Chinese-Made Drone Is Found to Have Security Weakness)*

\*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)

# New use cases emerging as world adapts to new lifestyle

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The world is adapting to a “new normal” with measures against the spread of infectious diseases, demand for remote work and reduced inter-personal contact. Recognition of benefits of drones is creating a tailwind for the drone industry.

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## Non-contact

Reduced opportunities for contact through automated drone deliveries (e.g., transporting medical and daily commodities)

## Remote control

Business continuity through remote, automated drone control (e.g., infrastructure inspections)

## Monitoring

Use of drones as a means of managing residents' health conditions, monitoring streets and disseminating information

# 3. Masterplan

# What ACSL will accomplish

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## MISSION

**Liberate Humanity Through Technology**

## VISION

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

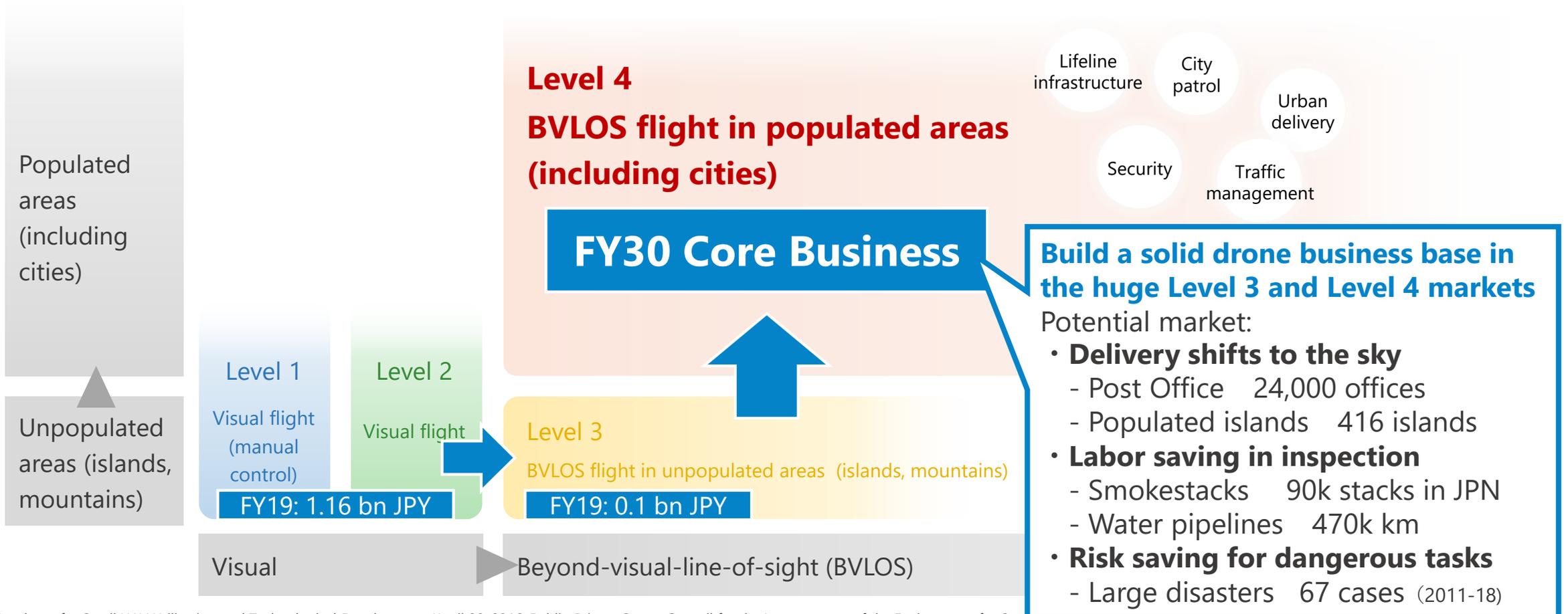
# “To-Be” state in 10 years

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- 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 (cerebellar and cerebral)
- 6 Nurturing the industry's most advanced and talented human resources
- 7 Constantly working to improve its corporate value and financial KPIs

# Core areas of the drone business in the next 10 years

Master plan for the drone business in 10 years' time is to shift our core business area from visual-line-of-sight flight (Levels 1 and 2), which generated 1.16 billion yen in FY19, to the huge growth potential of BVLOS flight (Levels 3 and 4)



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)

## 4. Mid-term Management Direction

# Business strategy highlight

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Evolve from "prototype factory" that focused on demonstration testing and custom development to promote the development, production, and sale of mass-produced, application-specific drones to achieve rapid business expansion

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## New business strategy

### Development of application-specific drones

Commercialization of small aerial drones (for government procurement and the private sector), medium logistics drones (Level 4 compliant), smokestack inspection drones, and enclosed environment inspection drones

### 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

### Full scale entry into ASEAN region

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

### Technology procurement through CVC

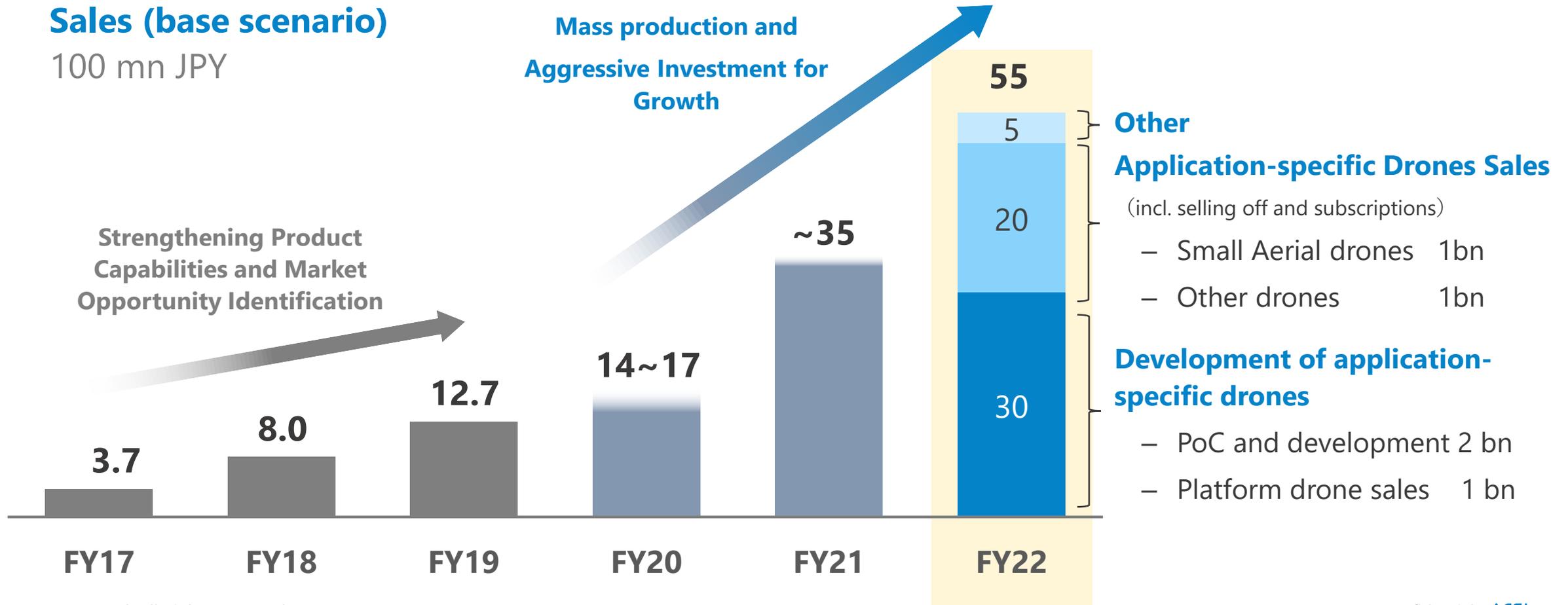
Establish CVC (or equivalent function) and actively procure technologies with potential for technology synergies, such as AI, blockchain, security, image processing and sensors

# Sales

Aiming for sales of approximately 5.5 billion yen in FY22 in conjunction with the commercialization of application-specific drones from FY20, and steadily build up a pipeline for future sales of application-specific drones after FY22.

## Sales (base scenario)

100 mn JPY



# Sales breakdown

Aiming for an annual shipment of more than 1,600 units by commercialization and mass production of application-specific drone toward FY22, with a significant increase in sales of drones, including subscription

	FY20		FY22	
	Units	Value (100mn JPY)	Units	Value (100mn JPY)
<b>Sales of application-specific drones</b>			<b>1300~</b>	<b>20</b>
Small aerial photo (low ASP)	-	-	1,000~	10
Other (high ASP)			300~	10
<b>Development of application-specific drones</b>	<b>~200</b>	<b>12.5~15</b>	<b>~300</b>	<b>30</b>
PoC and Development	-	7.5~10	-	20
Sales of Platform/Evaluation drones	~200	~5.0	~300	10
<b>Other</b>	-	<b>~1.5</b>	-	<b>5</b>

# KPI in the Mid-term Management Direction

Established new KPIs in the Mid-term Management Direction in order to accurately track the progress of new business models.

## From

	Summary	KPI
<b>Drone Sales</b>	Sales of drones in STEP 3~4	Units
<b>Solution Development</b>	PoC and custom development in STEP 1~2	Projects

## To

	Summary	KPI
<b>Sales of application-specific drones</b>	<ul style="list-style-type: none"><li>▪ Sales of Development of application-specific drones (incl. selling off and subscriptions)</li></ul>	<ul style="list-style-type: none"><li>▪ Units</li><li>▪ Applications</li></ul>
<b>Development of application-specific drones</b>	<ul style="list-style-type: none"><li>▪ PoC and custom development using platform drones</li><li>▪ Sales of platform/evaluation drones</li></ul>	<ul style="list-style-type: none"><li>▪ Projects</li><li>▪ Units of platform drones</li></ul>

# Numerical targets

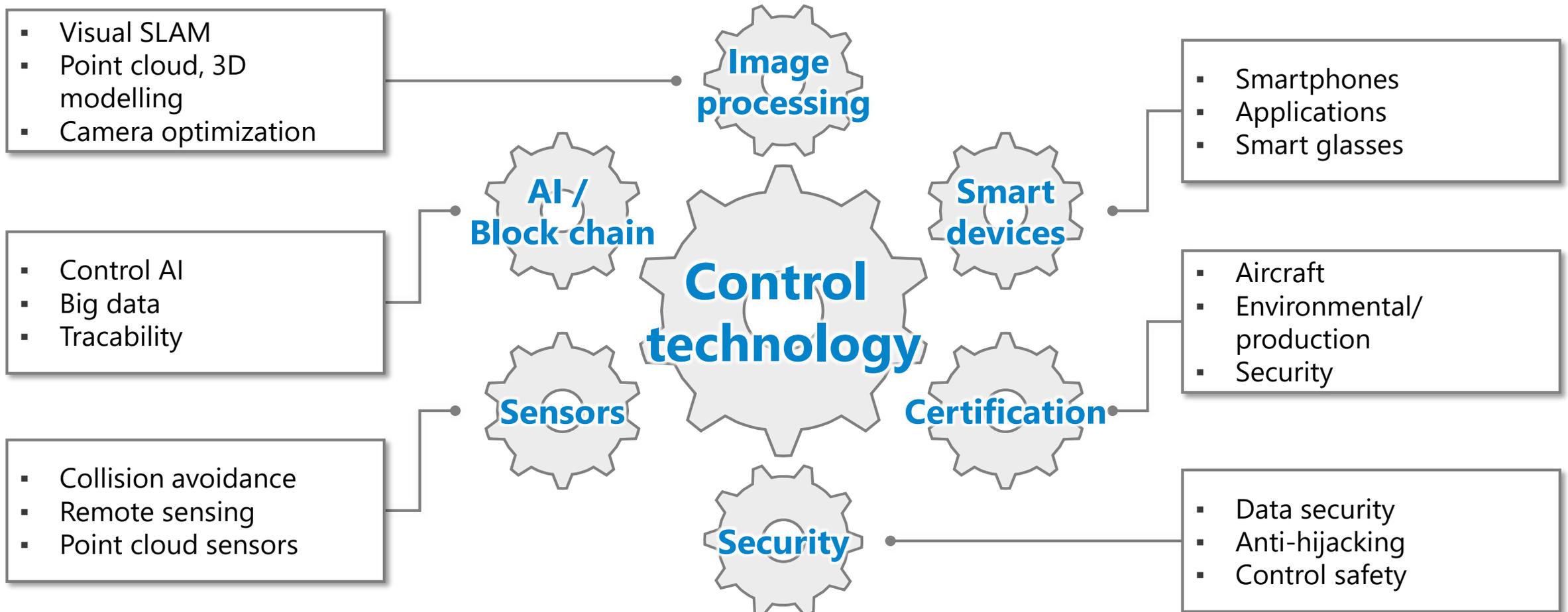
By commercializing small aerial photo drones, ACSL aims to achieve a solid business foundation of 5.5 billion yen in sales and 750 million yen in operating income by FY22, despite a decline in profit margins due to the rapid increase in sales.

	FY17	FY18	FY19	FY20	FY22
Revenue [JPY]	370 mn	800 mn	1.2 bn	1.4~1.7 bn	5.5 bn
Gross profit	48%	53%	63%	57%	50%
R&D	320 mn	360 mn	270 mn	410 mn	800 mn
Sales profit	▲540 mn	▲300 mn	10 mn	▲250~0 mn	750 mn

In FY22, the commercialization of small drones for public and private sector will help build a solid sales profit, despite a decline in gross margin.

# R&D Expenditure Themes

ACSL will continue to spend on human resources, consigned development, equipment purchases, etc. on technologies that will increase the value of its products, including exploratory themes, with a focus on its core control technology.



# Financial policy, governance and HR strategy

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Maintain a certain level of cash while aggressively pursuing R&D and investment to capture new business growth opportunities. As the business expands, strengthen corporate governance, recruit talented people and increase diversity

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## Continue aggressive investment

- Aggressive investment in the business to achieve ACSL Accelerate FY20
- Promote M&A and strategic investment to accelerate growth and establish CVCs for flexible investment

## Maintain healthy financials

- Active use of external partners instead of making large investments to secure production facilities in-house
- Retain a certain level of cash and invest for growth in an agile manner

## Strengthen corporate governance

- Continuously strengthen our corporate governance, internal control and IT systems to withstand future market changes

## Attract top talents

- Retention and acquisition of top talent in line with the expansion of business scale, mainly in research and development
- Introduction of stock compensation-type stock options for executives and employees
- Strengthen diversity. Targeting to increase the number of nationalities of our employees from 12 to 15 or more in three years.



# ACSL

Autonomous Control Systems Laboratory Ltd.