AUTONOMOUS CONTROL SYSTEMS ABORATORY



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FY21/03 1Q Highlights

- Despite delays in sales due to the expansion of COVID-19, ACSL continued to enhance collaboration and conduct R&D activities
- In response to growing demands for data security, NEDO¹ launched a project to develop a more secure drone. ACSL was adopted with the government's aim to take procurement from next fiscal year

Sales of 36 MM JPY in Q1

- Demonstrations and sales of platform drones decreased from the previous fiscal year due to postponement of project implementations
- ✓ Others increased from the previous fiscal year due to the booking of national projects
- Although business activities are restricted due to COVID-19, ACSL actively continued to conduct R&D with increased personnel
- Announced "ACSL Accelerate 2020", a medium-term management policy, for the future market
 - ✓ With a view on significant changes in the industrial drone market environment, ACSL set goals for the next 10 years
 - Medium-term management policy targets 5.5 billion yen in sales and 750 million yen in profit in FY23/03 as target over the next three years
- The outlook for this fiscal year is sales of 1.4 to 1.7 billion JPY and operating loss of 2.5 to 0 JPY
 - ✓ There is a risk that the spread of the COVID-19 infection may postpone projects and delay new acquisitions
 - ✓ ACSL will make upfront investments, mainly in R&D, in fields where demand is expected to grow in the future

Impact of Infection Expansion of COVID-19

Delay in booking sales in Q1 due to postponement of projects. Despite delays in project implementation, demand for unmanned and labor-saving is expected to continue in the future

	Potential risks	Recent situation
Customer	 Reduction of customers' investment budget for new technologies such as drones due to economic and business downturn 	 Delay in sales due to postponement of 1Q projects While certain risk of postponement of this year project implementation, demand will continue
Supply chain	 Delays in production due to the inability to procure major parts caused by delays in supply and the suspension of production 	 Supply chain is gradually recovering Expects to overcome by the end of the year, despite some delays in procurement
Operation	 Decrease in business development activities Suspension or slowdown of business activities due to spread of infections 	 Continuously recommends remote work Continues development and production activities while keeping the number of employees in office
Finance	 Decrease in cash due to lower sales Impairment risk caused by sluggish business activities of portfolio companies 	 Sufficient cash holdings (approx. 3.5 billion JPY) Continues cost control at portfolio companies

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Financial Highlights

Sales decreased from the previous fiscal year due to the postponement of project implementation and recorded 36 MM JPY in Q1. Profit posted a loss due to the impact of the decline in sales

	FY2 1	1/03 Q	FY20/03 1Q	FY20/03 Annual	
	Actual	YoY Increase/Decrease	Actual	Actual	
Sales	36	4 0.6%	60	1,278	
Gross profit	▲6	_	8	808	
Gross profit margin	▲ 19.1%	▲32.8 ppt	13.7%	63.2%	
Operating income	▲237	_	▲ 197	15	
Ordinary income	▲ 180	-	▲80	231	
Net income	▲214	-	▲81	239	

Sales and Operating profit by quarter

As is typical YoY, sales is small in Q1-Q3 and tend to be biased toward Q4.

The seasonality may be exacerbated this fiscal year due to the impact of COVID-19

Sales and Operating profit by quarter [MM JPY]



Sales transition

Demonstrations and platform drone sales decreased from the previous fiscal year due to delays in project implementations. "Other"s increased from the previous fiscal year due to national projects



1: Solution development (STEP1, 2) and Mass production (STEP3, 4) were respectively renamed as demonstration experiment and platform drone sales from this quarter.

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Quarterly change in the demonstration experiments

As is typical YoY, sales were small in Q1, and demonstration experiments were postponed due to COVID-19, resulting in a decline in revenue from the previous fiscal year



Quarterly sales (MM JPY)

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1: Solution development (STEP1, 2) was renamed to "Demonstration experiment" from this quarter

Platform drones sales

Sales are usually small in Q1 of each year, and sales in Q1 of the current fiscal year were lower than in the previous fiscal year due to delays in shipments to customers caused by COVID-19



Sales by quarter (MM JPY)

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1: Mass production (STEP3, 4) was renamed to platform drone sales from this quarter

Others

Sales of the national project for this fiscal year was JPY21 million. Maintenance services remained at the same level as the previous year.

Other Sales (MM JPY) National Projects ■ Maintenance services, etc. Others¹: 68 Maintenance services • Sales of drone components and modules 30 • Repair service 65 28 30 59 Some national projects 18 21 33 27 16 14 12 10 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 FY03/18 FY03/19 FY03/20 FY03/21

1: 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. © 2020 ACSL Ltd. All Rights Reserved.

Gross profit

Gross loss is 6 million JPY. Gross profit margin tends to remain low due to the small sales



R&D Expenditure

Even under the influence of COVID-19, our core R&D activities continued and posted the same R&D expenditure as last year. The ratio to sales increased due to the decrease in sales



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Status of projects for the current fiscal year as of the end of Jun.

As of Q1, the highly probable pipeline¹ is 110 MM JPY. Promoting the acquisition of projects though development of new customers in addition to approach to existing customers



1: Highly probable pipelines is the total amount of sales for projects with a purchase order and related documents at the end of June

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FY21/03 Q1 Major Business Highlights

Along with promoting partnerships with major companies in various fields, ACSL was adopted a national project and steadily expanded its business

Apr.	Jointly with Nishimatsu Construction, ACSL developed a system that automatically measures cracks in concrete floors.	
	Began collaboration with Sensyn Robotics to build and implement B-to-B drone solutions	SENSYN
	Adopted in New Energy and Industrial Technology Development Organization (NEDO)'s project "Development of Secure Drone Infrastructure Technology"	(NEDO
May.	Collaboration began with VFR for joint development of application-specific commercial drone	VFR Inc.
Jun.	Participated as the only member in the logistics field of Super City Open Laboratory	Super City 2-Tech challenges SDGs
Jul.	Started collaboration with Toko Tekko to develop and sell disaster prevention drones	7€₭€ 東光鉄互株式会社
	Marine litter reduction project "Debris Watchers" disclosed the development progress of a coastal drifted litter detection system	
Aug.	Developed smokestack inspection drone in collaboration with Kansai Electric Power	😫 関西電力
	Adopted in NEDO's project "Develop the operation control system for unmanned aerial vehicles and collision avoidance technology"	(NEDO

Development of Foundational Technologies for Safe and Secure Drones

With the increasing importance of security for drones, the need for security-backed drones is rapidly growing

Growing interest in security-backed drones

The importance of introducing drones as flying IoT with ensured cyber security is reaffirmed

NEDO launched a project of 1.61 billion JPY¹ for developing a standard infrastructure for highsecurity, low-cost standard drone and flight controllers intended for government procurement.

Consortium companies:



Expansion to small aerial drone market

- In the small-scale aerial drone market, there has been only a choice of consumer drones, and large demand is expected for smallscale security-backed drones
- ACSL can expand into markets not previously approached

Aiming to contribute to earnings from the next fiscal year (FY03/22) after the end of this project in this fiscal year

1: The size of businesses adopted is the size of the projects of all the companies and is not ACSL sole budget

Inspection- Automatic Measurement of Cracks on Concrete Floors

In collaboration with Nishimatsu Construction, ACSL developed a system to automatically measure cracks in concrete floors, aiming to save labor and improve quality

Detecting cracks in concrete

- The detection of the cracks in the concrete floor is currently achieved by visual inspection, and labor cost is an issue
- Developed a system consisting of a drone that flies autonomously through a non-GPS environment to take pictures of the floor automatically and image analysis technology to detect cracks in concrete
- It is expected to reduce the burden on the inspector, save time, and improve the quality of the crack inspection compared to the conventional method of marking cracks in the concrete floor



Source: Nishimatsu Construction Press Release

Inspection- Chimney Inspection Drone with Kansai Electric Power Company

Provided PF2 as a platform drone for an autonomous drone developed with Kansai Electric Power Co. to fly in non-GPS environments for inspection inside the chimneys of thermal power plants

Chimney interior inspections

- In cooperation with KEPCO, developed an autonomous drone for inspection inside the chimney (non-GPS environment) to reduce inspection costs, improve work efficiency and increase safety.
- ACSL provides ACSL-PF2 as a platform aircraft in drones that autonomously fly even in non-GPS environments
- KEPCO and KANSO Technos Co., Ltd. will cooperate in ACSL to conduct inspections of smokestacks using this drone.



Source: Kansai Electric Power Co., Press Release

Disaster Prevention - Disaster prevention drones with Toko Tekko

In line with the national policy, started collaboration for disaster prevention/mitigation drone that can be used to collect and survey information in the harsh environment of large-scale natural disasters

Providing flight controllers for drone

- Provision of high-performance, multi-functional, allweather, mission-critical drones in response to the national policy for natural disasters and accidents
- The importance of drones that can be used for lifesaving, information gathering and rescue activities at disaster sites, and the rapid increase in demand for safe and secure drones that can be used for secure management of confidential information
- Toko Tekko leverages its experience and expertise to develop a drone that is resistant to wind and dust, having a floating structure, for disaster prevention and disaster mitigation
- The airframe designed and manufactured by Toko Tekko is equipped with **flight controllers developed by ACSL**.



Toko Rescue Loan ® TSV-RQ1

Source: Press Release of Toko Tekko

Disaster Prevention - Development of Coastal Litter Detection System

Debris Watchers, an industry-academia partnership project in which ACSL participates, discloses progress on developing coastal drifting waste detection systems.

Coastal Litter Detection System

- ACSL joined the drone team of Debris Watchers an industry-academic marine litter reduction project consisting of six companies and two universities
- Using AI to analyze images captured by a drone along the coast to verify the practicality of image recognition technology for identifying plastic and other coastal debris
- Imaging of the coast is carried out using ACSL-PF2 and other equipment

▼実証実験の様子と成果



(写真 1)ACSL 製の国産ドローン「ACSL-PF2」機で、高度 20m から空撮を実施。



Started collaboration with Sensyn Robotics

Collaboration with Sensyn Robotics to develop B-to-B drone solutions and actual deployment. As a first step, completed connecting to SENSYN FLIGHT CORE and launched solutions

Cooperation to provide solutions in all phases

 Seamlessly provide all phases of drone utilization for end-user business issues

Examples of applications

- Development of application-specific drone, solutions including software systems, proof-ofeffectiveness testing, and implementation into actual operations and post-implementation support
- Logistics: Full automation of indoor inspections, such as inventory taking, and full automation of outdoor drone logistics
- Inspection: Periodic inspections through remote monitoring and remote management



Source: Sensyn Robotics Press Release

Collaboration with VFR for development of industrial drones

Collaboration with VFR began for the development of industrial drones for the Japanese market.

About VFR

- Established in Mar. 2020 as a subsidiary of VAIO Co., Ltd
- **Develop airframes and components** and provide solutions to promote and accelerate innovation in social infrastructure through drones
- Aiming to leverage the advanced engineering and manufacturing technologies cultivated in the parent company, VAIO's PC-related business, as well as supply chain management skills in Japan and overseas

Collaboration between ACSL and VFR

- There is an urgent need to develop massproduction drones and solutions that can be deployed
- Issues can be solved by combining the knowledge and technical strengths of both companies
- VFR's computing and robotics technologies and ACSL's airframe development and autonomous control technologies are used to update ACSL's existing aircraft and jointly develop new aircraft optimized for each application

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Objectives of ACSL Accelerate

ACSL announced its medium-term management policy at a time when it shifted from the "demonstration phase" to the "social implementation phase" for industrial drones.

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

FY 21/03 Forecasts

Despite risk of a decline in sales due to COVID-19, ACSL will continue upfront investment, mainly in R&D, for business expansion in the future



Forecast FY20/03

Sales are expected to be 1.4 to 1.7 billion JPY, more than last fiscal year. While sales is expected to grow operating loss is expected to 0 to 250 MM JPY due to upfront investment



- Including the risk of a sales decline due to the impact of COVID-19, the forecast is JPY1.4 to JPY1.7 billion
- The number of projects for demonstration experiment is expected to remain at the same level as the previous fiscal year. (112 cases) Unit price is expected to decline due to the impact of the elimination of large-scale project in FY20/03
- Platform sales are expected to increase by more than the previous fiscal year (-200 units) in line with MINI sales. Unit price is expected to decline due changes in the product mix.



- Gross profit target of 55~60%
- R&D expenses, which are the main SG&A expenses, are expected to be 410 MM JPY
- Operating loss is expected to 250 to 0 MM JPY given COVID-19 risks

1: Solution construction (STEP1, 2) and Mass production (STEP3, 4) were renamed to Demonstration experiments and platform drone sales from the current quarter. © 2020 ACSL Ltd. All Rights Reserved.

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Balance Sheet

[MM JPY]

	FY21/03 End of first quarter		FY20/03 End of first quarter	FY20/03 End of the fiscal year
	Actual	YoY Increase/Decrease	Actual	Actual
Current Assets	3,872	▲ 19%	4,753	4,818
Cash	3,482	▲23%	4,531	3,775
Fixed Assets	1,072	+1,499%	67	449
Total Assets	4,944	+3%	4,820	5,268
Current Liabilities	124	▲38%	200	233
Long-term Liabilities	1	_	0	0
Total Liability	126	▲37%	200	233
Net Asset	4,818	+4%	4,620	5,034
Total Asset	4,944	+3%	4,820	5,268

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 breakdown

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

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

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.



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.

	指標	FY17 (18/03)	FY18	FY19	FY20	FY22
Sales of application-specific	drones					
Small agrial photo	Unit					1,000~
Small aerial photo (low ASP)	Value (100mn JPY)					10
Other (high ASP)	Unit	-	-	-	-	300~
	Value (100mn JPY)					10
Development of application-specific drones						
PoC and Development	# of project	60	81	112	-	-
	Value (100mn JPY)	2.1	2.9	8.6	7.5~10	20
Sales of Platform/Evaluation drones	Unit	40	106	101	~200	~300
	Value (100mn JPY)	9.0	3.8	3.0	~5.0	10

Management Team



CEO

CFO

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.



President &COO

СТО

Satoshi Washiya

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



Kensuke Hayakawa

M.S. of 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.



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
External Director	Shinichi Suzukawa
Director	

Audit & Supervisory member	Akira Ninomiya
Audit & Supervisory member	Hideki Shimada
Audit & Supervisory member	Takeshi Ohnogi

(Reference) Sales Recognition and Seasonality

Sales are booked upon acceptance by client (at end of project). Seasonality increases towards 4Q driven by large-scale projects, mainly from existing customers



Large-scale projects and seasonality



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