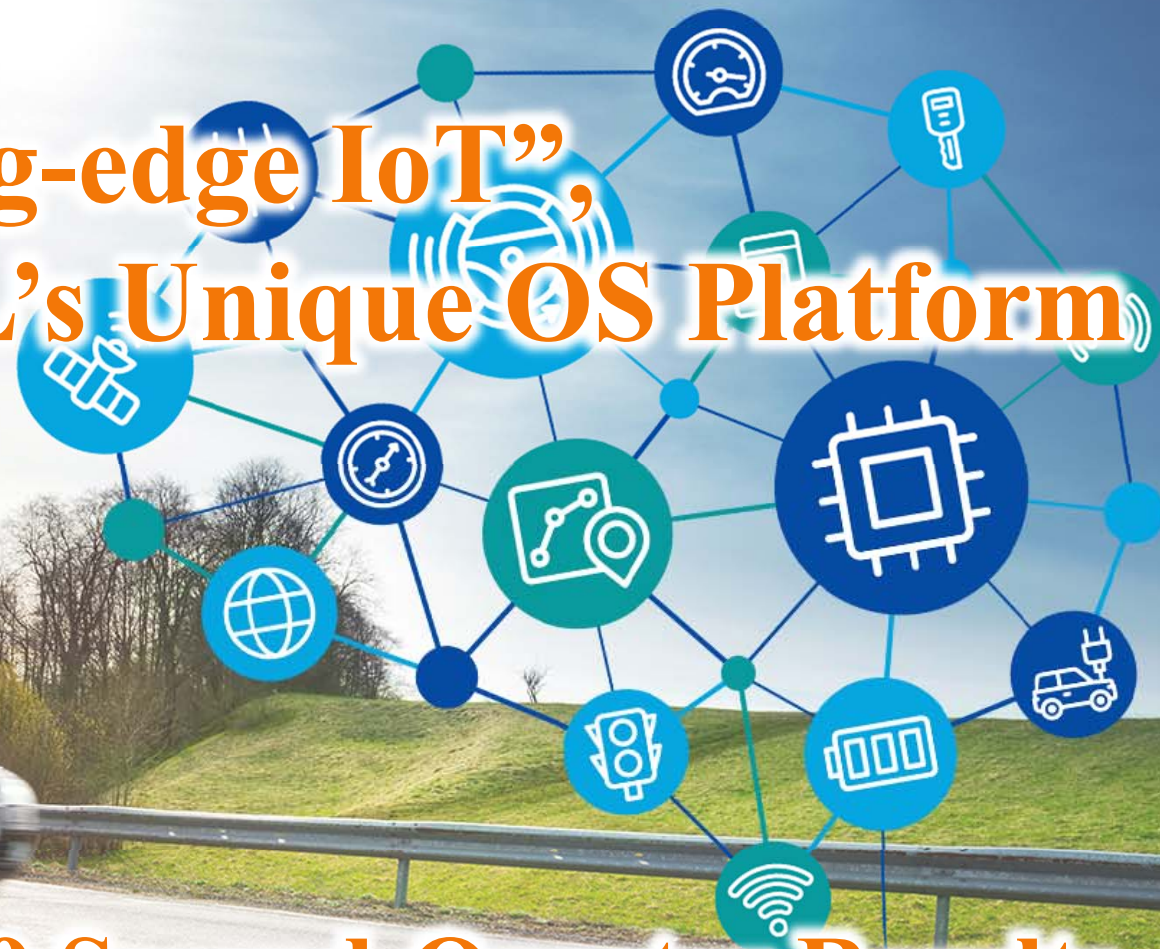




Pioneer “Leading-edge IoT”, with eSOL’s Unique OS Platform



eSOL Reports 2019 Second-Quarter Results

August 2019 by eSOL Co., Ltd. (TSE Mothers 4420)

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1. Company Information



eSOL SPIRIT - Management Philosophy -





Company Information

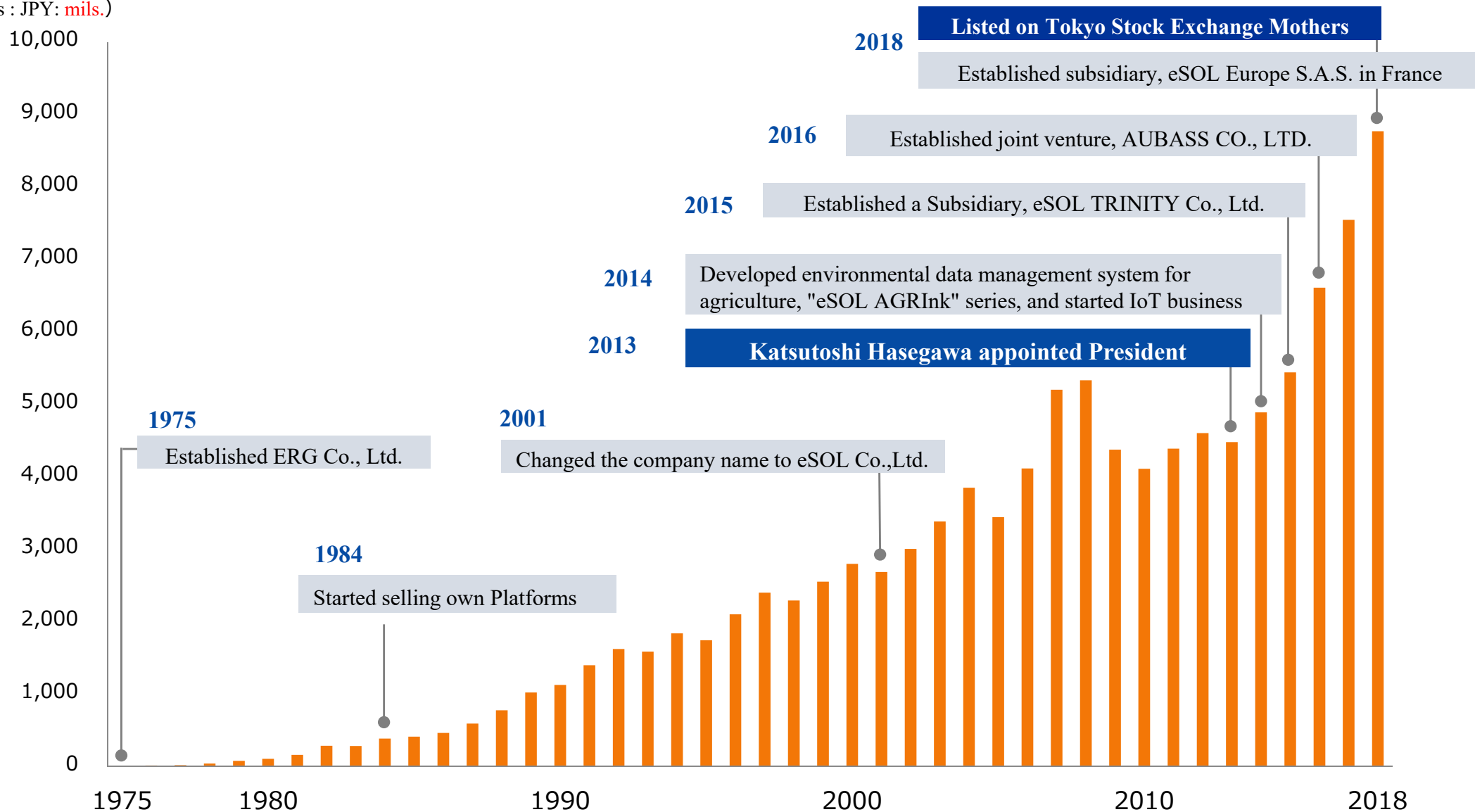
Name	eSOL Co.,Ltd.	
Foundation	May 1975	
Representative	President Katsutoshi Hasegawa	
Core Business	Embedded Software <ul style="list-style-type: none">• Software development and licensing• Engineering services• Consulting services	Hardware <ul style="list-style-type: none">• Scanners, printers and custom software for retail inventory applications• Sensing device for IoT applications
Paid-in capital	1,041million yen (as of Nov. 2018)	
Employees	448 (as of Jun. 2019) *Consolidated	
Group Companies	eSOL TRINITY Co.,Ltd (Consolidated subsidiary) AUBASS CO., LTD. (Equity method affiliate) eSOL Europe S.A.S. (Consolidated subsidiary)	est. Mar. 2015 est. Apr. 2016 est. Mar. 2018



History

eSOL has been achieving sustainable growth in fluctuating software industry.

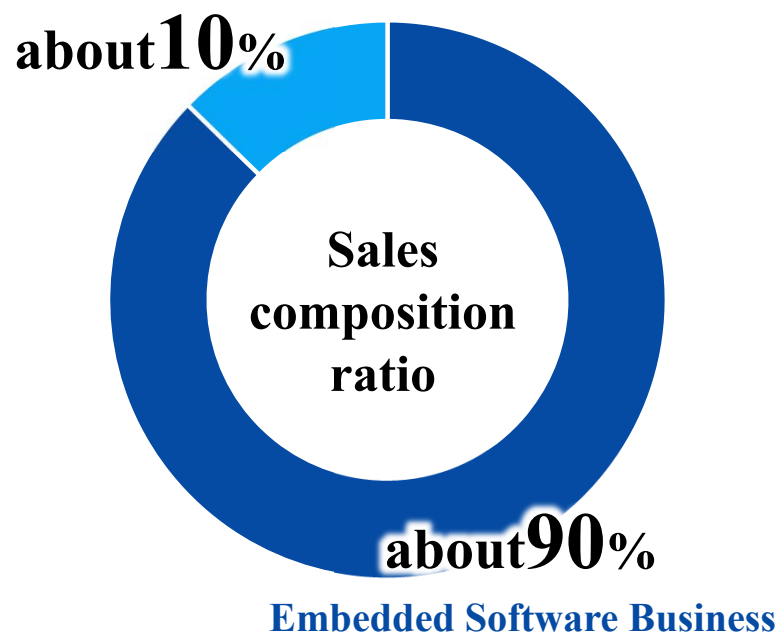
(Sales : JPY: **mils.**)





Business Overview

Sensing Solution Business



Embedded Software Business

- Development and sales of RTOS (real-time operating system)
- Engineering services for entrusted embedded software
- Consultation related to embedded software development
- Sales of tools for embedded software development
- Education for engineers for embedded software development

Sensing Solution Business

【Logistics related business】

- In-vehicle printer for issuing designated slips
- Ordinary temperature devices (handy terminal, forklift mounted cameras, access points, etc.)
- Development and sales of strong environmental resistance handy terminal and sales-support software

【Sensor network related business】

- Proposal of sensor network system

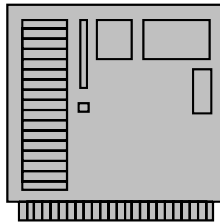
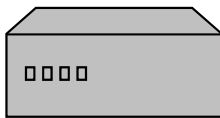


What's Embedded Software ?

Embedded software is a piece of software that is embedded in various hardware or non-PC devices around us, for example vehicles, in order to control those electronic equipment. It excludes, however, so called “Computer” such as PC, server, or super computer. Today, many pieces of equipment is increasingly computerized. Along with that trend, the embedded software market has been expanding.

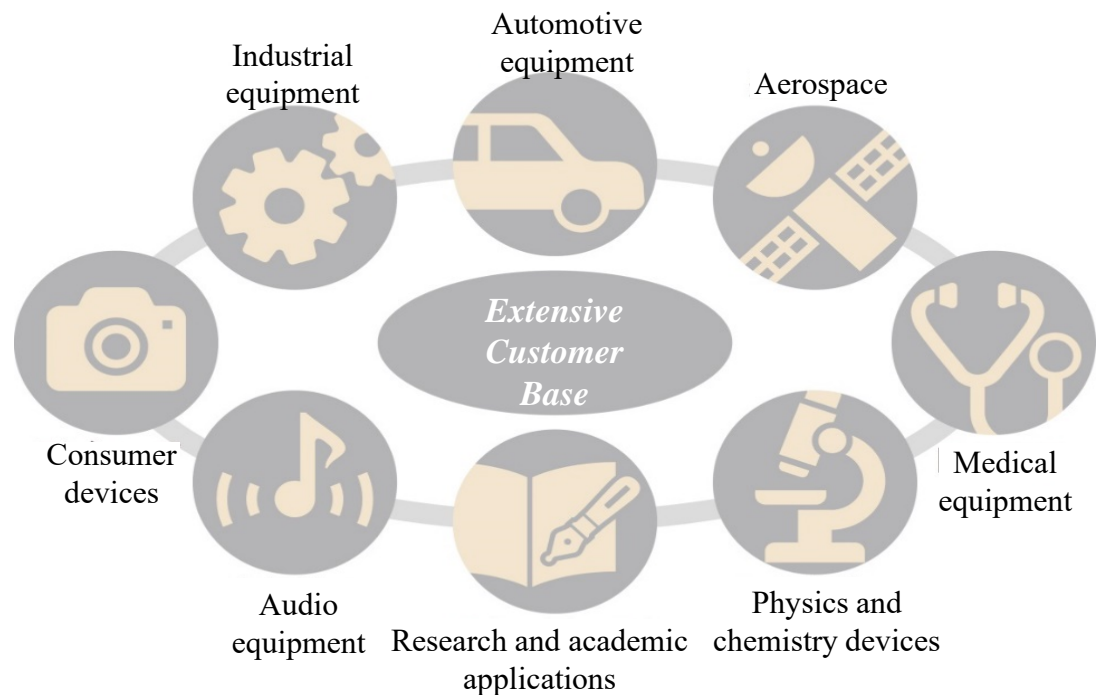
so called “Computer”

Used for:
e-mail, word processors, data
storing, and data processing.



Embedded Software

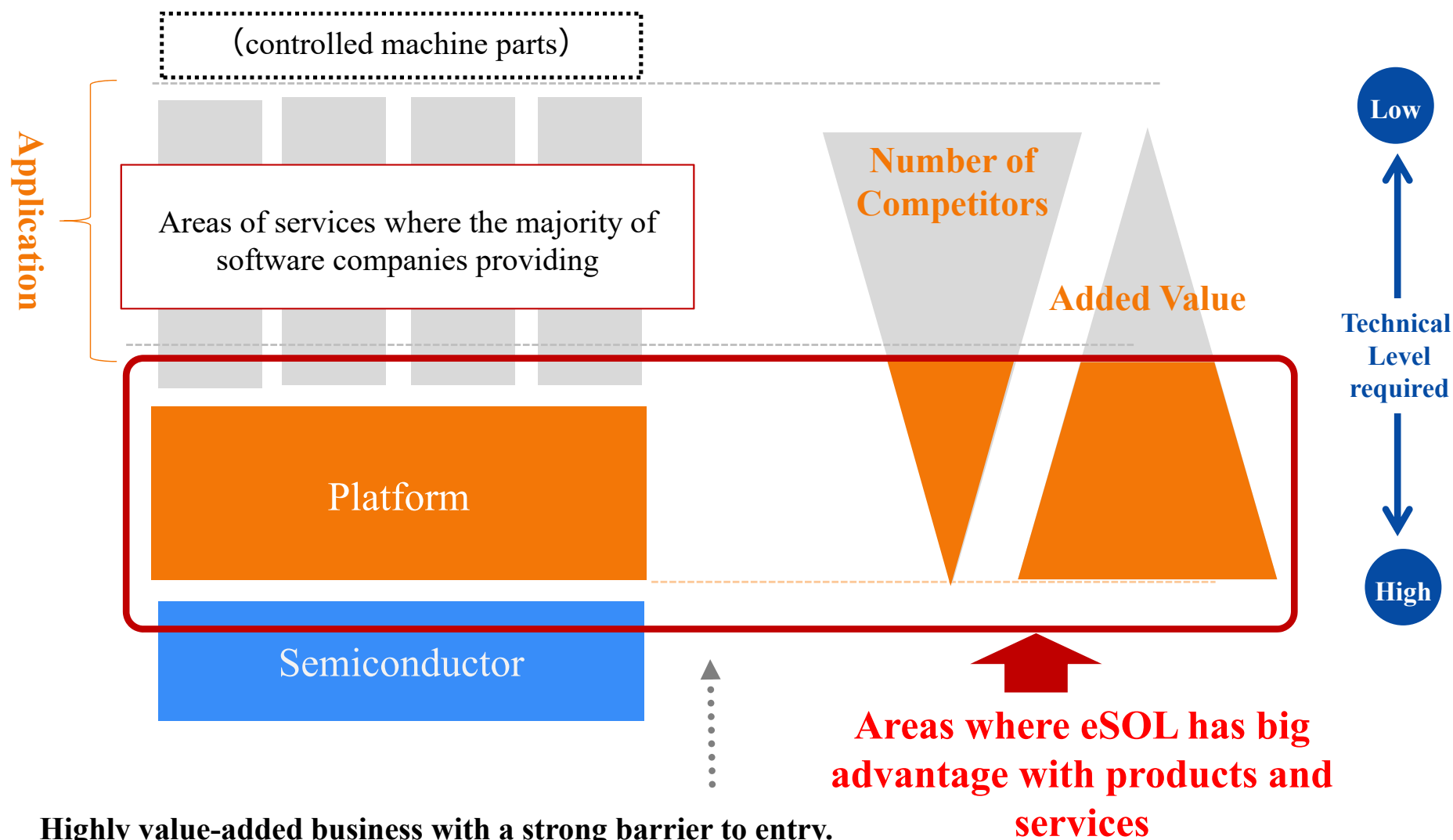
Embedded for controlling electronic devices that are found almost every where around us.





Embedded Software Industry Structure

Very few companies can develop leading platforms in the world.



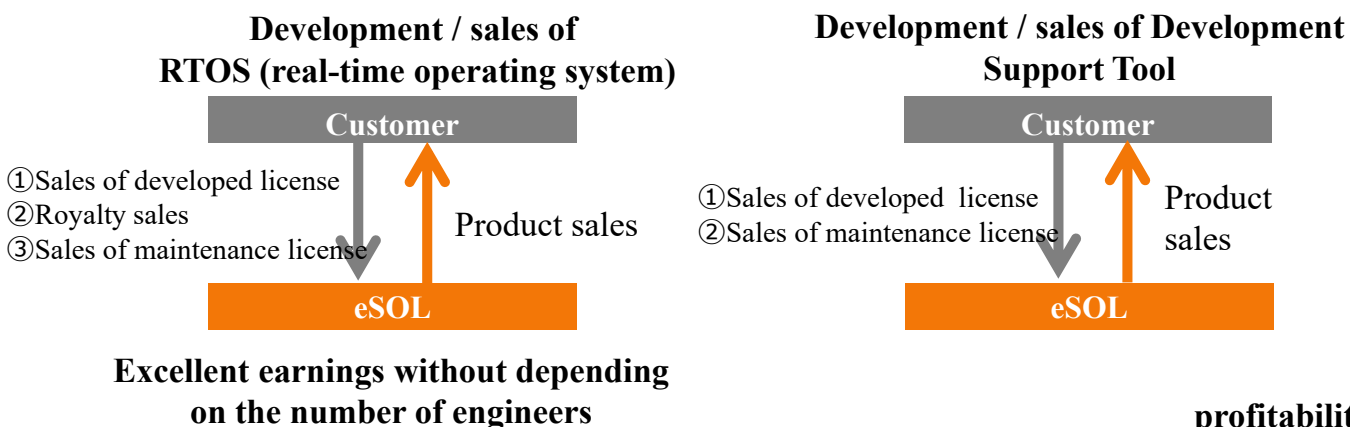
- Highly value-added business with a strong barrier to entry.
- Very few companies have unique OS.



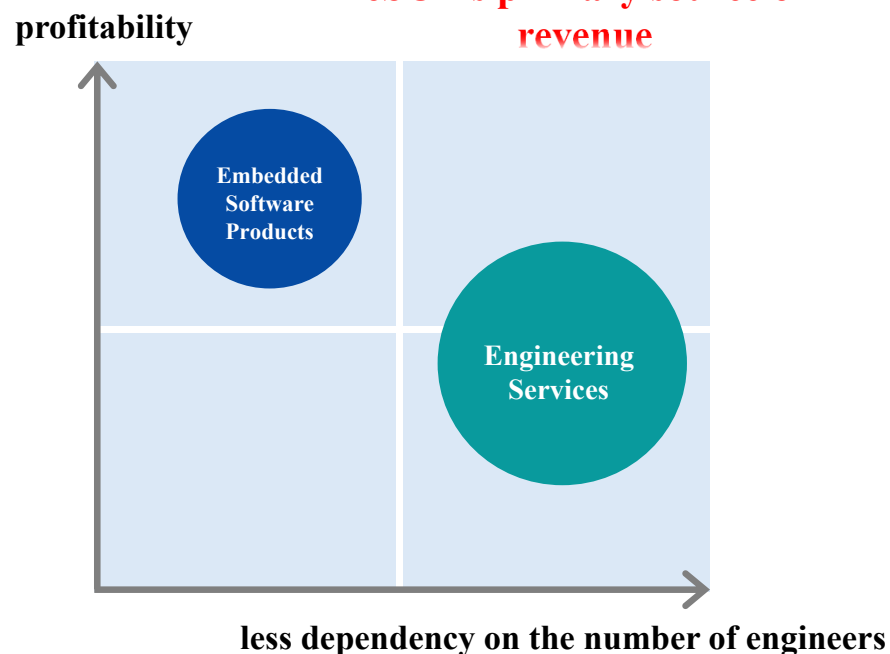
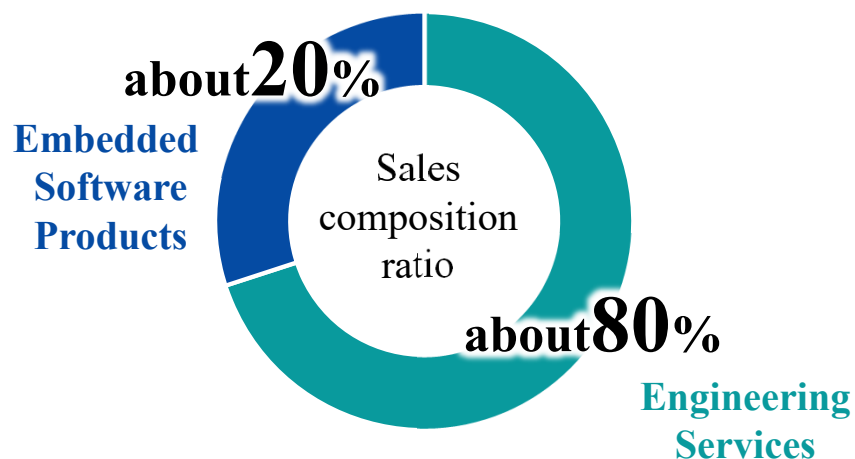
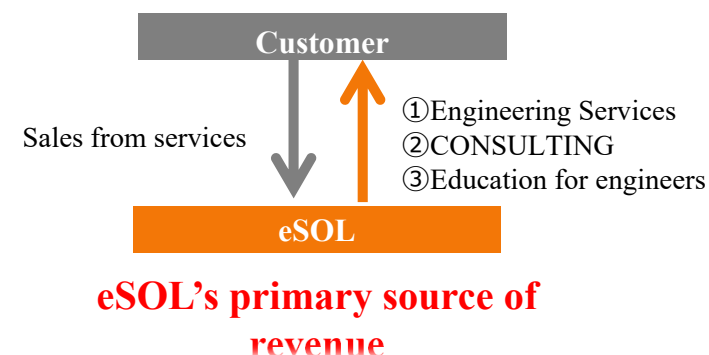
Revenue Structure of eSOL's Embedded Software Business

Well-balanced profit structure with highly profitable Embedded Software Products and fairly stable Engineering Services.

● Embedded Software Products



● Engineering Services

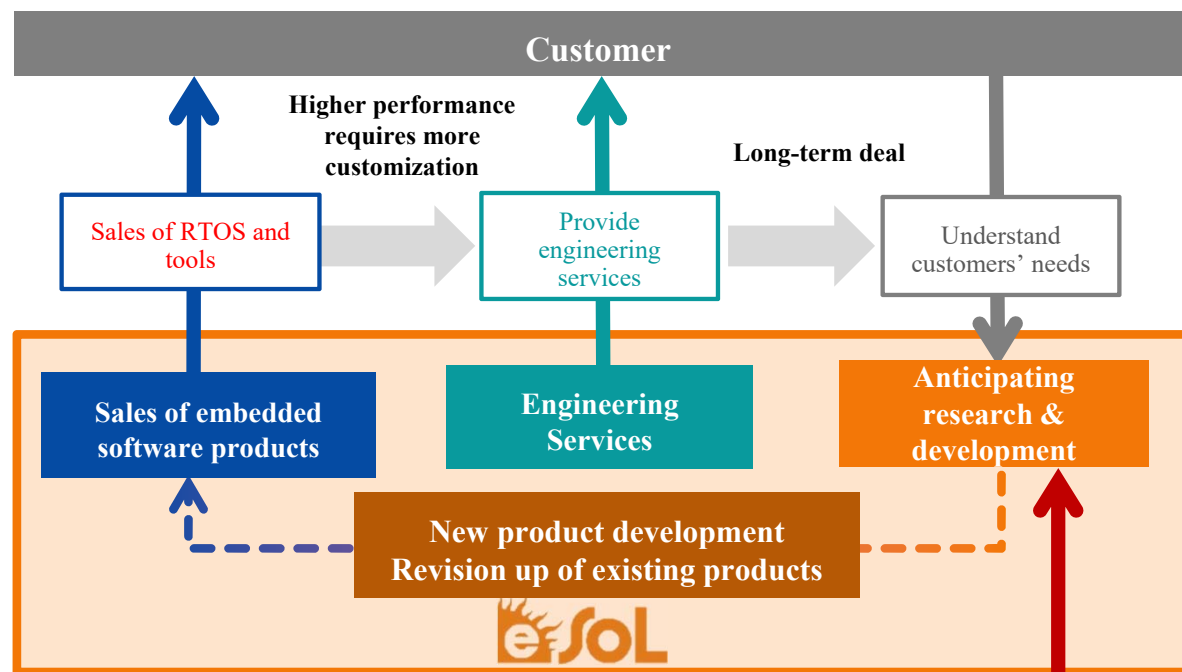




eSOL's Embedded Software Business Character

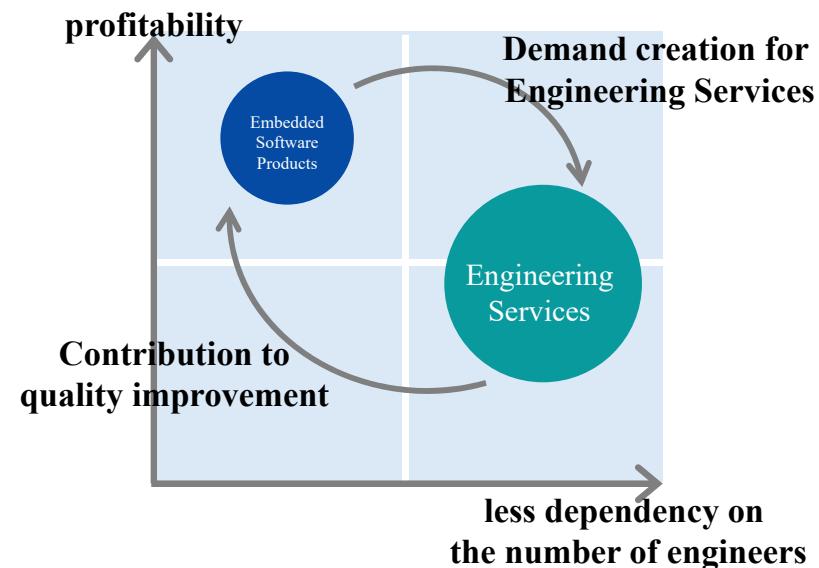
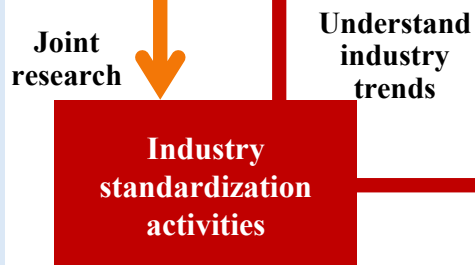
Further business expansion has been generated by successful synergy between Embedded Software Products and Engineering Services.

Developing leading-edge products in the industry's stream of standardization.



AUTOSAR : The global development partnership in automotive industry established in 2003 to promote international standardization of automotive software infrastructure. More than 200 companies and organizations participate: such as automobile manufacturers and automotive components manufacturers.

IEEE : Institute of electrical and electronic engineering established in 1963, having its Head Quarter in U.S. SHIM Working Group is WG belonging to a sectional committee.



Example for Standardization

■ AUTOSAR

AUTOSAR contributes to make specification with its technical expertise and knowledge for onboard system, and allow them to be reflected in state-of-the-art eSOL's software development.

■ IEEE SHIM Working Group

Working group promotes to standardize specification between hardware and interface (SHIM) for effective development of software which day by day becomes sophisticated and complex. Moreover, being reflected in eSOL's software development with up-to-date specification. Masaki Gondo, eSOL CTO was appointed Chair in 2019



eSOL's Technology in Embedded Software Business

Core of this business model is established by virtue of advanced technology.

eSOL received various International Safety Standards

Received the following safety standards from
SGS-TÜV Saar GmbH:

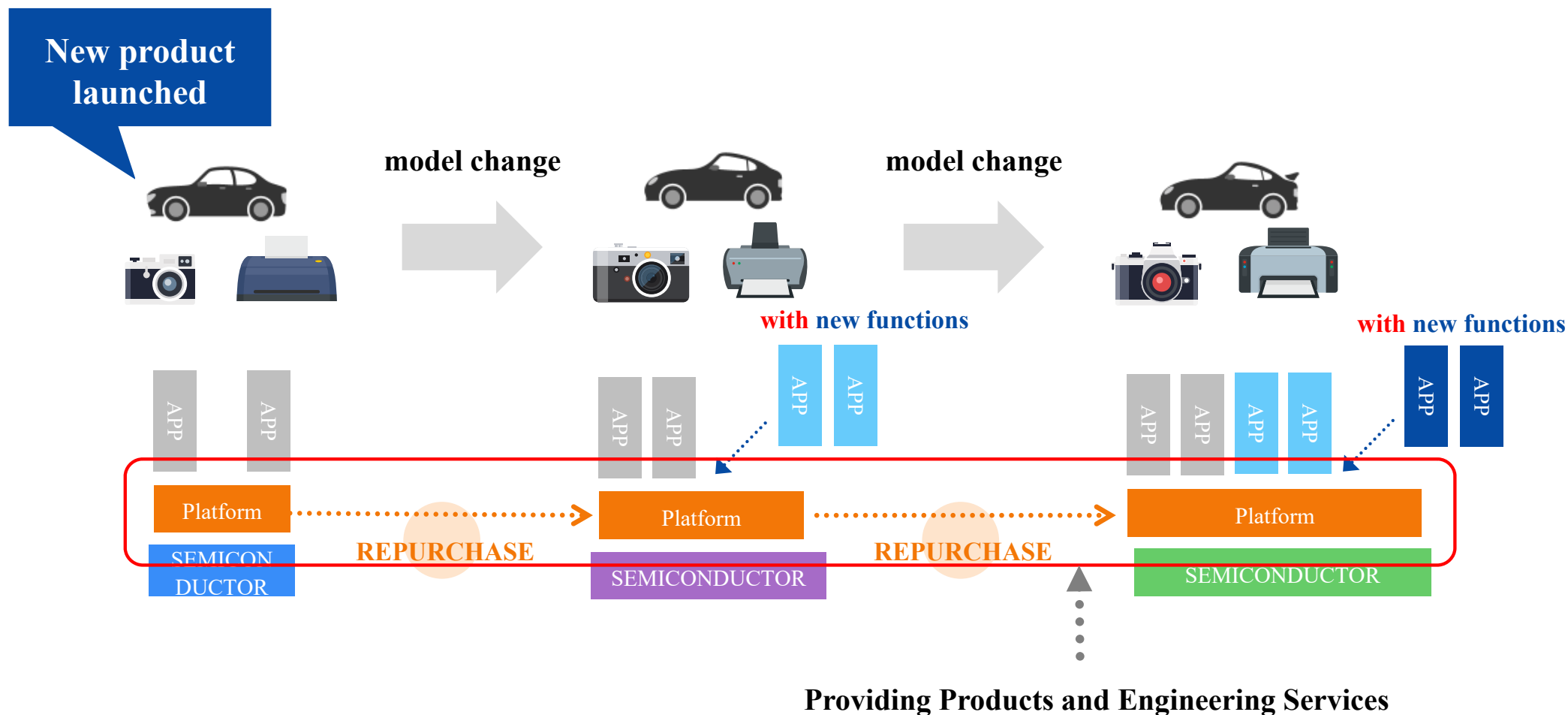


- eT-Kernel Compact
 - ISO 26262 ASIL D functional safety standard for automotive products.
 - IEC 61508 SIL 4 functional safety standard for industrial equipment
- eMCOS AUTOSAR
 - ISO 26262 ASIL D functional safety
- Development process for real-time OS products
 - IEC 62304 functional safety standard for medical equipment



Stability of eSOL's Embedded Software Business

Embedded Software Business is stock business.
Platform-repurchase demand continues.





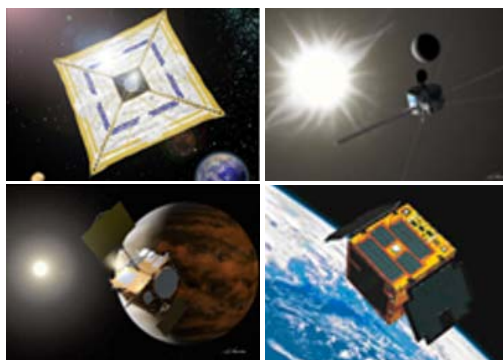
Typical examples of eSOL's Embedded Software

Our Embedded Software has been adopted across industries. Moreover, market size and importance are growing year by year along with IoT becomes familiar.

Automotive devices



Aerospace



Consumer devices



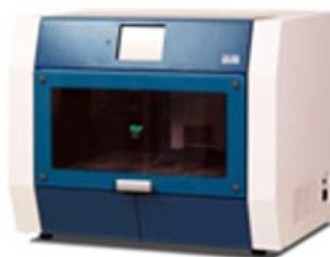
Industrial equipment



Audio equipment



Physics and chemistry devices



Diverse needs such as research and academic use





Prospective strategy: Promising driver lies in automobile industry

Since 2016, eSOL has been contributing as “Premium Partner” to the global development partnership organized in automobile industry : AUTOSAR.



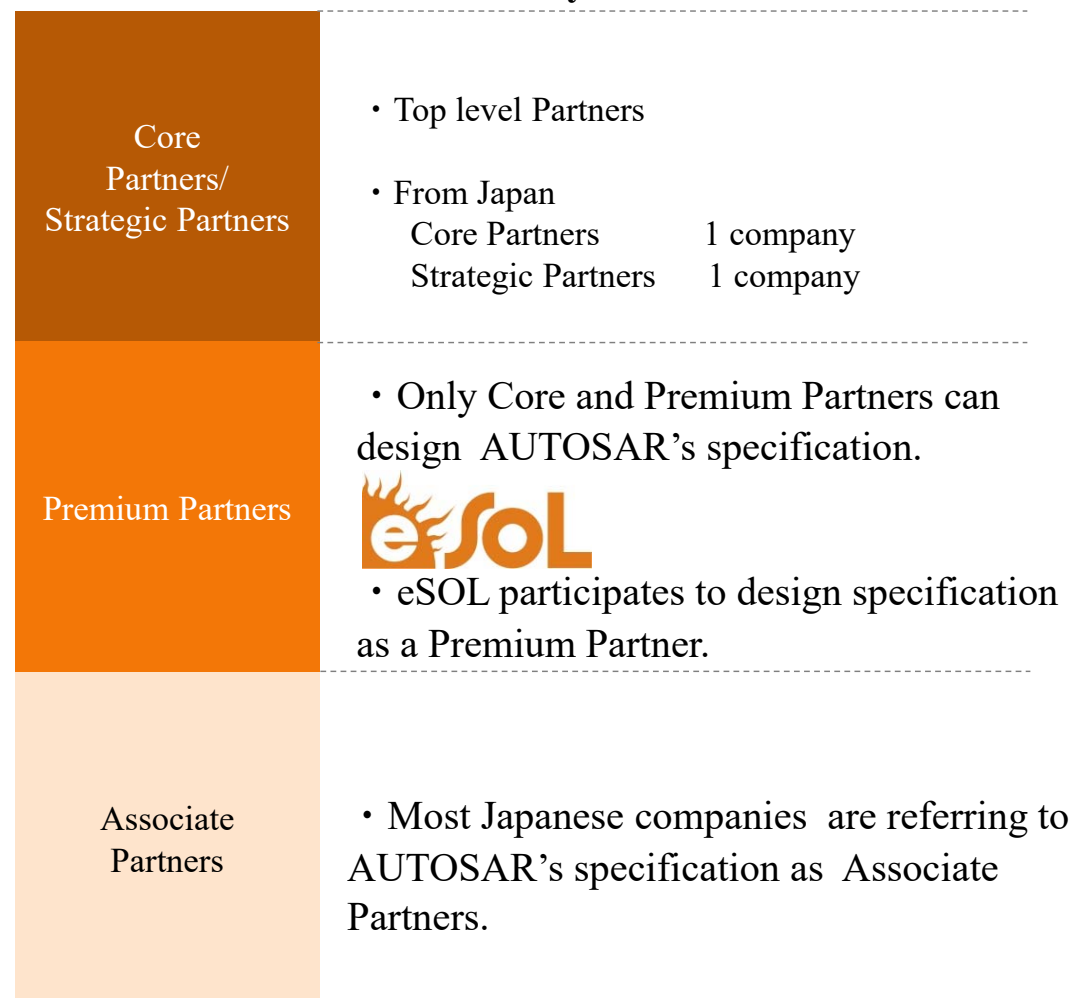
What's AUTOSAR ? <https://www.autosar.org/>

- **Global development partnership of the automobile industry organized in July 2003.**
- **Consists of more than 200 firms and organizations such as manufacturers of automobiles and automotive components.**
- **Aiming to realize effective development of software and ensure security measure through standardizing basic specification of onboard software.**
- **Already adopted in Europe in mass-produced vehicles, while growing across the other regions including Japan .**

According to CITI Research

AUTOSAR is expected to reduce development cost by 30%.

Outline of AUTOSAR hierarchy





Sensing Solution Business Products

Product planning, manufacturing guidance, and sale of hardware through applying our programming expertise

Logistics related business



In-vehicle printer for issuing designated slips



POS handy terminal



Terminal holder specialized for forklift

Sensor network related business

Farm management system

Sediment disaster preventive system



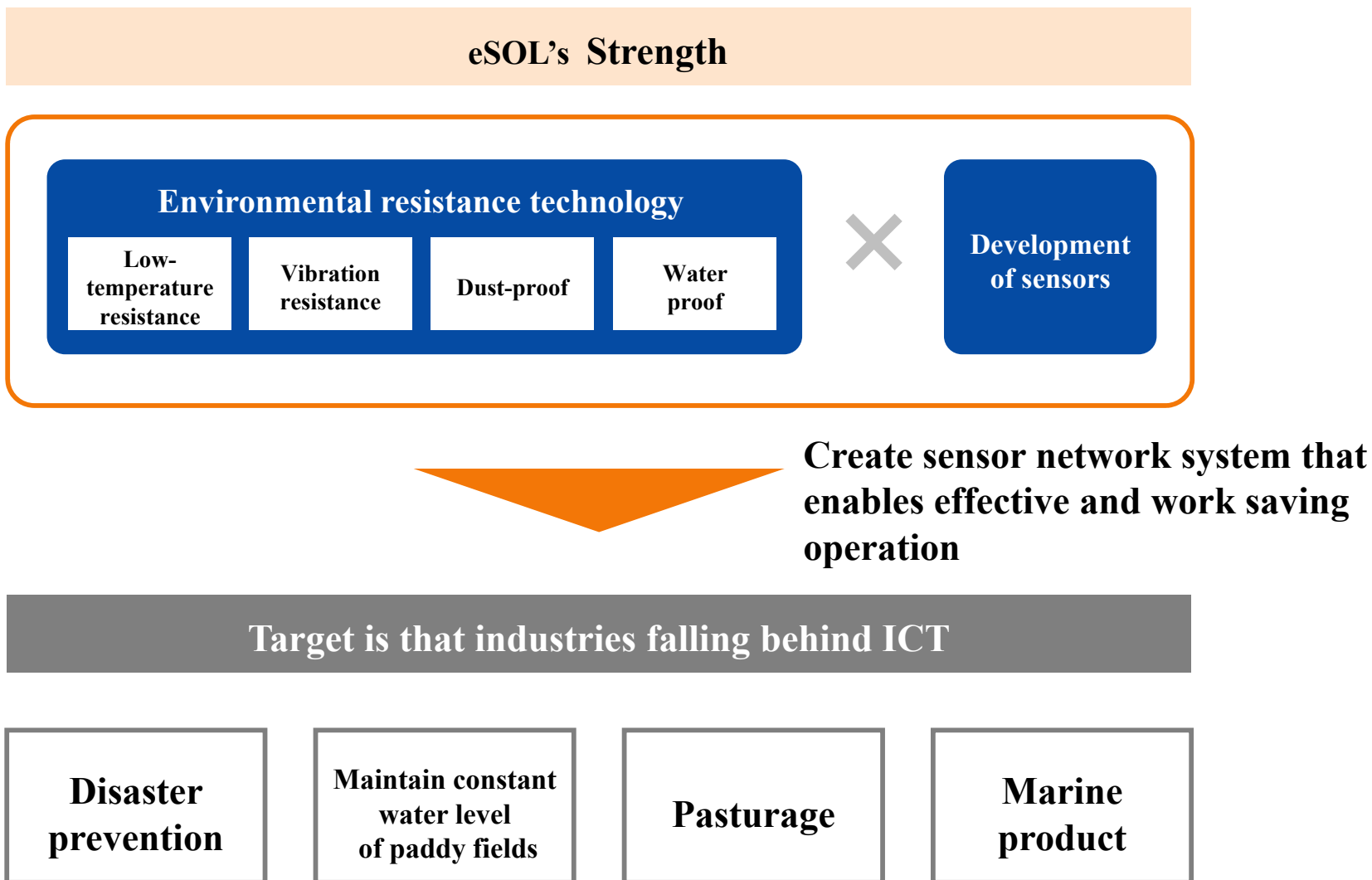
Strong environmental resistance technology with years of cumulative efforts





Prospective sensing solution business: IoT market

We continue research aiming at commercialization





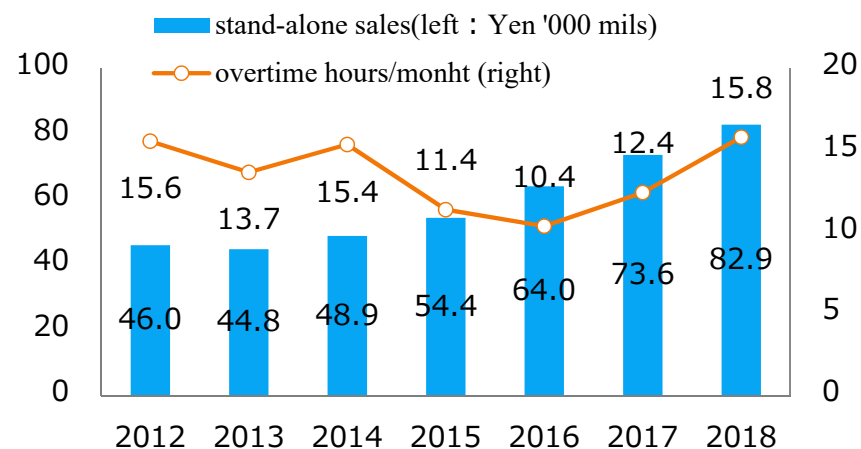
Remarkable employees' satisfaction, which is our strength

Anticipated other industries in implementing “Reform of Working Practice” from 2012, which has resulted in engineers' increased motivation.

Consciousness survey of engineers (5 out of 5)

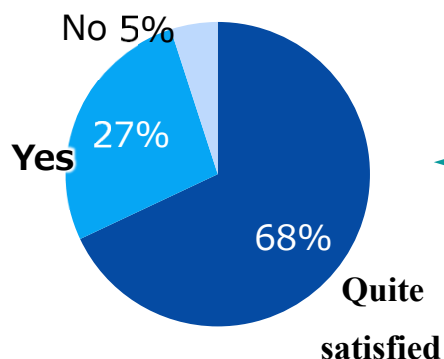


Sale and “Reform of Working Practice” relationship



In 7 years, overtime hours remain at approximately the same level, however, sale has grown by 1.8 times from 2012.

Is eSOL worth working ? (July 2018 inquiry)



Engineer's' comments

- Wanted to develop own OS, I joined eSOL.
- I feel satisfied everyday as I realize my skills are growing.

Average length of service

10.9 years
(+ 1.8 years from 2012)

Annual paid leave consumed

75.1%
(+4.8% from 2012)

Topics: As the firm implementing “Reform of Working Practice” which the government is promoting, eSOL was introduced in both the Public Service Announcement and The Tokyo Shinbun (2019.2.20) .

(Public Service Announcement URL)

<https://www.gov-online.go.jp/cam/hatarakikata/jirei/25.html>





2. eSOL reports for FY2019 2Q Results



FY 2019 Q2

Summary of business results

	FY2018 Q2	FY2019 Q2	(JPY mn)	
			Increase / decrease	YoY
Sales	4,357	4,811	+ 454	+ 10.4%
Gross profit	1,332	1,497	+ 165	+ 12.4%
Operating profit	478	415	△ 63	△ 13.3%
Recurring profit	490	519	+ 29	+ 6.0%
Net income	344	362	+ 17	+ 5.0%

■ As for Embedded Software Business, the profit increased due to growing sales of Automobile and FA equipment. While, the profit of Sensing Solution Business showed decrease due to slow down of sales for in-vehicle printer and handy terminal.

As a whole, however, the total group profit increased.

■ Operating profit decreased due to the increase of R&D expense incurred by NEDO* project. However, by transferring the revenue of NEDO to Other Revenue, profits of and below Recurring profit increased.

*New Energy and Industrial Technology Development Organization

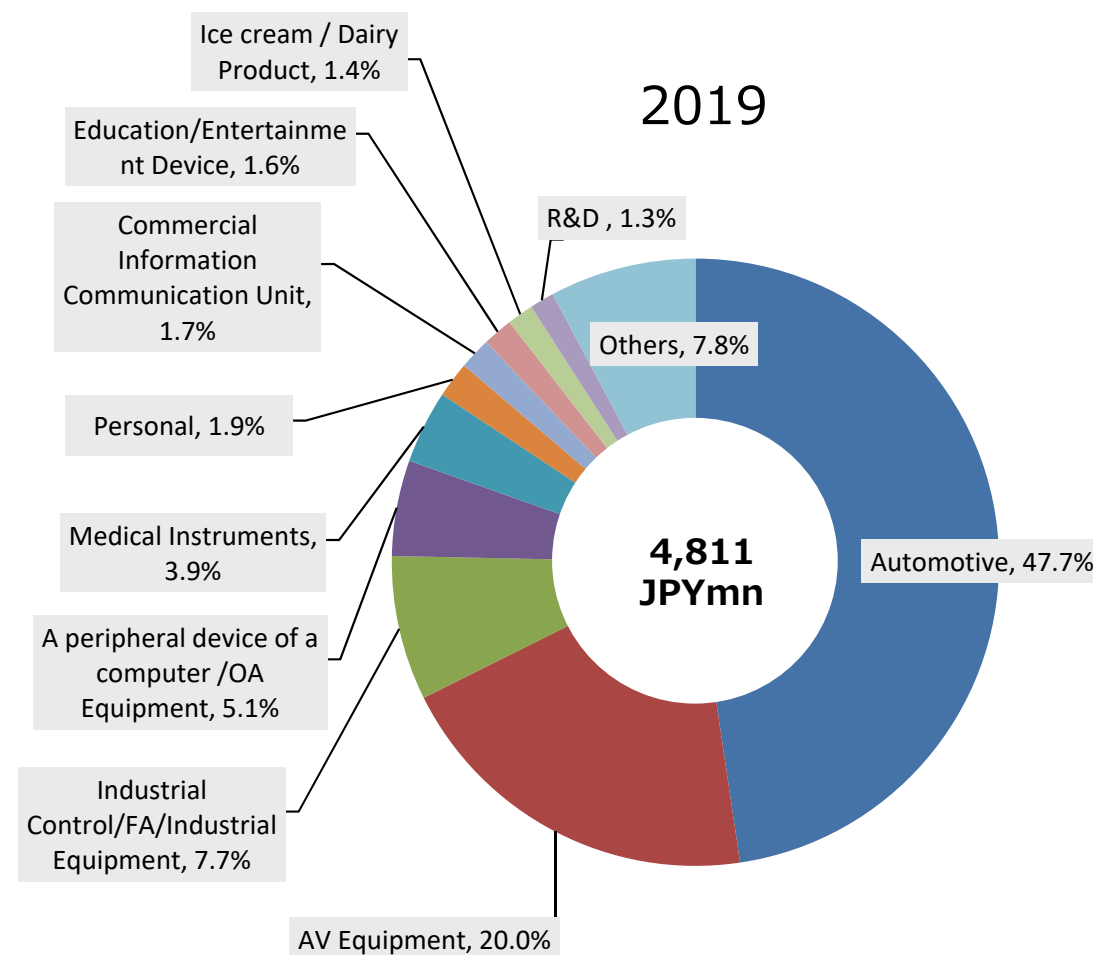
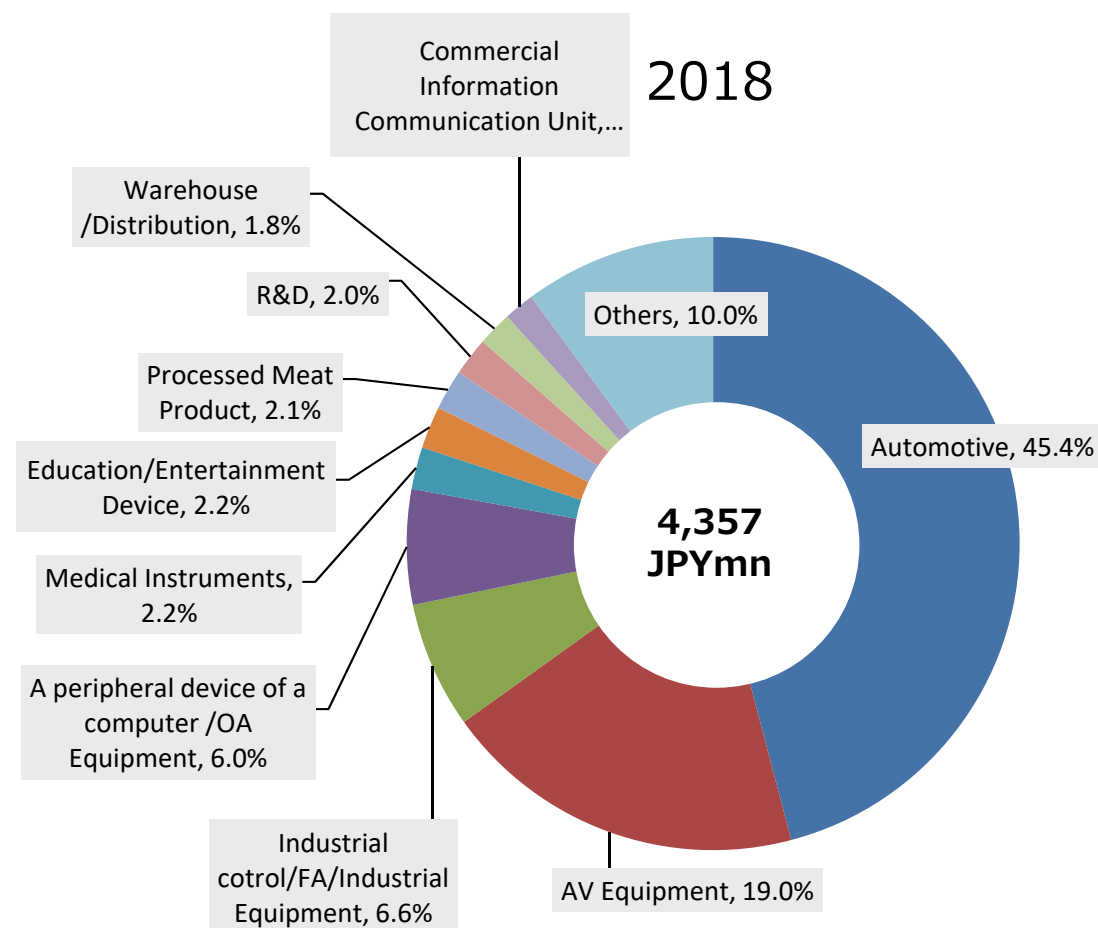


SEGMENT	FY2018 Q2	FY2019 Q2	(JPY mn)	
			Increase / decrease	YoY
Sales	4,357	4,811	+ 454	+ 10.4%
Embedded Software Business	3,902	4,526	+ 624	+ 16.0%
Embedded Software Products	991	918	- 73	△ 7.4%
Engineering Services	2,910	3,607	+ 697	+ 23.9%
Sensing Solution Business	441	310	- 131	△ 29.6%
Consolidation adjustment	13	-25	- 38	—
Gross profit	1,332	1,497	+ 165	+ 12.4%
Embedded Software Business	1,172	1,407	+ 235	+ 20.1%
Sensing Solution Business	145	112	- 33	△ 22.4%
Consolidation adjustment	14	-22	- 36	—
Operating profit	478	415	- 63	△ 13.3%
Embedded Software Business	448	458	+ 10	+ 2.1%
Sensing Solution Business	15	-20	- 35	—
Consolidation adjustment	14	-22	- 36	—



FY 2019 Q2

Segment information by customer (Sales)





FY 2019 Q2

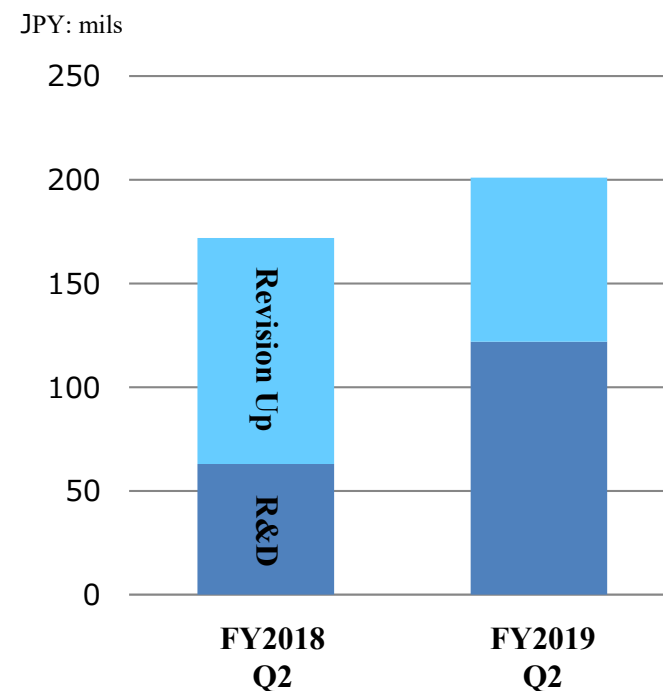
A policy for Research and Development investment

- About 10% of stand-alone sales is being invested continuously in Research and Development, and Revision Up.
- By accepting the latest technology, we prevent software product from becoming obsolete.

Research and Development investment

(JPY: mils)

	FY 2018 Q2	FY 2019 Q2
Sales	4,357	4,811
R&D Investment	362	438
• Research and Development investment	148	255
• Revision Up investment	213	182
R&D/Sales	8.3%	9.1%



*Revision Up investment: Investment for function maintenance



FY2019 Progress of the plan

Progress

(JPY mn)

	F2019 Q2					FY2019		FY2018	
	result value	*first PLANNED VALUE	achievement rate	**revision PLANNED VALUE	achievement rate	*PLANNED VALUE	progress rate	result value	increase/decrease
Sales	4,811	4,772	100.8%	4,789	100.5%	9,780	49.2%	8,752	+ 11.8%
Operating profit	415	272	152.6%	407	101.8%	690	60.1%	698	△ 1.2%
Recurring profit	519	369	140.6%	512	101.4%	800	64.9%	687	+ 16.5%
Net income	362	256	140.9%	357	101.4%	574	63.0%	524	+ 9.6%

*February 13, 2019

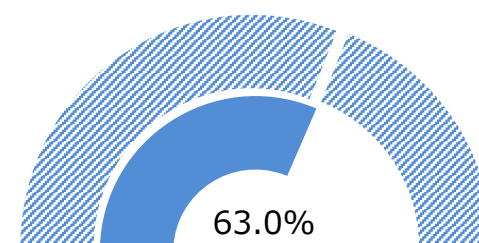
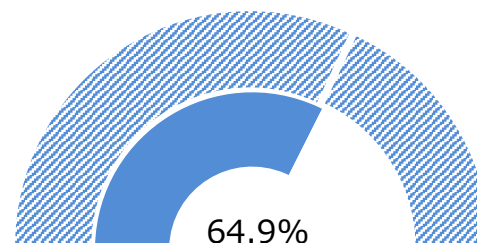
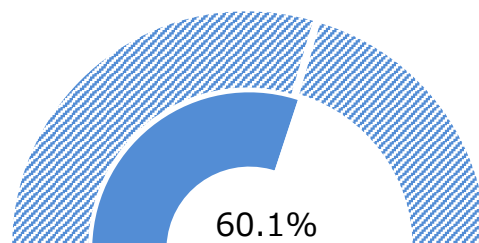
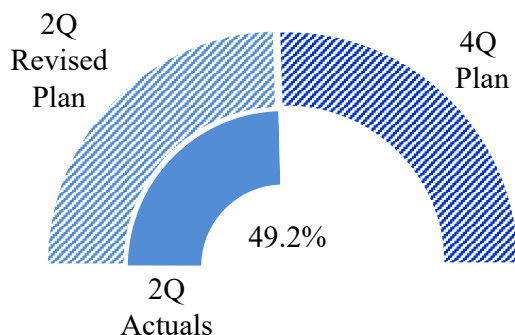
**July 31, 2019

Sales

Operating profit

Recurring profit

Net income



- SALES has been progressed as scheduled.
- Profits of and below Operating profit indicate sharp increase due to reduced SGA expenses.



3. How Our Business Going On

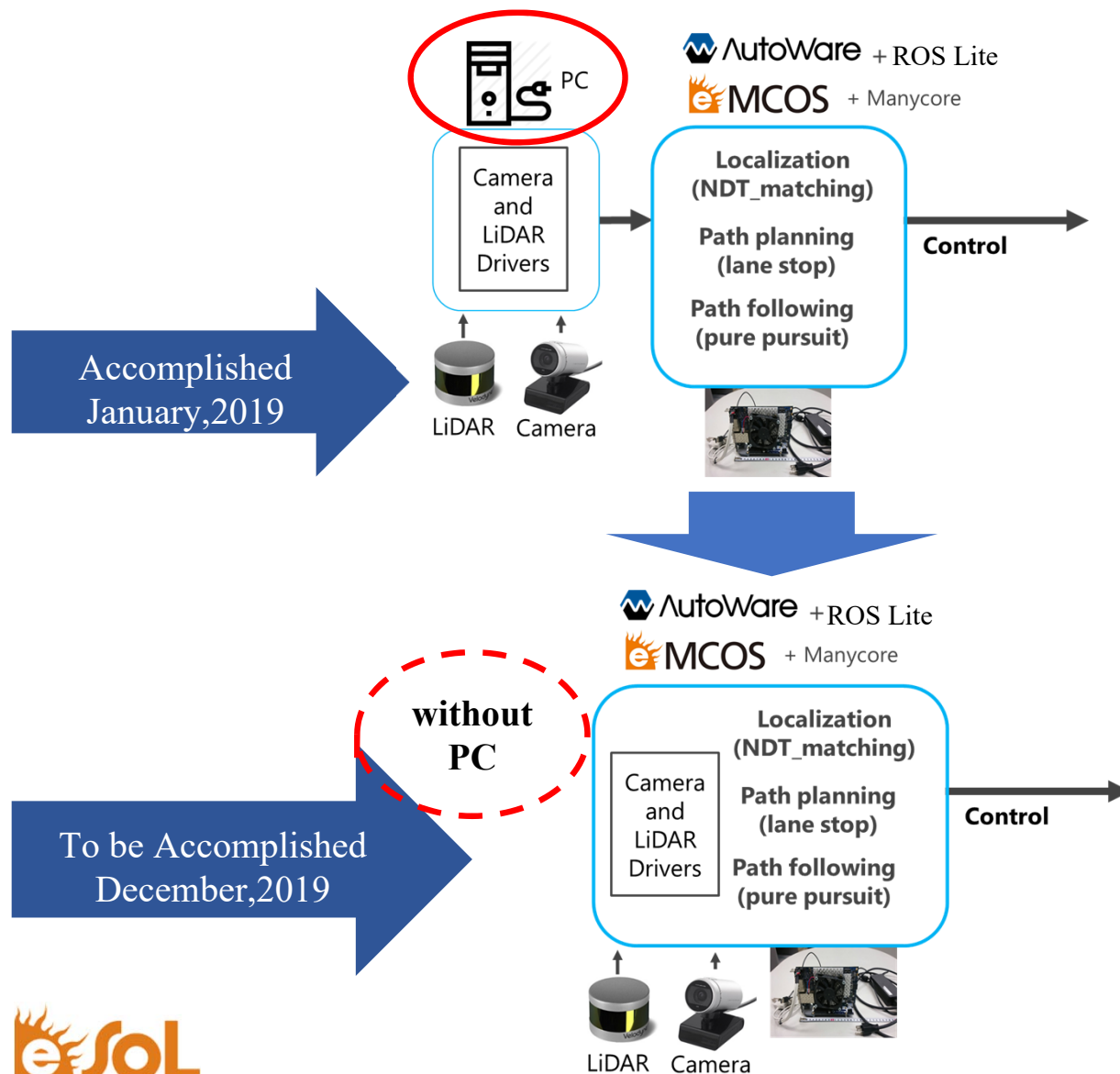


The Current Challenges

- Next-generation computing
- Autonomous

Performing field tests with vehicles loading eSOL's OS "eMCOS"

- R&D for High-performance and Low power scalable OS -





eSOL as Key Platform of Autonomous

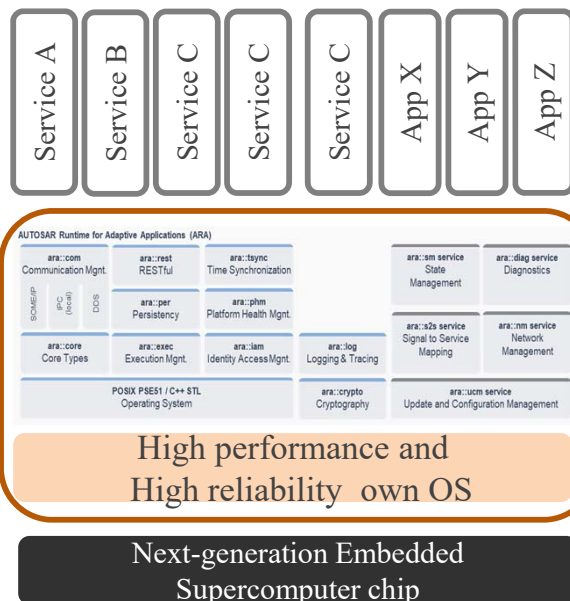


eSOL provides Intelligence system platform including autonomous.

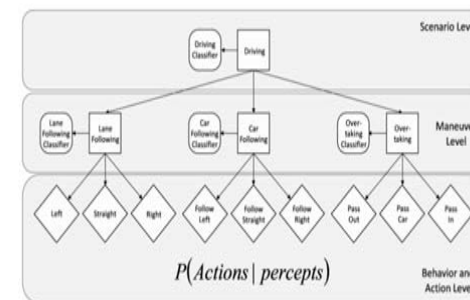
Connected
Autonomous
Shared & Service
Electric



Platform of
Intelligence system



High reliability AI framework
for autonomous





Notes on this material

Any statements contained in this document that are not historical facts are forward-looking statements based on publicly available information at the time of issuing this document, and therefore, will not guarantee such as the result of operation in the future.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations.

Uncertainties above include but not limited to factors for economical condition in Japan or overseas and trend in the related industries.

eSOL undertakes no obligation to publicly update or revise any forward-looking statements.

Information other than eSOL group contained in this documents is publicly known, and also, eSOL undertakes no obligation to guarantee its accuracy or adequacy.

Contact for information
eSOL Co.,Ltd.
Corporate Planning office
Tel : +81-3-5365-1560
e-mail : esol-ir@esol.co.jp
WEB : <https://www.esol.com/>