



# TechnoPro Group Financial Results for Fiscal Year Ended June 2019

TechnoPro Holdings, Inc. (code: 6028,TSE)

July 31, 2019



# Contents

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	Page
I : FY2019 Overview	2
II : KPI Analysis	11
i : Number of Engineers	11
ii : Unit Sales prices	16
III : FY2020 Guidance	17
IV : Capital Policy	19
V : Appendix	21

\* Accounting figures are rounded down to the nearest unit unless otherwise stated; KPI figures excludes 'Other' business.

# FY2019 Overview

- Full-year FY19.6 revenue was **144.2 billion yen** and increased 27.6 billion yen (up 23.7% year on year); operating profit was **13.7 billion yen** and increased 2.5 billion yen (up 22.3%); net profit was **9,683 million yen** and increased 1,185 million yen (up 13.9%)
- Adjusted operating profit excluding **extraordinary items (details on p.6-p.8)** such as effects from size-based business tax, impairment and others was **14.3 billion yen**, adjusted net profit was **9.5 billion yen**
- Declared annual dividend of **134.00 yen** per share, increased 14.00 yen (up 11.7%) year on year; to pay out 50.2% of net profit (9,683 million yen)

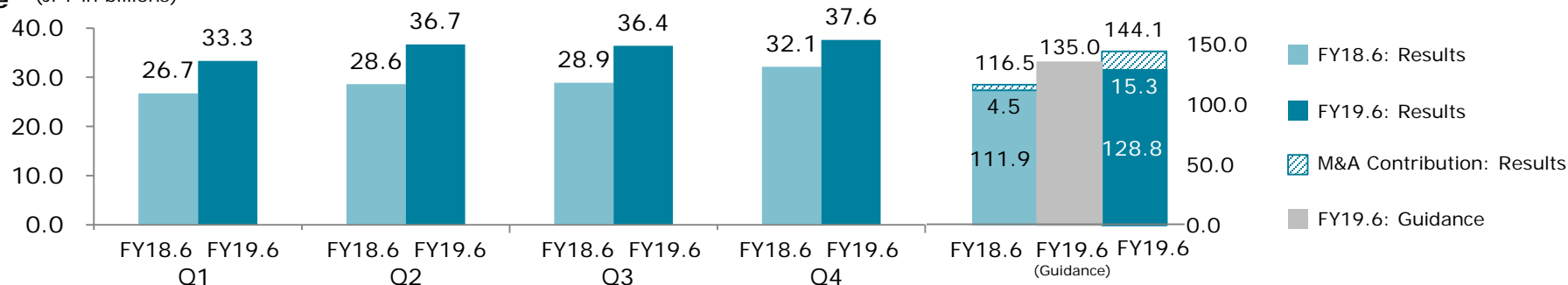
(JPY in millions, except per share amounts)

	Q4			2nd Half			Full-year				
	FY18.6 (Results)	FY19.6 (Results)	YOY	FY18.6 (Results)	FY19.6 (Results)	YOY	FY18.6 (Results)	FY19.6 (Results)	FY19.6 (Guidance)	YOY	vs. Guidance
Revenue	32,185	37,631	+16.9%	61,128	74,061	+21.2%	116,529	<b>144,176</b>	135,000	+23.7%	+6.8%
Gross profit	8,086	9,649	+19.3%	15,711	18,987	+20.9%	29,475	<b>36,466</b>	34,000	+23.7%	+7.3%
GP margin	25.1%	25.6%		25.7%	25.6%		25.3%	<b>25.3%</b>	25.2%		
SG&A expenses	5,641	6,980	+23.7%	10,174	12,509	+22.9%	18,237	<b>22,767</b>	20,500	+24.8%	+11.1%
Ratio on revenue	17.5%	18.5%		16.6%	16.9%		15.7%	<b>15.8%</b>	15.2%		
Operating profit	2,591	2,607	+0.6%	5,684	6,352	+11.8%	11,238	<b>13,739</b>	13,500	+22.3%	+1.8%
OP margin	8.1%	6.9%		9.3%	8.6%		9.6%	<b>9.5%</b>	10.0%		
Operating profit (adj.)	2,591	3,136	+21.0%	5,684	6,881	+21.1%	11,238	<b>14,268</b>	13,500	+27.0%	+5.7%
OP (adj.) margin	8.1%	8.3%		9.3%	9.3%		9.6%	<b>9.9%</b>	10.0%		
Profit before income taxes	2,603	2,642	+1.5%	5,659	6,400	+13.1%	11,163	<b>13,727</b>	13,500	+23.0%	+1.7%
Net profit*	2,061	2,341	+13.6%	4,359	4,828	+10.8%	8,498	<b>9,683</b>	8,900	+13.9%	+8.8%
Net profit* (adj.)	2,061	2,164	+4.9%	4,359	4,651	+6.7%	8,498	<b>9,506</b>	8,900	+11.8%	+6.8%
Earnings per share	—	—	—	—	—	—	244.81	<b>266.86</b>	245.49	+9.0%	+8.7%
Dividend per share	—	—	—	—	—	—	120.00	<b>134.00</b>	123.00	+11.7%	+8.9%

# Quarterly Performance

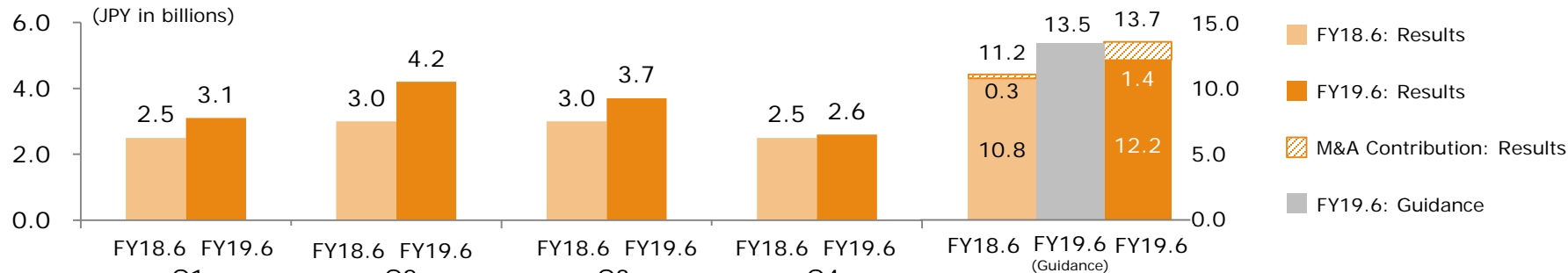
- Revenue and operating profit both surpassed FY18.6 results in each quarter, also exceeded the guidance provided at the beginning of the term by 9,176 million yen and 239 million yen (768 million yen excluding impact from extraordinary items) respectively
- Revenue and operating profit organically grew +15.1% and +13.2% year on year, even excluding contributions from M&As carried out in FY18.6 and FY19.6 period

**Revenue** (JPY in billions)



Composition %	22.9%	23.1%	24.6%	25.5%	24.8%	25.3%	27.6%	26.1%	Full Year	
YOY	+24.7%		+28.3%		+25.9%		+16.9%		+23.7%	

**Operating profit** (JPY in billions)



Composition %	22.2%	23.2%	27.1%	30.6%	27.5%	27.3%	23.1%	19.0%	Full Year		
OP ratio	9.4%	9.5%	10.6%	11.4%	10.7%	10.3%	8.1%	6.9%	9.6%	10.0%	9.5%
YOY	+26.7%		+38.1%		+21.1%		+0.6%		+22.3%		

# Business Line Results [managerial]

- Companies included in each business line are described on p.5
- Revenue growth in *Overseas* for FY19.6 was driven by full year contribution from Helius acquired on March 2018 (owns 51.0% shares) and 9 months contribution from Orion acquired on October 2018 (owns 60.0% shares)
- Considering to provide segment information based on segment accounting standard, responding to topline growth outside Japan with expanding global operation
- Engineers on payroll: in Japan **19,293** (non-Japanese: 985) / overseas **1,608** / group total **20,901**

(JPY in millions, except headcounts)

	R&D outsourcing			Construction management outsourcing			Others (Japan) **			Overseas**			HQ expenses & Consolidation adj., etc. (incl. extraordinary items)			Consolidated		
	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY
Revenue*	97,457	113,783	+16.8%	14,659	17,720	+20.9%	2,800	3,474	+24.1%	2,400	10,481	+336.6%	(788)	(1,284)	-	116,529	144,176	+23.7%
Ratio to revenue	83.6%	78.9%	-	12.6%	12.3%	-	2.4%	2.4%	-	2.1%	7.3%	-	-	-	-	100.0%	100.0%	-
Operating profit	13,338	15,474	+16.0%	2,308	2,817	+22.1%	310	415	+33.7%	171	1,134	+560.4%	(4,890)	(6,103)	-	11,238	13,739	+22.3%
OP margin	13.7%	13.6%	-	15.7%	15.9%	-	11.1%	11.9%	-	7.2%	10.8%	-	-	-	-	9.6%	9.5%	-

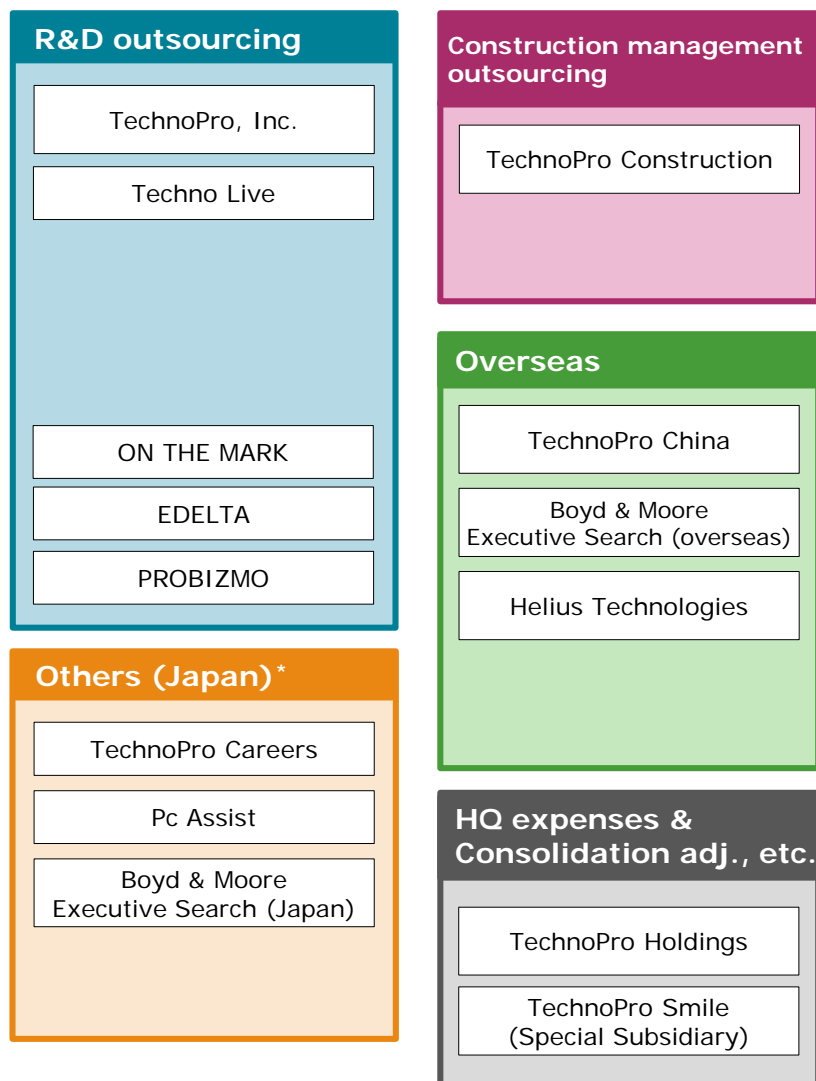
	R&D outsourcing			Construction management outsourcing			Others (Japan)			Overseas			HQ expenses & Consolidation adj., etc. (incl. extraordinary items)			Consolidated (excl. overseas)		
	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY	FY18.6	FY19.6	YOY
No. of engineers*	14,674	16,748	+14.1%	2,123	2,545	+19.9%	-	-	-	-	-	-	-	-	-	16,797	19,293	+14.9%
Non-Japanese*	716	922	+28.8%	40	63	+57.5%	-	-	-	-	-	-	-	-	-	756	985	+30.3%
No. of engineers* (overseas)	-	-	-	-	-	-	-	-	-	869	1,608	+85.0%	-	-	-	-	-	-

\* As of June 30, 2019

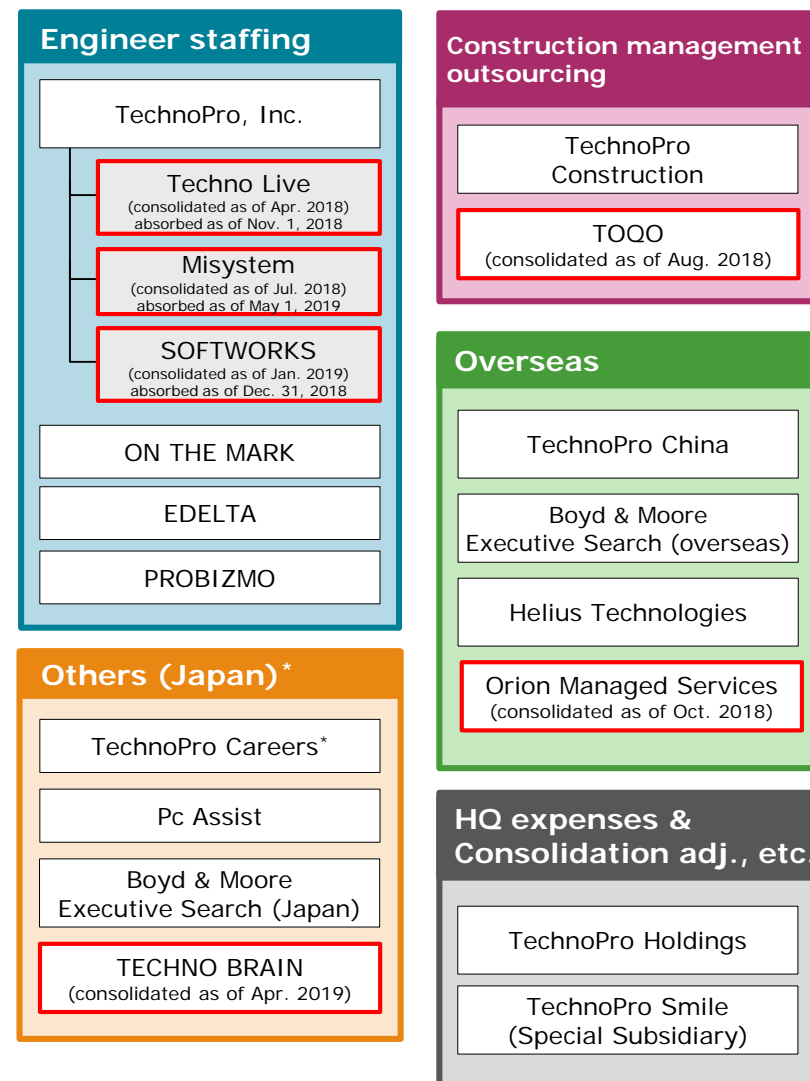
\*\* Earnings from Boyd & Moore Executive Search were separately recognized in *Others (Japan)* and *Overseas*

# Companies in Each Business Line [managerial]

As of June 30, 2018



As of June 30, 2019



\* Merged into TECHNO BRAIN as of July 1, 2019

# Helius Impairment and Turnaround Plan

- Portions of PPA\* assets and goodwill of Helius were wrote down as impairment losses due to slowdown in business performance for Q4 FY19.6, meanwhile the profit from reversal was created by reassessing the fair value of put options held by the minority owners; these factors in total had **314 million yen negative impact (net) on operating profit, 322 million yen positive effect (net) on net profit**
- Providing progress and results of turnaround plan at the financial results announcement semiannually

## Overview & performance of Helius

- Acquired 51% shares for 2,578M yen on Mar. 2018
- Founder holds 49% shares and manages as CEO
- Locating Singapore and India, delivering IT staffing solutions with 600 engineers (mainly for financial services)
- Having advantage in hiring Indian engineers

### ❑ Revised downward the future forecast due to emerged risks recognized at due diligence

- ① Dependence on a specific client (DBS)
- ② Immigration restriction risks in Singapore

(JPY in billions) SGD:JPY=1:80	Plans at acquisition		Actual	Updated plan
	FY2019	... FY2022	FY2019	FY2020
Revenue	5.8	7.3	5.0	5.4
EBITDA	0.7	0.9	0.5	0.3
%	12.0%	12.0%	9.5%	6.0%

## Turnaround plan

- ✓ Streamlined management structure in order to closely monitor risk factors recognized at acquisition but not dealt with
- ✓ Diversifying client base and businesses to reduce dependency on DBS with hands-on involvement of TechnoPro holdings:  
→ broadening client base to Japanese financial service companies operating abroad, as well as promoting *shift-up* of engineers to high margin clients
- ✓ Taking actions to cope with immigration regulations imposed by Singapore government with strict KPI control of local hiring:  
→ expand operation in South-east Asia region, promote IT talent placement business
- ✓ Redefine the role of Helius in our global strategy, strengthen ties with group companies



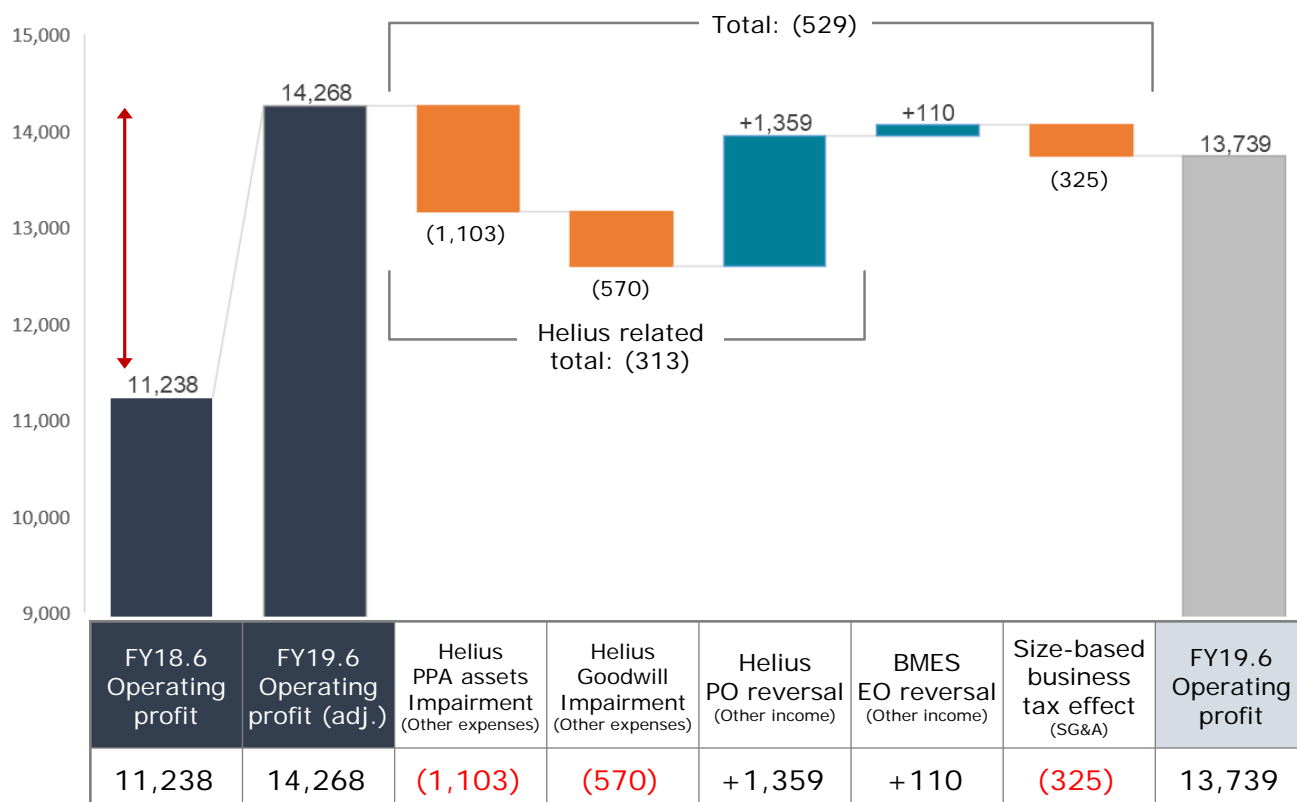
**Ensure sustainable profit generation**

# Operating Profit Adjustment Bridge

• Extraordinary items are as follows:

1. Impairment loss and reversal of put option (PO) liabilities from Helius: **down 313 million yen** net (*Other expenses/income*)
2. Reversal of earn-out (EO) liabilities from Boyd & Moore Executive Search (BMES)\*: **up 110 million yen** (*Other income*)
3. Taxes and dues levied on TechnoPro, Inc. by applying size-based business tax\*\*: **down 325 million yen** (*SG&A*);  
Effective corporate tax rate applied to TechnoPro, Inc. declined from 34.6% to 30.6% by applying size-based business tax

Adjusted operating profit excluding extraordinary items in FY19.6 was 14.3 billion yen (up 300 million yen and 27.0% year on year)



(JPY in millions)

\* Accrued by reassessing the fair value of earn-out payment amount, as the performance target made at the acquisition will not be fully achieved

\*\*By applying sized-based business tax (taxes imposed based on objective external reference which are capital-based tax and value added-based tax income, rather than income amount basis) to TechnoPro, Inc. as of June 2019, a certain portion of corporate enterprise tax are recognized as taxes and dues in SG&A, while effective tax rate declined

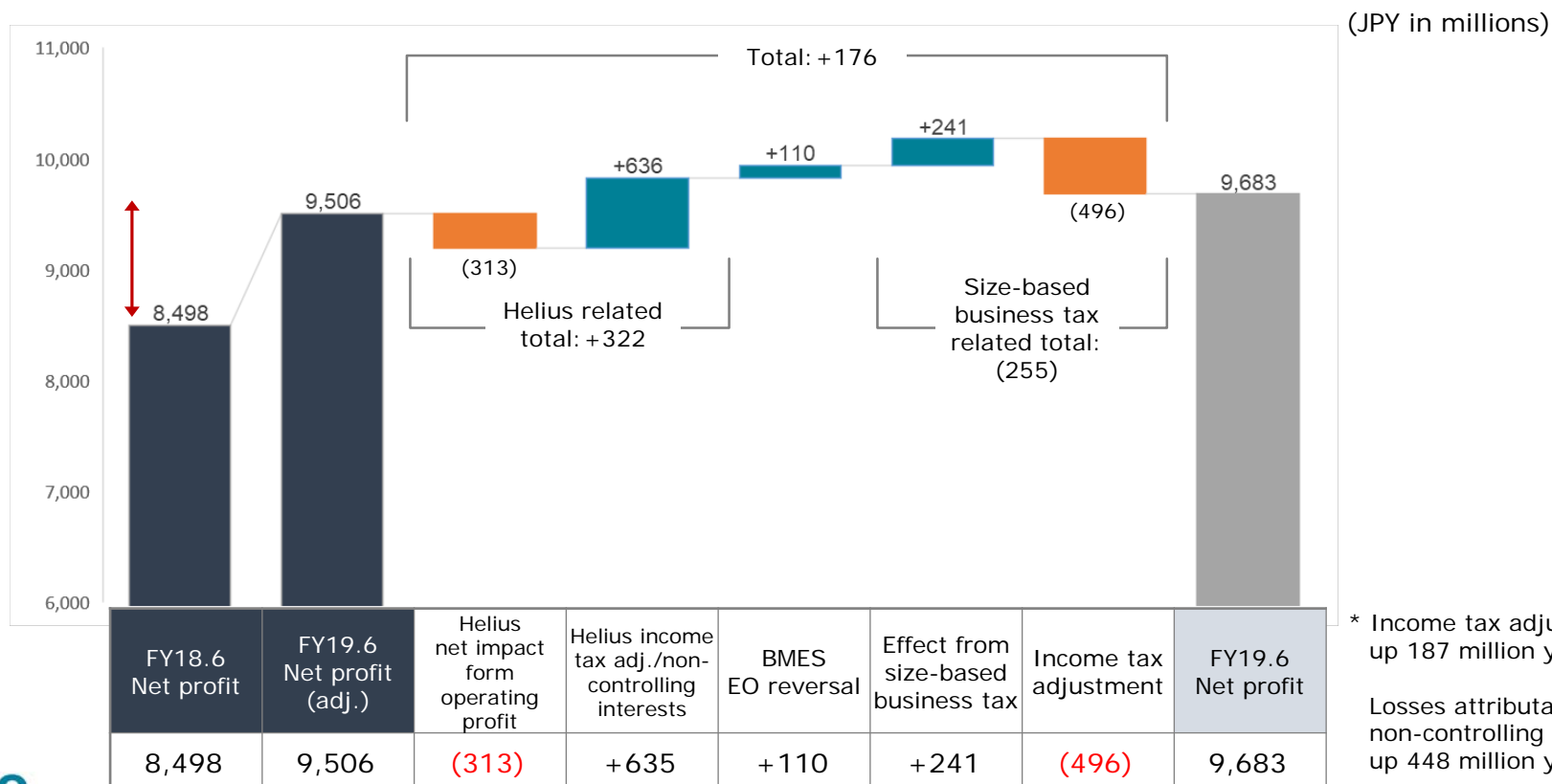


# Net Profit (attributable to owners of the parent company) Adjustment Bridge

- Extraordinary items are as follows:

1. Impairment loss and reversal of put option (PO) liabilities from Helius: **up 322 million yen (net)**; affected by deferred tax assets (income tax adjustment) created by tax effects relating to impairment of PPA assets, and losses attributable to non-controlling interests\*
2. Effects from size-based business tax applied to TechnoPro, Inc.: **down 255 million yen (net)**; corporate tax decreased 241 million yen as a result of change in taxation which lowered corporate enterprise tax imposed based on taxable income, while SG&A expenses increased; decline in effective corporate tax rate resulted in 496 million yen reduction of deferred tax assets booked previously (one-off for FY19.6 and non-cash)

Adjusted net profit excluding extraordinary items in FY19.6 was 9.5 billion yen (up 1.0 billion yen and 11.9% year on year)



\* Income tax adjustment: up 187 million yen

Losses attributable to non-controlling interests: up 448 million yen

# Balance Sheet & Cash Flow

- Cash and cash equivalents decreased 0.4 billion yen compared to the balance sheet at June 30, 2018, due to acquisition of subsidiaries, payment of dividend, repayment of borrowings, etc.
- Sufficient borrowing capability for further M&A investments, with net cash position of 12.0 billion yen
- Begins to disclose Debt/OP ratio

(JPY in billions)

June 30, 2018		June 30, 2019	
Cash & cash equivalents 21.6	Debt 11.6	Cash & cash equivalents 21.2	Debt 9.1
Goodwill 34.4	Other liabilities 30.2	Goodwill 37.0	Other liabilities 35.0
Intangible assets (PPA) 2.9	PO/EO liabilities 3.5	Intangible assets (PPA) 2.1	PO/EO liabilities 3.6
Other assets 29.3	Total equity 42.9	Other assets 33.4	Total equity 46.0
Total assets 88.2	Total liabilities & equity 88.2	Total assets 93.7	Total liabilities & equity 93.7
D/E Ratio*: 0.27 x		D/E Ratio*: 0.20 x	
D/OP Ratio*: 1.03 x		D/OP Ratio*: 0.67 x	
Net worth ratio*: 48.7%		Net worth ratio*: 49.1%	

## FY19.6 Cash Flow

• Operating CF	11.2
• Investing CF	(4.4)
• Financing CF	(7.1)
Net CF	(0.4)

FCF 6.8 billion yen

\* Including non-controlling interests

# [Reference] B/S Items of Acquired Companies

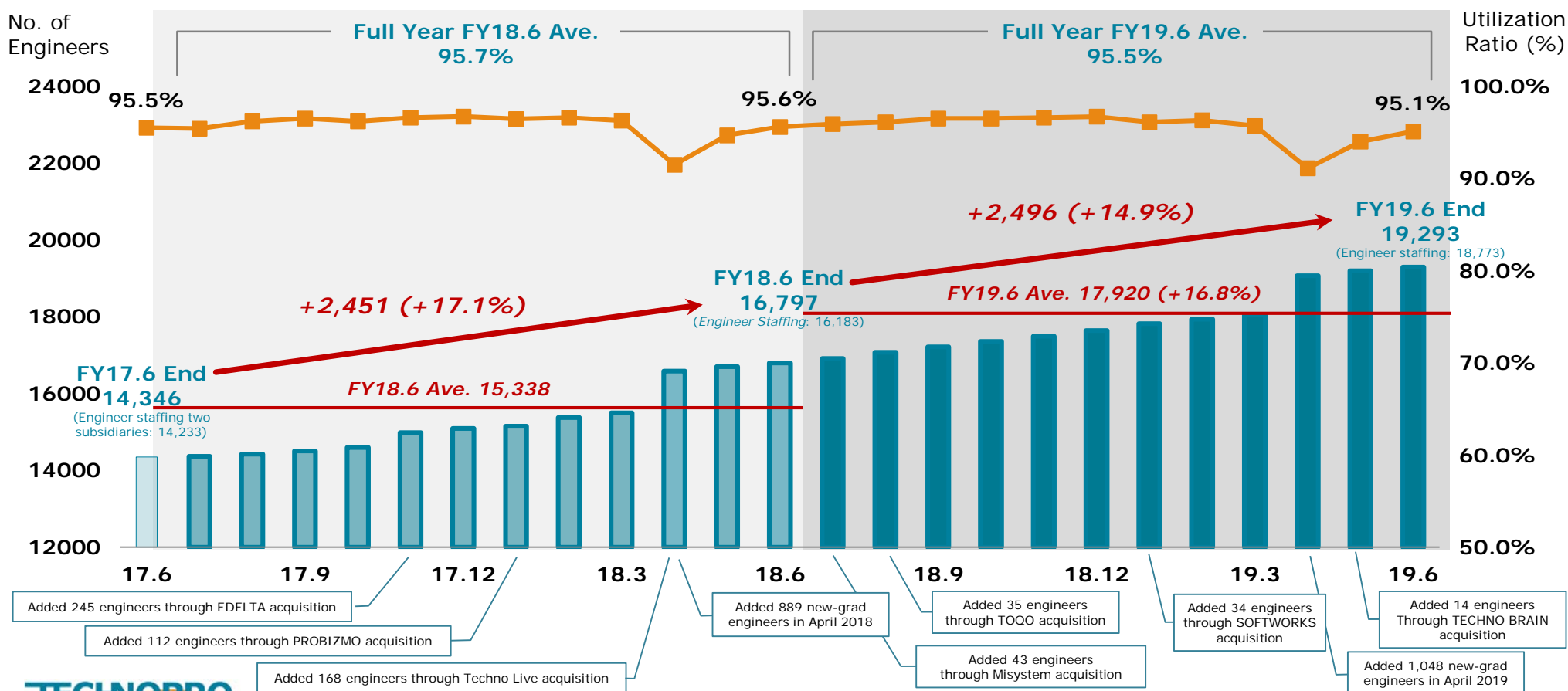
- Provides balance sheet information of subsidiaries acquired as of June 30, 2019: goodwill, PPA (customer-related assets), put option (PO) liabilities, earn-out (EO) liabilities (excludes subsidiaries merged into other entities)

(JPY in millions)

As of June 30, 2019	Shareholding	Assets			Liabilities		
		Goodwill	PPA	Total	PO	EO	Total
<b>R&amp;D Outsourcing</b>							
ON THE MARK	100%	92	529	621	—	—	—
EDELTA	100%	1,013	—	1,013	—	—	—
PROBIZMO	100%	1,058	266	1,324	—	—	—
Subtotal		2,164	795	2,959	—	—	—
<b>Construction mgmt. outsourcing</b>							
TOQO	100%	598	—	598	—	—	—
Subtotal		598	—	598	—	—	—
<b>Others (Japan)</b>							
Pc Assist	100%	96	—	96	—	—	—
TECHNO BRAIN	100%	658	—	658	—	—	—
Subtotal		755	—	755	—	—	—
<b>Overseas</b>							
Boyd & Moore Executive Search	100%	1,104	—	1,104	—	330	330
Heliuss Technologies	51%	681	792	1,473	1,712	—	1,712
Orion Managed Services	60%	991	576	1,568	1,566	—	1,566
Subtotal		2,776	1,369	4,146	3,278	330	3,608
<b>Total</b>		<b>6,294</b>	<b>2,164</b>	<b>8,458</b>	<b>3,278</b>	<b>330</b>	<b>3,608</b>

# Number of Engineers & Utilization Rate [Japan]

- Engineers on payroll in Japan at the end of FY19.6 totaled **19,293** (up 2,496 from the end of prior year), including **985** non-Japanese engineers (up 229 from the end of prior year)
- Employs **18,773\*** at two engineer staffing companies (TechnoPro, Inc. and TechnoPro Construction, Inc.)
- Average utilization rate of **95.5%** for FY19.6 (down 0.2% year on year)
- Employs **1,608** engineers at overseas subsidiaries (not included in numbers above)

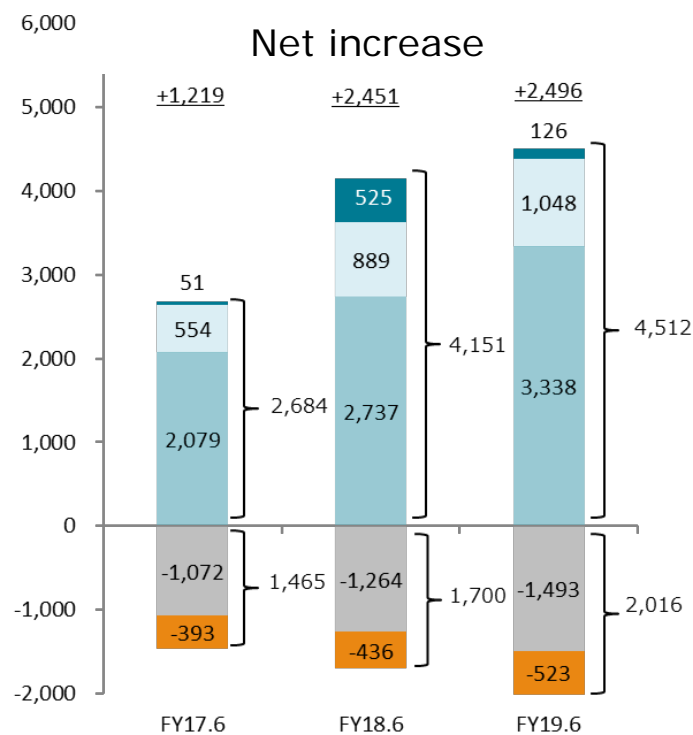


# Recruitment/Turnover [Japan]

- Hired **4,512** engineers (up 8.7% year on year)
- Turnover rate\* (permanent staff) for FY19.6: **8.3%** (FY18.6: 8.1%)

\*Excludes employees left at the end of contract term

No. of Engineers



**TECHNOPRO**

(Difference / % YOY)

**Hired** 4,512 (+361 / +8.7%)

**Added through M&A** 126

- Misystem Co., Ltd.: 43 engineers
- TOQO.Co.Ltd: 35 engineers
- SOFTWORKS: 34 engineers
- TECHNO BRAIN: 14 engineers

**New graduate** 1,048 (+159 / +17.9%)

**Turnover (permanent-staff)** 1,493 (+229 / +18.1%)

**Contract terms matured, others** 523 (+87 / +20.0%)

<Turnover>

	FY18.6				FY19.6			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Quarter	9.0%	7.0%	9.4%	7.6%	8.0%	6.7%	10.6%	8.0%
Year-to-date	-	7.9%	8.5%	8.1%	-	7.3%	8.5%	8.3%
Last Twelve Months	8.0%	8.1%	8.2%	8.1%	8.0%	7.9%	8.2%	8.3%

# Assigned Engineers by Technology [Japan]

- Number of assigned engineers\* increased in all technologies
- Strong demand for IT engineers continues
- Engineers increased driven by acquisitions: Software for Misystem, Construction for TOQO, Embedded Control for SOFTWORKS, and software for TECHNO BRAIN

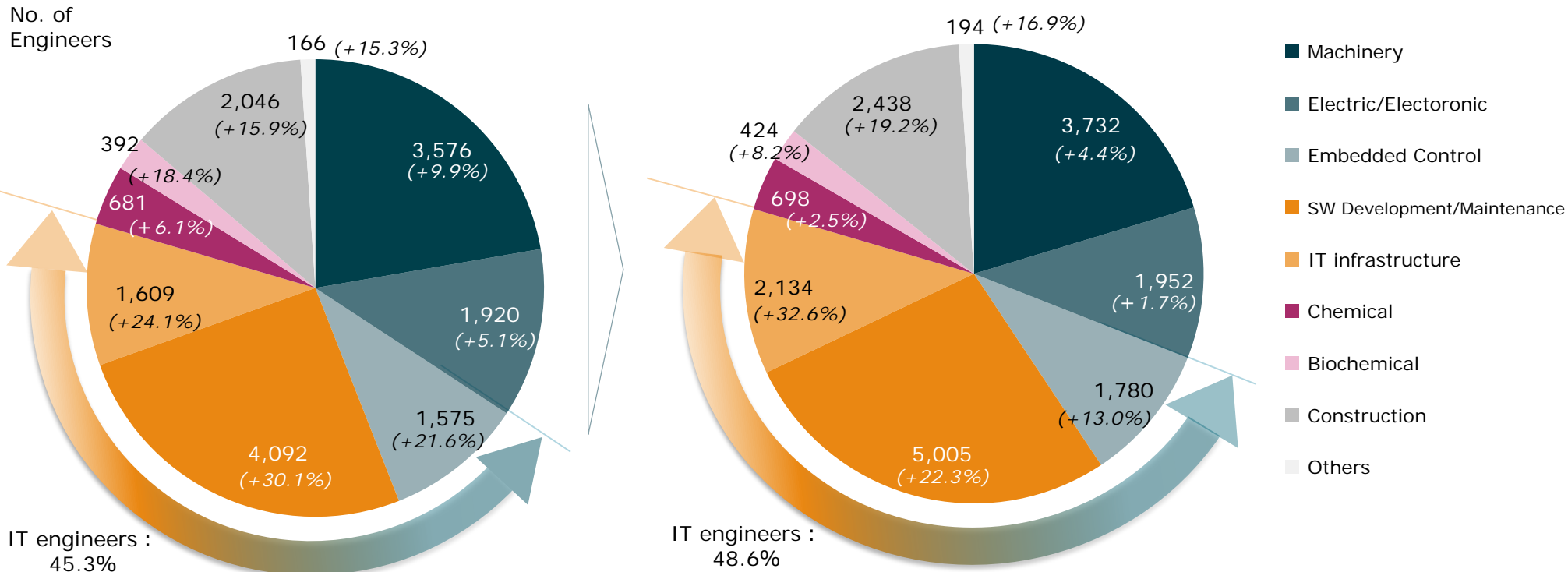
As of June 30, 2018

Assigned engineers: 16,057

up +14.3%

As of June 30, 2019

Assigned engineers: 18,357



\* Figures indicate assigned engineers at the end of month.

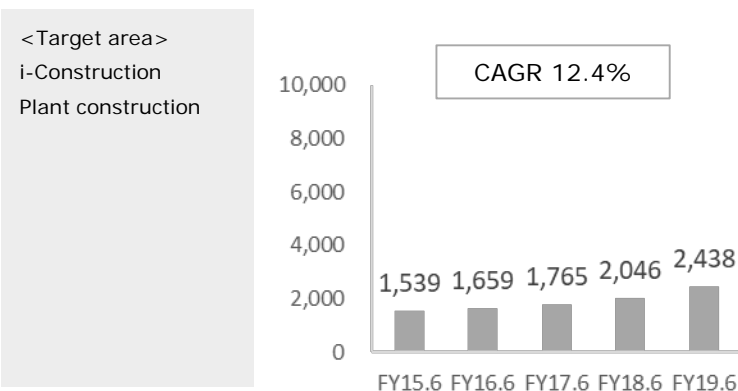
\*\* Figure in parenthesis indicates % change.

# [Reference] Assigned Engineers by Technology [Japan] : Development

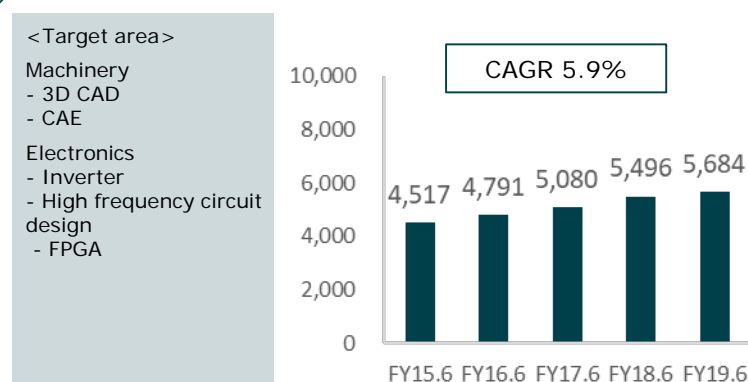
- Indicates development in number of engineers by four technologies in the past five years
- Strongest growth in IT, compound annual growth rate (CAGR) of 20.0%
- Construction grew CAGR 12.4%, driven by hiring of inexperienced candidates bundled with introductory training

(No. of Engineers)

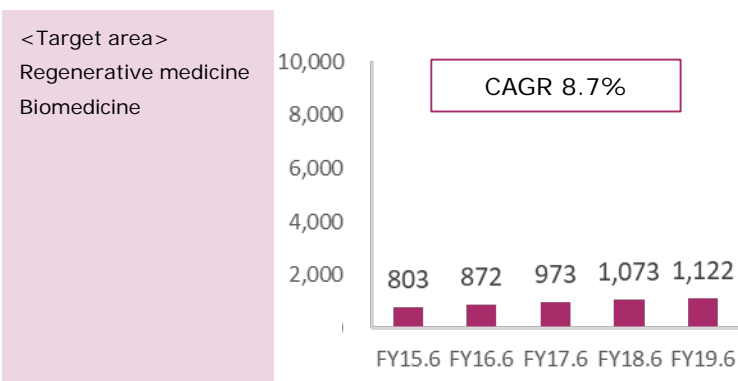
## Construction | ■ Construction



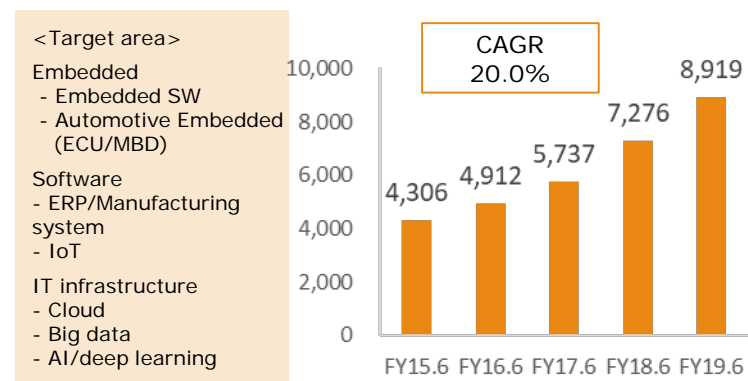
## Machinery | ■ Machinery ■ Electric/Electronic



## Chemical/Bio | ■ Chemical ■ Biochemical

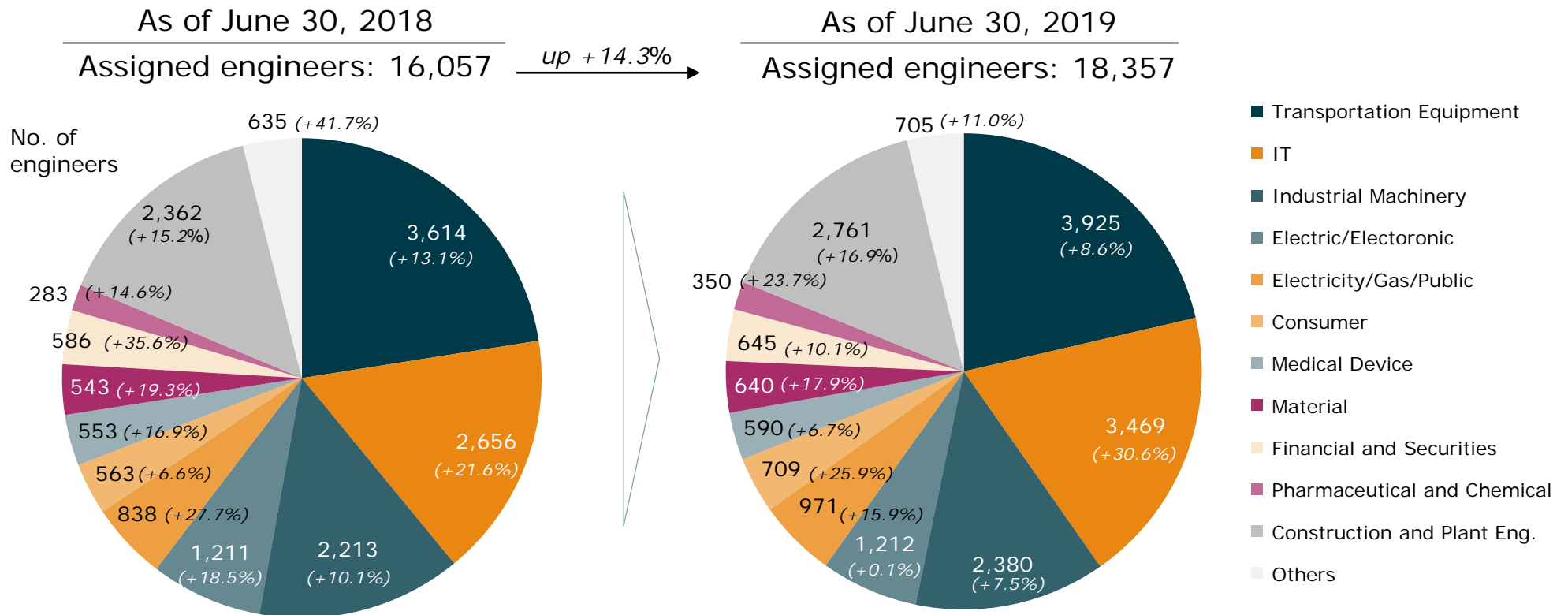


## IT | ■ Embedded ■ Software ■ IT infrastructure



# Assigned Engineers by Industrial Sectors [Japan]

- Number of assigned engineers\* increased in all industrial sectors
- Diversifying industrial sector of clients in order to minimize risks of downturn in specific industry



\* Figures indicate assigned engineers at the end of month.

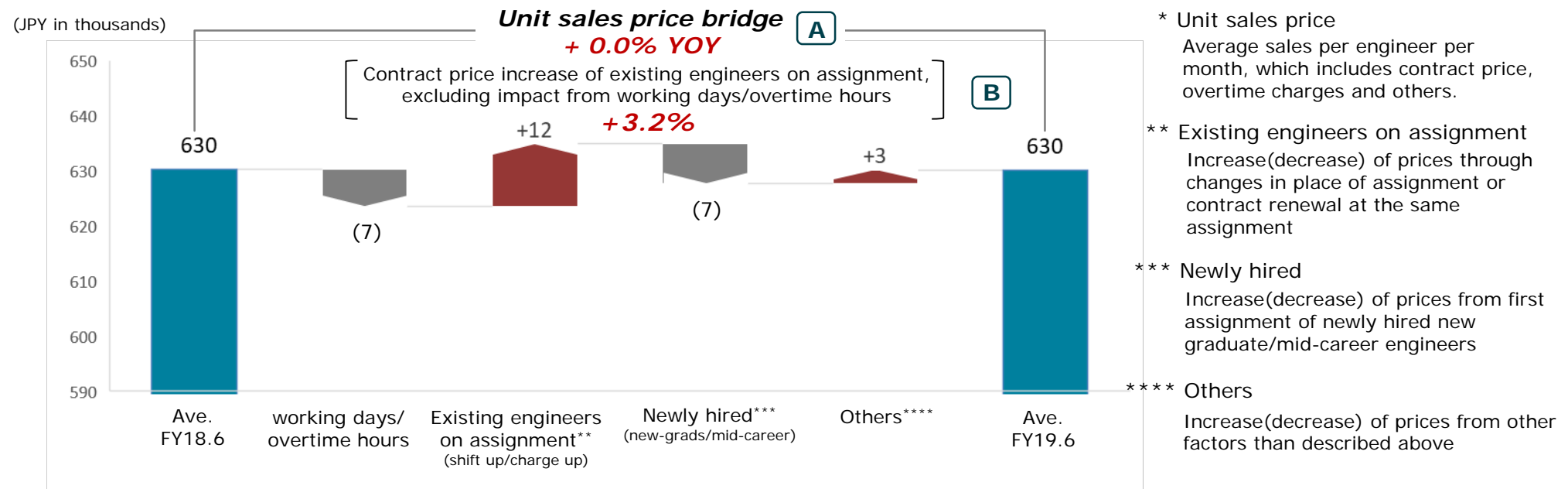
\*\* Figure in parenthesis indicates % change.



# Unit Sales Price

## Engineer Staffing Companies: TechnoPro, Inc., TechnoPro Construction, Inc.

- Unit sales price\* was **630,000 yen** (down 100 yen/month year on year), almost unchanged
- Decreased 7,000 yen/month year on year due to fewer working days (down 0.2 days/month) and shorter overtime hours (down 0.9 hours/month)
- Increased 12,000 yen/month driven by increased contract price for existing engineers on assignment
- Decreased 7,000 yen/month due to first assignment of newly hired new graduate/mid-career engineers
- New graduates (within 3 years after joining) account for 11.6% of total engineers at FY19.6 end (FY18.6: 10.5%)



### [Price Development]

		FY18.6				FY19.6			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Unit Price (year-to-date)	<b>A</b>	620	629	629	630	621	633	632	630
Year on year		+0.5%	+1.1%	+0.6%	+0.6%	+0.1%	+0.5%	+0.3%	0.0%

Price increase of existing engineers on assignment <b>B</b> (figures calculated by comparing unit price at the end of period)	+3.0%	+2.8%	+2.7%	+3.0%	+3.0%	+2.8%	+2.7%	+3.2%
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# FY2020 Guidance

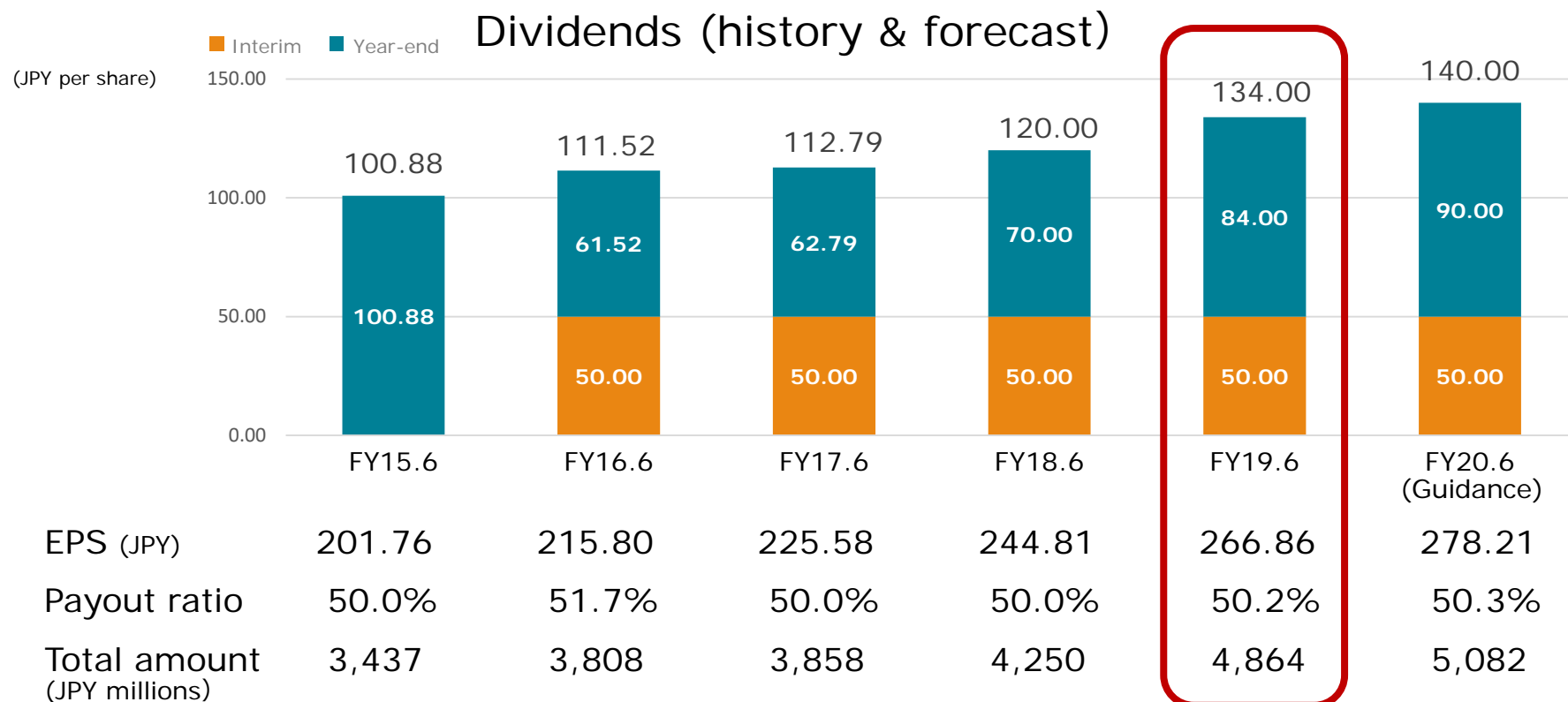
- For FY20.6, expects **+11.0%** growth in revenue, **+11.4%** growth in operating profit compared with FY19.6 results;  
guidance provided includes first year expenses to be spent for employee benefits improvement, details of which stated in “Financial Updates and Progress of Medium-Term Management Plan”
- SG&A as of FY19.6 includes increase of taxes and dues resulted from size-based business tax applied to TechnoPro, Inc.
- Guidance excludes possible effects from M&As during the period

(JPY in millions, except per share amounts and headcounts)

	FY18.6 (Results)	FY19.6 (Results)	YOY	FY20.6 (Guidance)	YOY
Revenue	116,529	144,176	+23.7%	160,000	+11.0%
Operating profit (OP)	11,238	13,739	+22.3%	15,300	+11.4%
<i>OP margin</i>	9.6%	9.5%		9.6%	
Profit before income taxes	11,163	13,727	+23.0%	15,100	+10.0%
Net profit*	8,498	9,683	+13.9%	10,100	+4.3%
Earnings per share	244.81	266.86	+9.0%	278.21	+4.3%
Dividend per share (Plan)	120.00	134.00	+11.7%	140.00	+4.5%
Interim dividend (Plan)	50.00	50.00	—	50.00	—

KPI (Japan)	FY18.6 (Results)	FY19.6 (Results)	YOY	FY20.6 (Guidance)	YOY
Engineers (year end)	16,797	19,293	14.9%	21,000	8.8%
Utilization rate	95.7%	95.5%	(0.2%)	95-96%	—

# Dividend History & Forecast



## Share Repurchase Program

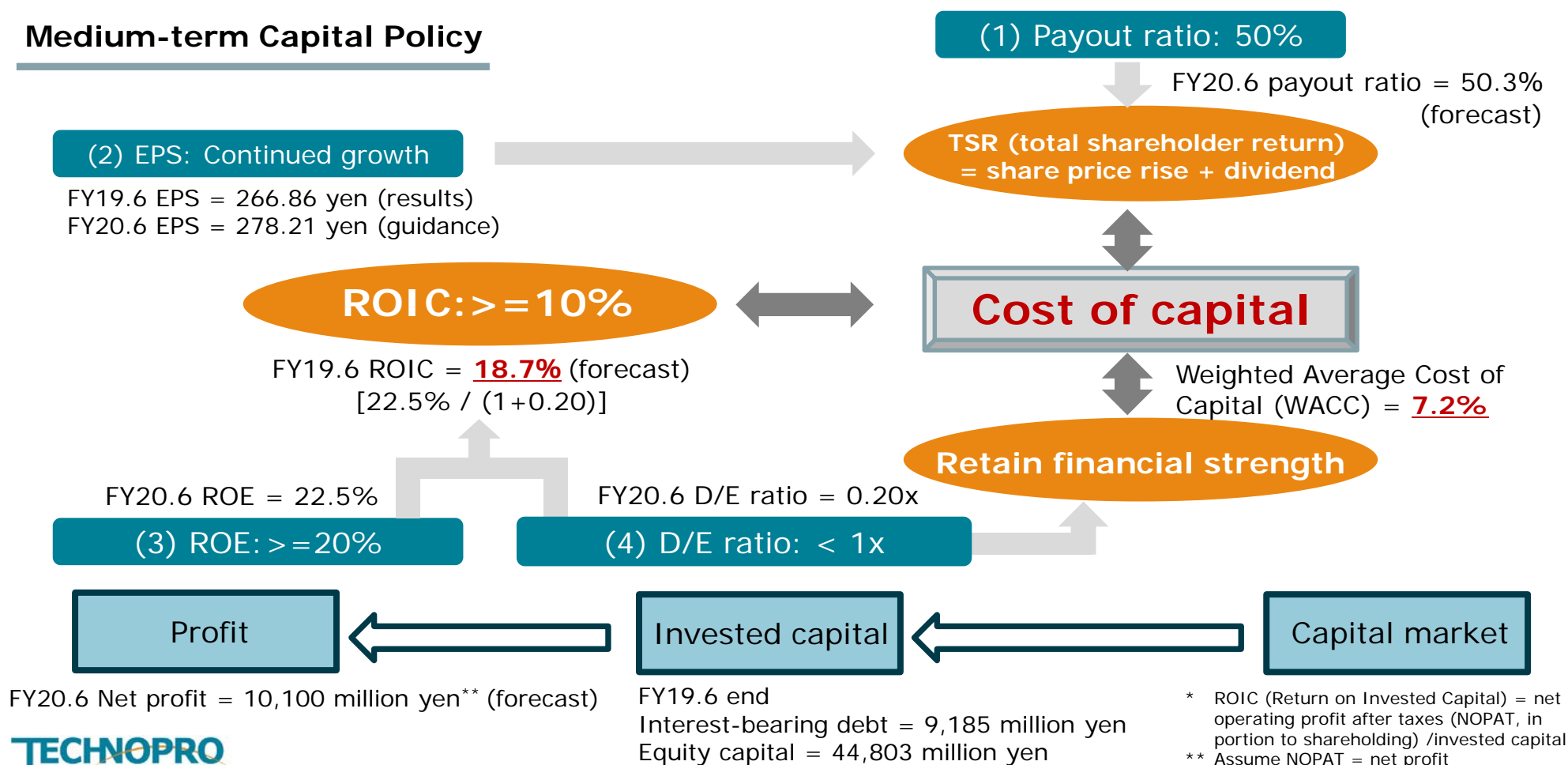
- Class of shares to be repurchased : Ordinary shares
- Total shares to be repurchased: Up to 500,000 shares  
(Ratio to outstanding shares: 1.38% [excl. treasury shares])
- Total amount of repurchase: Up to 2.5 billion yen
- Repurchase period: Nov. 29, 2018 - Nov. 28, 2019

\* Dividends in FY2015 were returned to shareholders wholly at year-end payout  
Dividend forecast for FY20.6 does not include potential effects from share repurchase in the future

# Capital Policy

- Our capital policy sets generating added value as a primary focus of business operation, correlating each performance indicator mutually with the cost of capital at its center
- Adding to cost of capital, potential to achieve **more than 10% ROIC\*** through EPS growth, PMI initiatives (including growth investment) and creating synergy to be taken into account as criteria for forthcoming M&As

## Medium-term Capital Policy



# Contents

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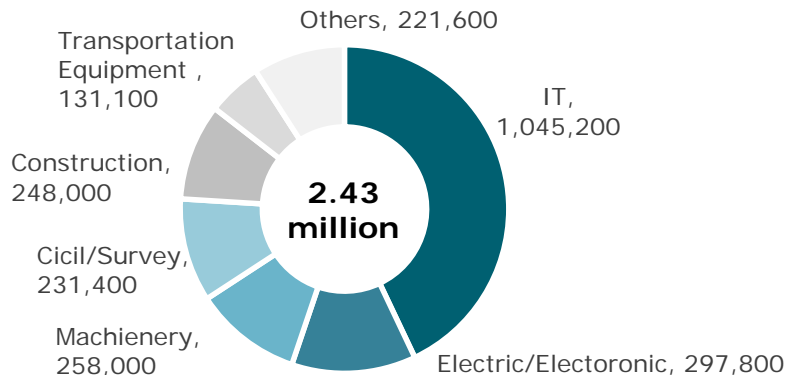
	Page
I : FY2019 Overview	2
II : KPI Analysis	11
i : Number of Engineers	11
ii : Unit Sales prices	16
III : FY2020 Guidance	17
IV : Capital Policy	19
V : Appendix	21

# Distribution of engineers in Japan

- According to the census in 2015, the number of engineers in Japan is 2.43 million and about 40% of them are IT engineers.
- In terms of engineers, the outsourcing ratio is relatively high in Japan
- According to the survey, in the manufacturing industry, 75% of companies outsource IT systems, and 56% outsource Technology development.

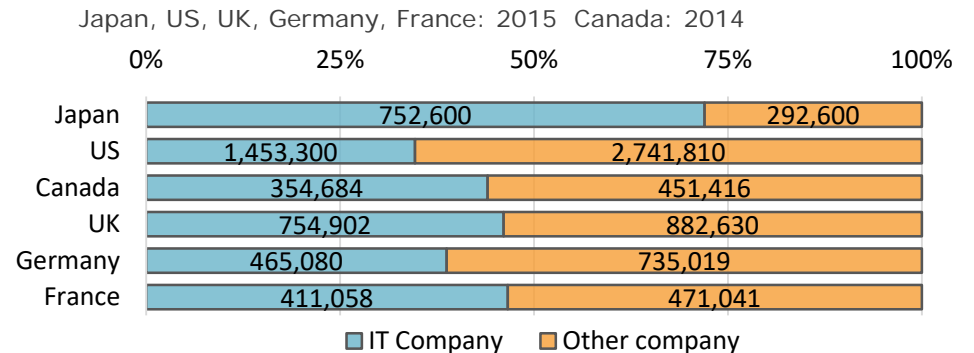
## 1. Number of engineers in Japan (2015)

Source: census 2015



## 2. Ratio of IT talents at IT and non-IT companies

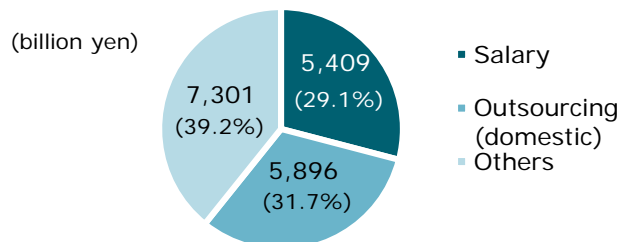
Source: Information-technology Promotion Agency Japan  
"IT Talent White Paper 2017"



※IT companies mean IT vendors and non-IT companies mean IT user companies

## 3. Cost structure of IT industry

Source: the Ministry of Economy, Trade and Industry  
"Survey on Specific Service Industries in 2017"



## 4. Outsourcing rate in the manufacturing industry

Source: Nobuyoshi Ota "Technology outsourcing strategy of the automobile industry" 2016

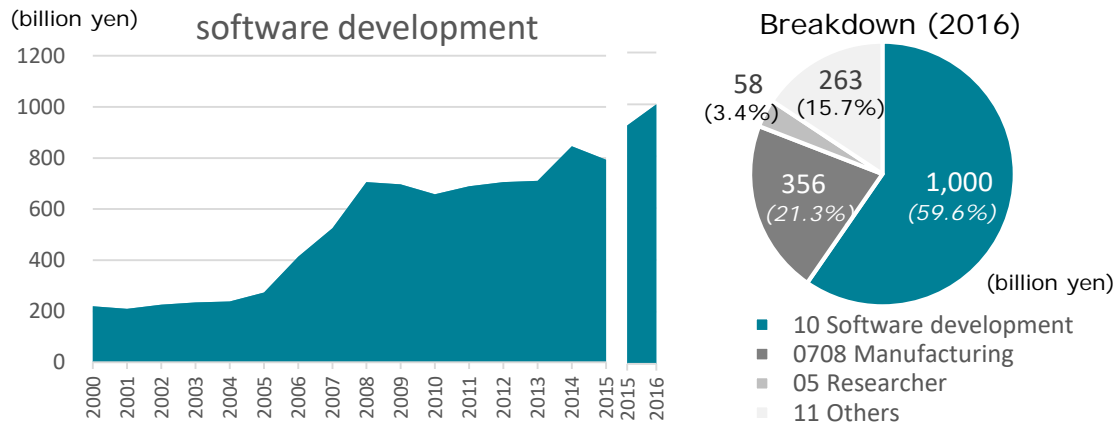
IT System	75%
Technology development	56%

# Engineer Staffing Market Overview

- Estimated the whole staffing market size is about 6.6 trillion yen. (2016)  
Engineer staffing market size (including manufacturing engineers) is about 1.7 trillion yen, about 250,000 people.
- Steady economic growth of this market is forecasted because of the increasing of R&D and Software demand.

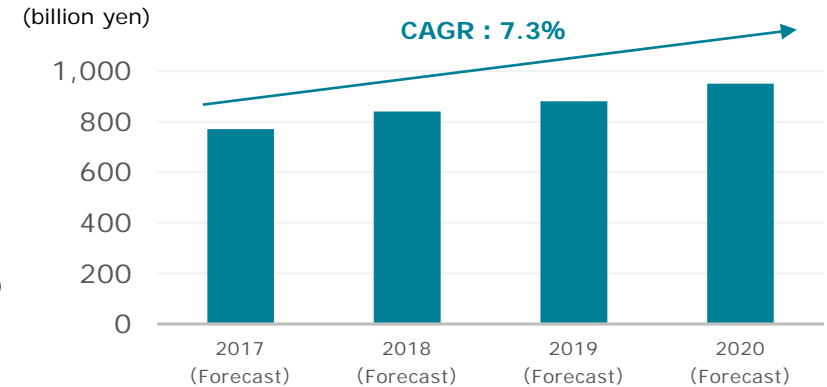
## 1. Transition of engineer staffing market size

Source: TechnoPro estimates based on the data researched by Ministry of Health, Labor and Welfare.



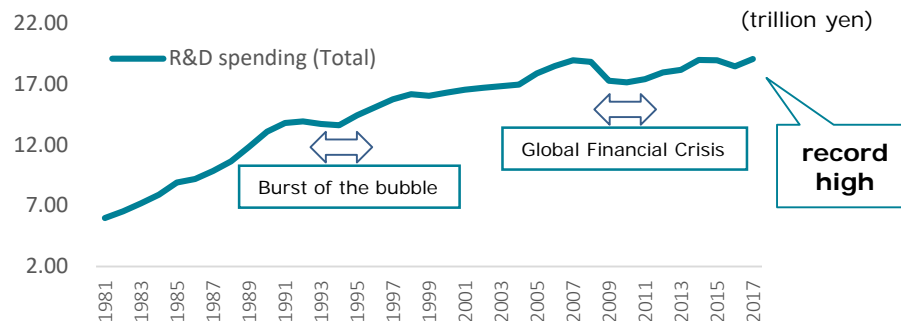
## 2. Forecast of engineer staffing market size

Yano Research Institute gathered information by research



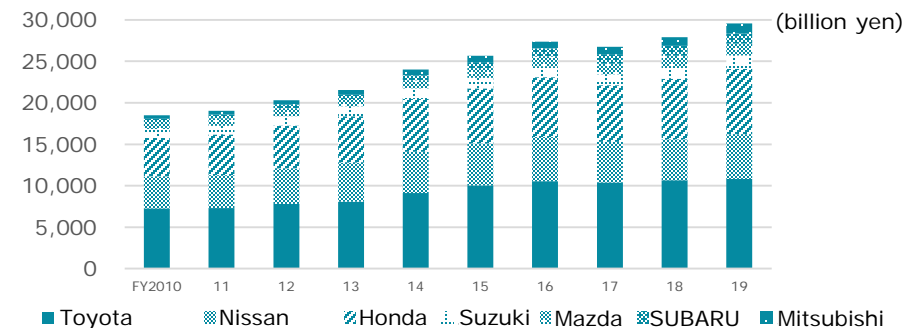
## 3. Transition of R&D spending in Japan

Source: Ministry of Internal Affairs and Communications statistics Bureau, *Survey of Research and Development*



## 4. R&D spending trend of seven major auto companies in Japan

Source: The Nikkei



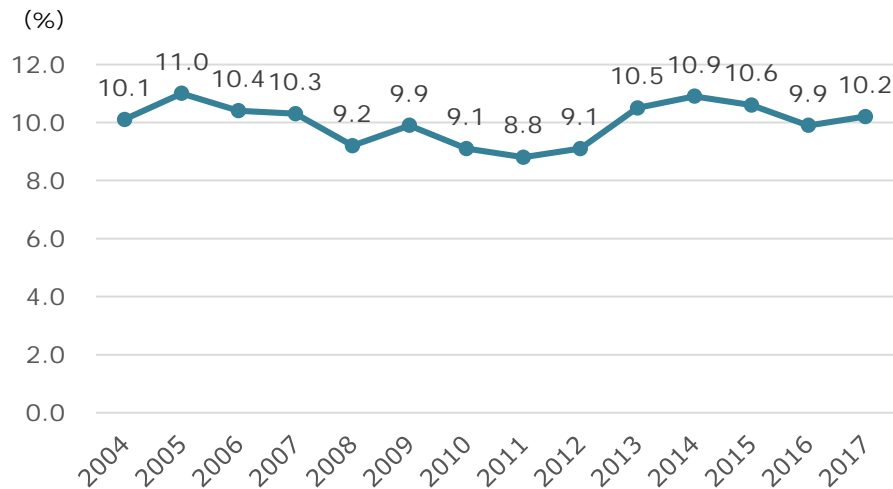
# Appendix: Background of Engineer Staffing Market

## Growth and our strengths – 1. Mid career market

- The turnover ratio in Japan remains around 10% which shows career-change market has a certain scale
- While the life-time employment/seniority wage system firmly remains in Japan, the number of mid-career recruitment by blue-chip companies is limited due to the gap between productivity and salary

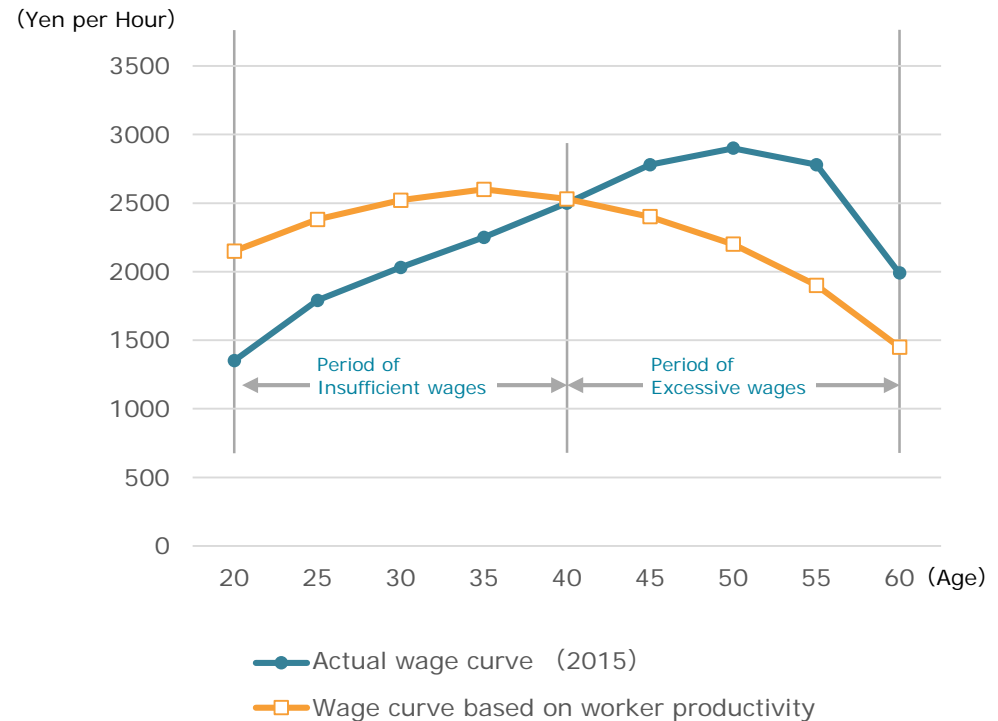
### 1. Turnover ratio in Japan

Source: "Employment Trends Survey",  
Ministry of Health, Labour and Welfare



### 2. Seniority-Based Wages and Wages based on Work Productivity (Hourly)

Source: "Equity Research Reprinted Report", May 1, 2017,  
Investment Information Department, Mitsubishi UFJ Morgan  
Stanley Securities Co., Ltd.





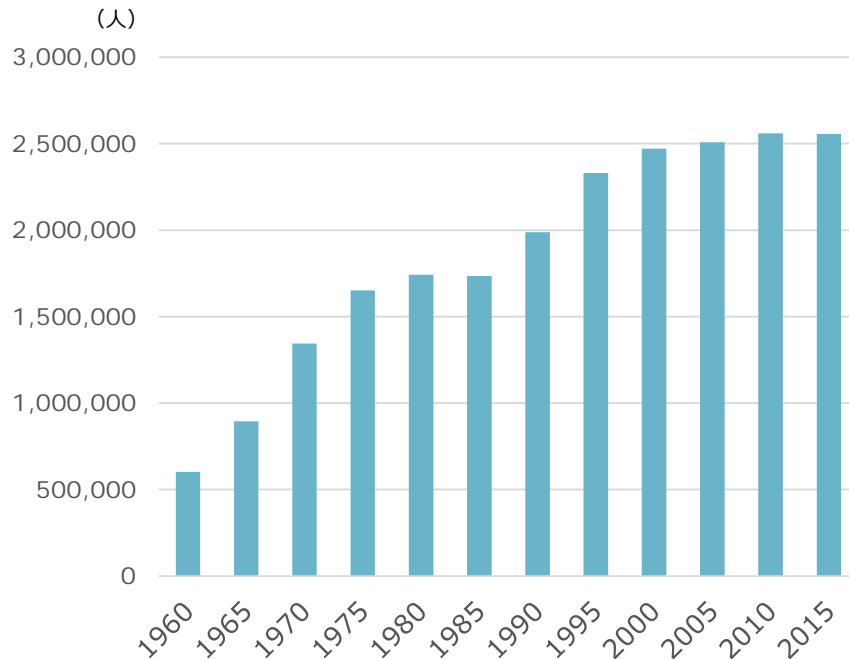
# Appendix: Background of Engineer Staffing Market

## Growth and our strengths – 2. New grads market

- While the young population is shrinking, the number of university graduates is slightly increasing because of higher university entrance rate.
- New grads tend to focus on blue-chip companies while such companies have limited number of openings for them

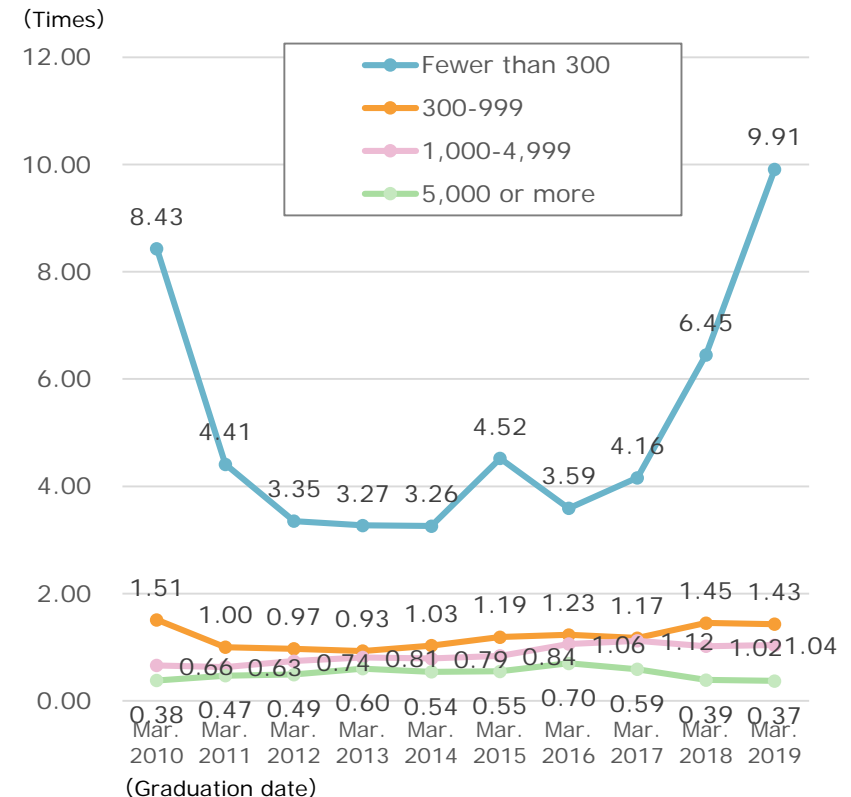
### 3. No. of university grads

Source: "Handbook of Education and Science statistics",  
Ministry of Education, Culture, Sports, Science and Technology



### 4. Job-to Applicants Ratio, by Scale Based on Number of Employees

Source : "34<sup>th</sup> College Graduates Job Opening Survey",  
Recruit Works Institute



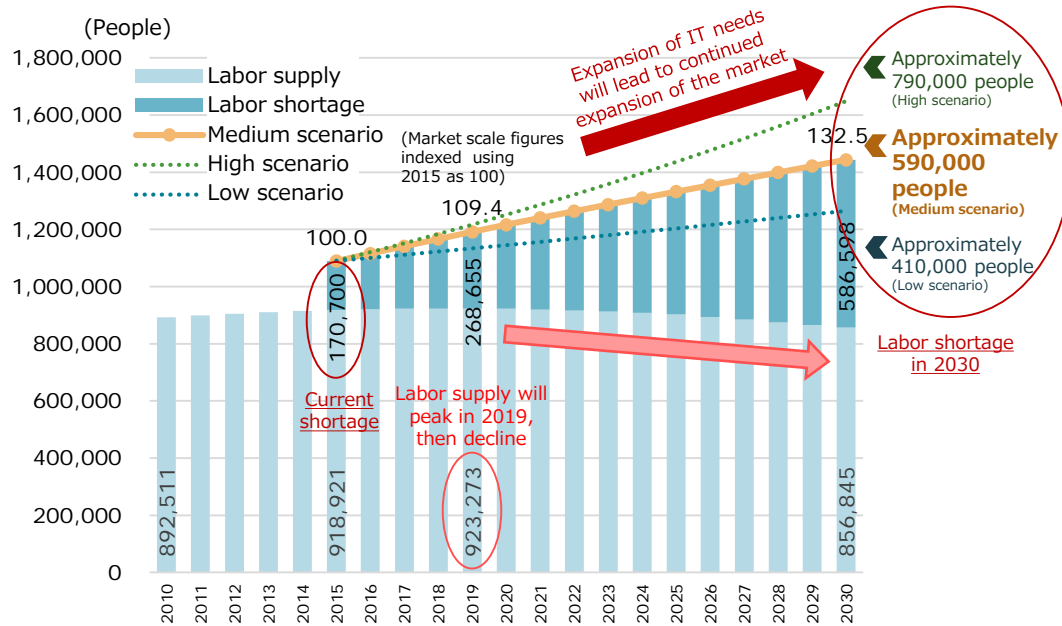
# Appendix: Background of Engineer Staffing Market

## Growth and our strengths – 3. Growing demand

- IT-related company is highly competitive because of a huge demand-supply mismatch in the IT sector
- Weakening demand for engineers with the spread of AI will be more than offset by the new demand for engineers

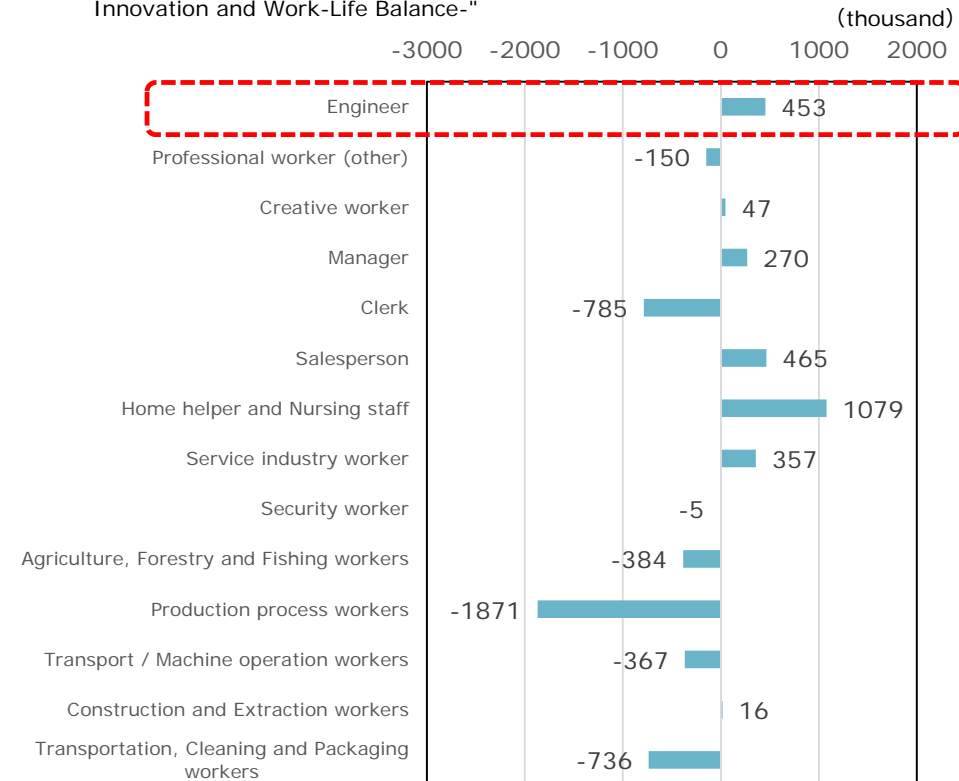
### 5. IT Staff Shortage Projections

Source: Ministry of Economy, Trade and Industry, *Study of Recent Trends and Future Estimates Concerning IT Human Resources*



### 6. Shift in workforce due to progression of AI

Source: Ministry of Health, Labour and Welfare, Labor economy white paper in 2017 "Analysis of Labor Economy - Issues for Promotion of Innovation and Work-Life Balance-"



Note: Estimated numbers comparing 2015 and 2030

# Disclaimer

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