



HAMAMATSU

P H O T O N I S O U R B U S I N E S S

Hamamatsu Financial Report

Fiscal Year ended September 30, 2018



November 2018

Hamamatsu Photonics K.K.

Tokyo Stock Exchange: 6965

www.hamamatsu.com

Notes

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Financial results & forecast

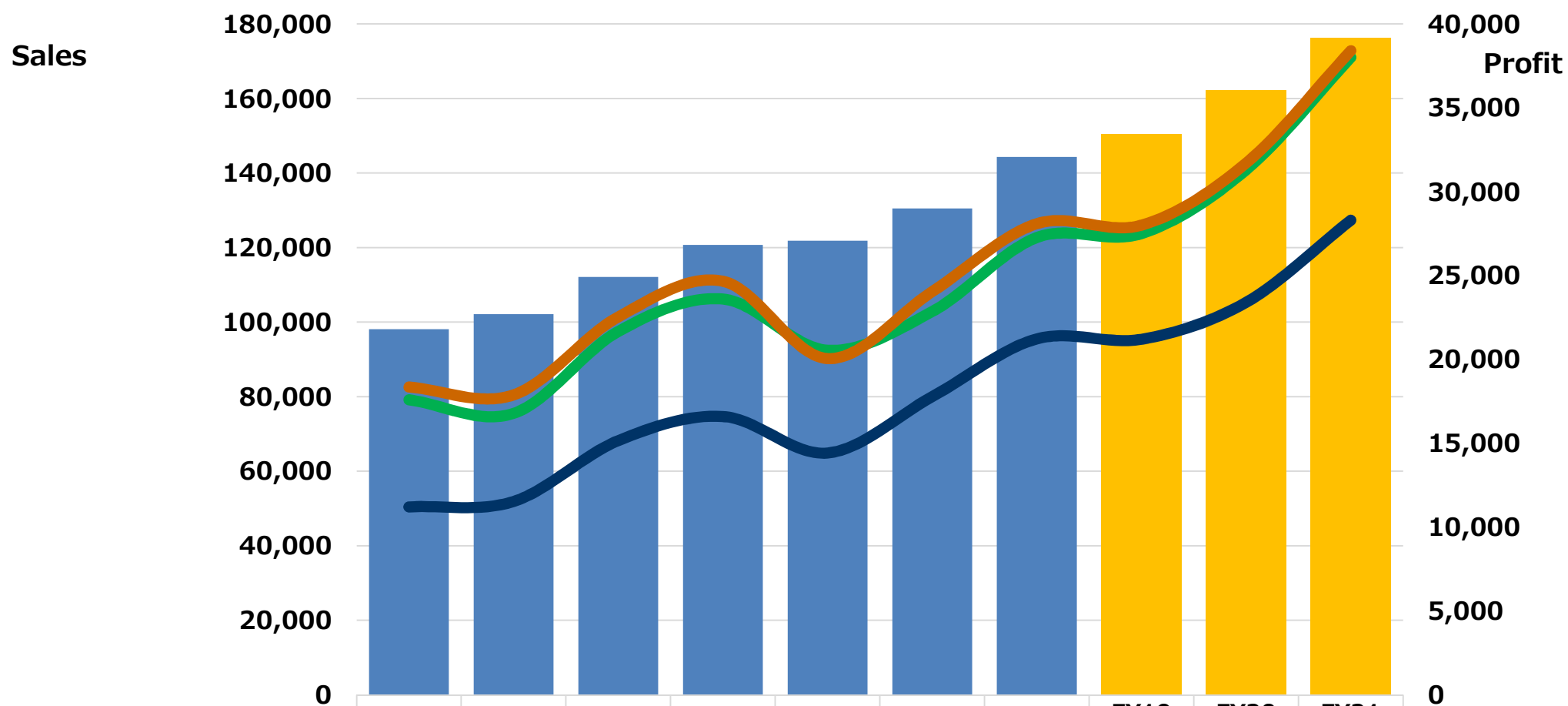
Unit :Million Yen

FY: October 1-September 30

	FY2017	FY2018			FY2019	
	Result	Revised plan May 7, 2018	Result	compared with prev. year	Plan	compared with prev. year
Net Sales	130,495	144,300	144,338	+10.6%	150,400	+4.2%
Gross Profit (%)	64,825 (49.7%)	73,200 (50.7%)	73,952 (51.2%)	+14.0%	76,800 (51.1%)	+3.8%
Operating Income	22,849	26,600	27,263	+19.3%	27,500	+0.8%
Ordinary Income	24,037	26,900	28,088	+16.8%	28,000	-0.3%
Net Income	17,777	19,200	21,222	+19.4%	21,200	-0.1%
Net Income per share (yen)	113.00	124.03	136.49	+20.8%	136.95	+0.3%
ROE	10.0%	10.2%	11.2%			
Dividends (yen)	34	-	37	-	40	-
Exchange rate	<u>actual rates</u>	<u>actual rates</u>			<u>assumption rates</u>	
1 US dollar	111.27 yen	110.46 yen			105.00 yen	
1 euro	122.91 yen	131.42 yen			125.00 yen	
1 RMB	16.03 yen	16.97 yen			16.00 yen	

Sales & profit thru FY2021

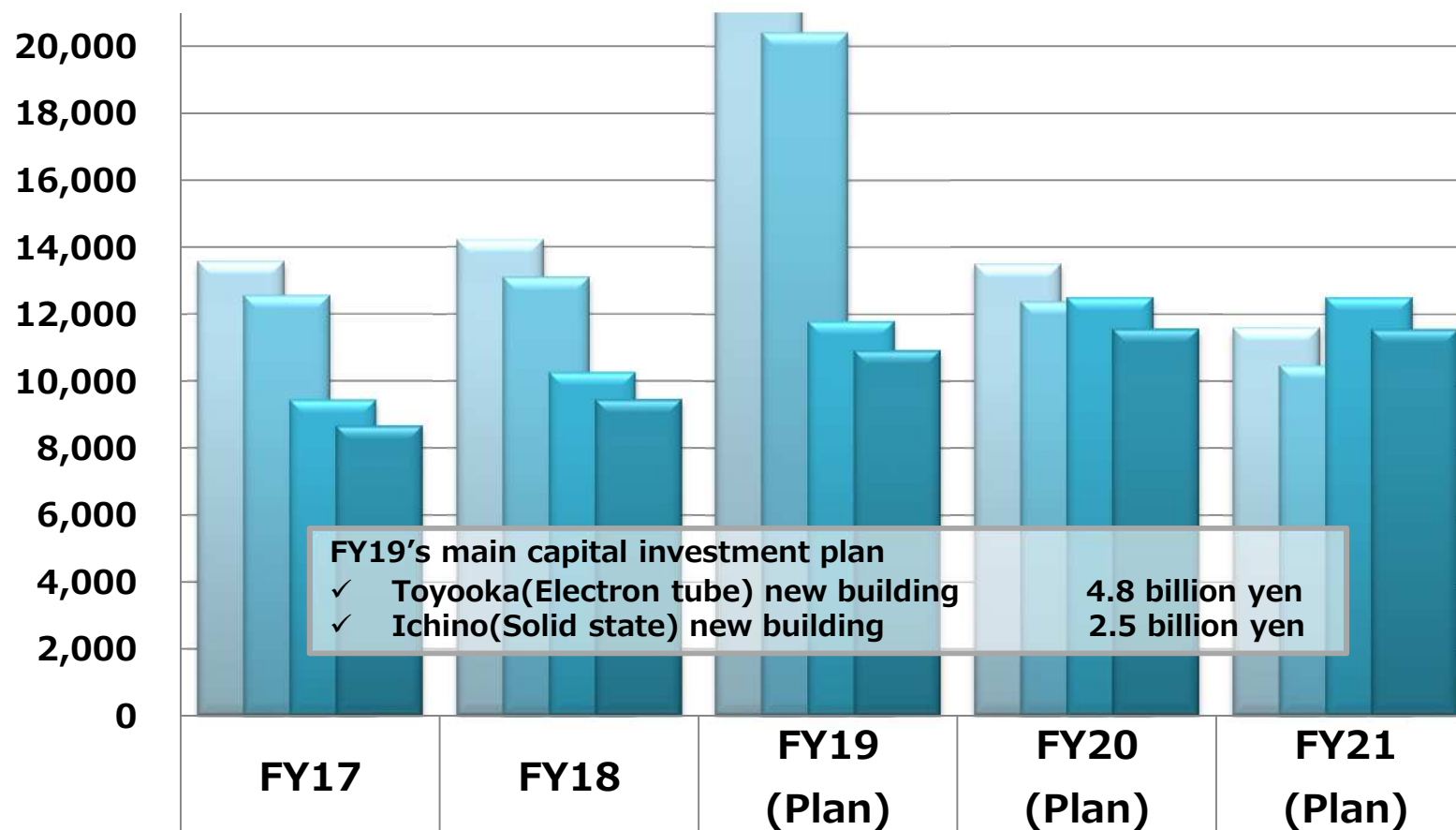
Unit : Million Yen



	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19 (Plan)	FY20 (Plan)	FY21 (Plan)
Net Sales(Left)	98,067	102,156	112,092	120,691	121,852	130,495	144,338	150,400	162,300	176,400
Operating Income(Right)	17,587	16,781	21,665	23,596	20,544	22,849	27,263	27,500	31,300	38,000
Ordinary Income(Right)	18,350	17,883	22,531	24,658	20,050	24,037	28,088	28,000	31,700	38,400
Net Income(Right)	11,206	11,529	15,155	16,598	14,419	17,777	21,222	21,200	23,400	28,300

Capital investment (payment based) & depreciation

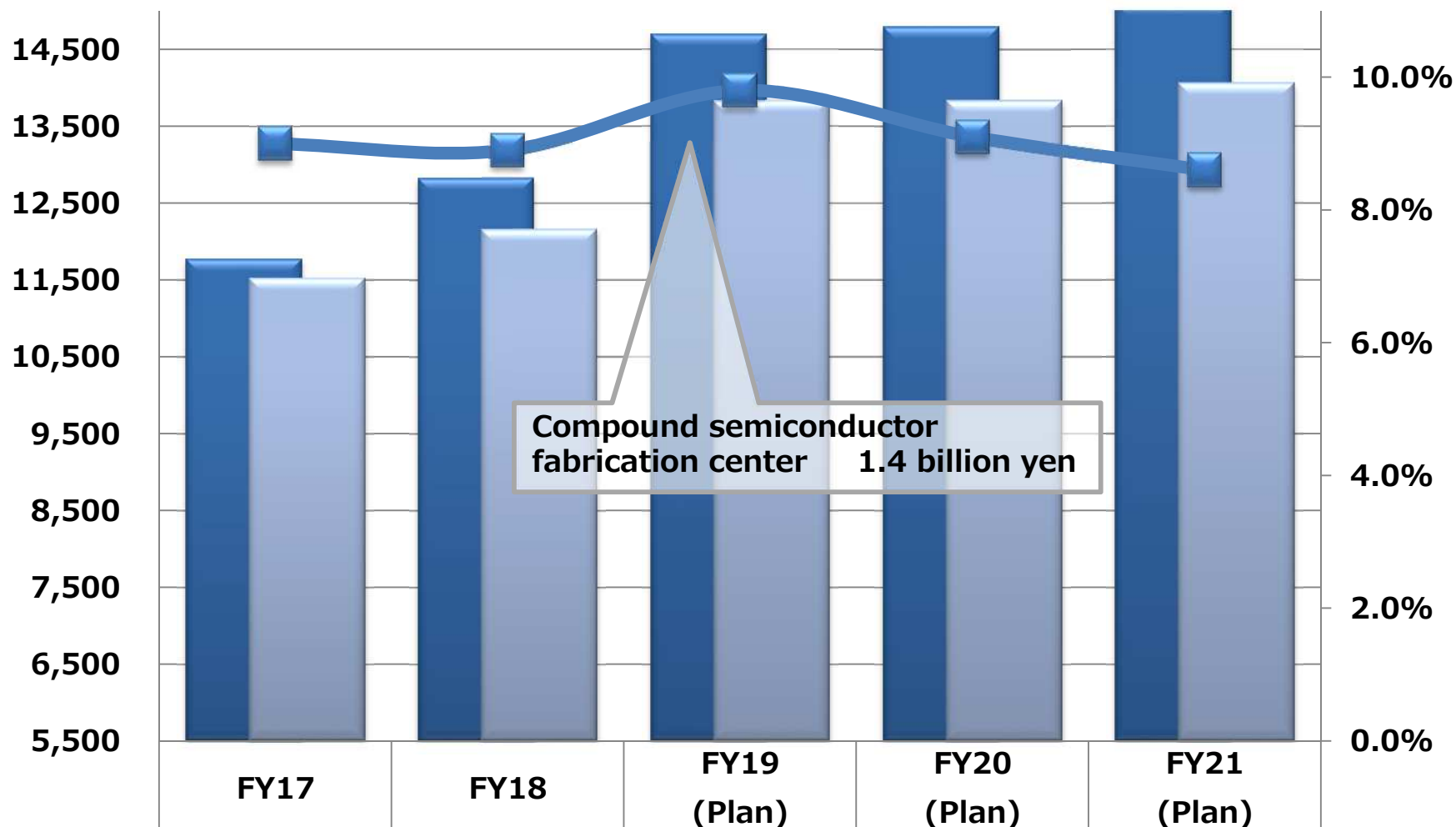
Unit : Million Yen



	FY17	FY18	FY19 (Plan)	FY20 (Plan)	FY21 (Plan)
Capital Inv.	13,572	14,221	22,300	13,500	11,600
Capital Inv. (non-cons.)	12,560	13,100	20,420	12,383	10,474
Depreciation	9,441	10,261	11,800	12,500	12,500
Depreciation (non-cons.)	8,666	9,454	10,931	11,565	11,551

R & D expense

Unit : Million Yen



Compound semiconductor
fabrication center 1.4 billion yen

R & D	11,776	12,830	14,700	14,800	15,100
R & D (non-cons.)	11,529	12,165	13,842	13,841	14,066
R & D to Sales ratio	9.0%	8.9%	9.8%	9.1%	8.6%

Sales by region(consolidated)

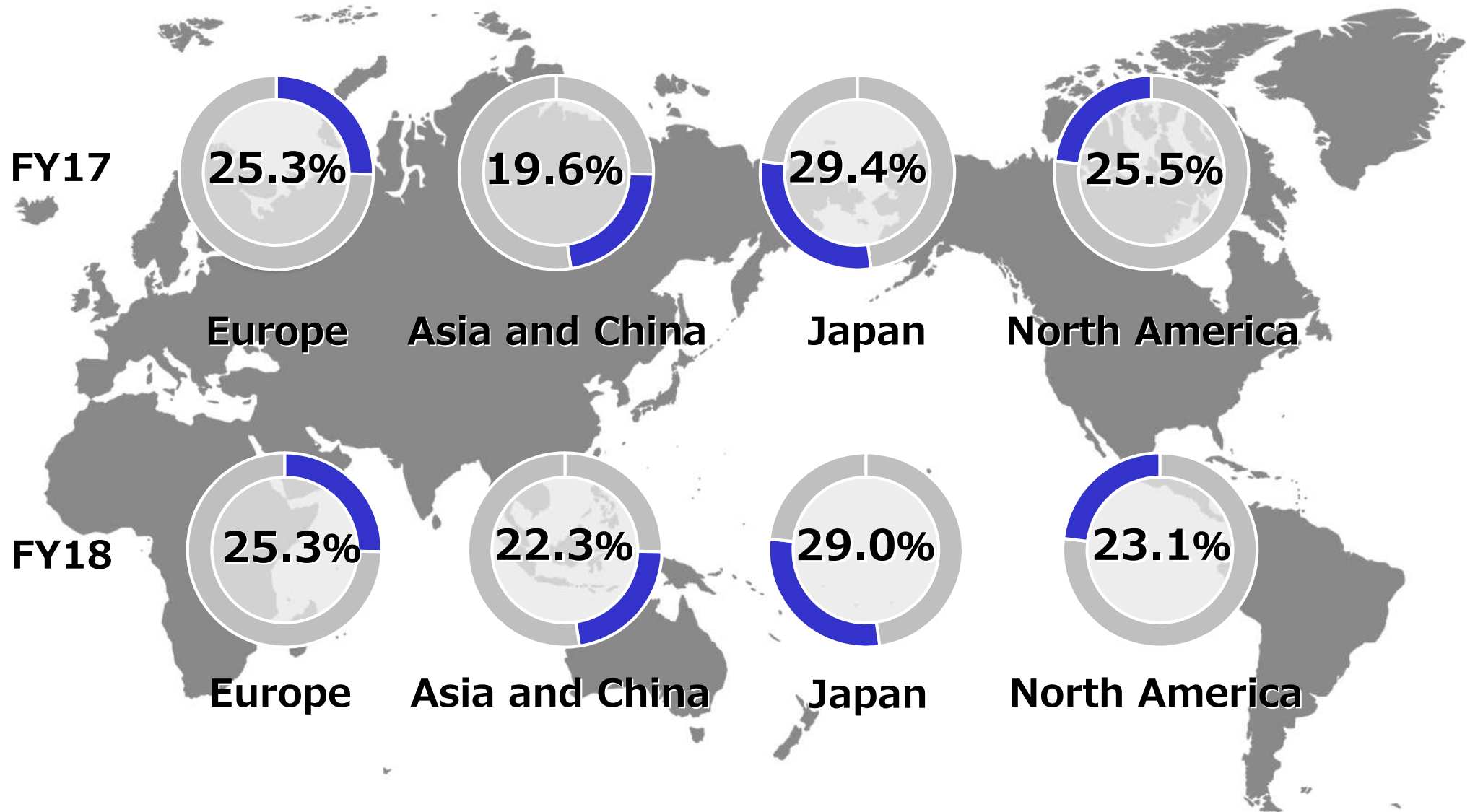
Unit :Million Yen

Region	FY15	FY16			FY17			FY18		
	Year	Year	Y/Y	Share	Year	Y/Y	Share	Year	Y/Y	Share
Japan/Do mestic	37,238	36,258	-2.6%	29.8%	38,378	+5.8%	29.4%	41,919	+9.2%	29.0%
North America	35,135	32,704	-6.9%	26.8%	33,314	+1.9%	25.5%	33,363	+0.1%	23.1%
Europe	29,603	30,138	+1.8%	24.7%	32,961	+9.4%	25.3%	36,546	+10.9%	25.3%
Asia and China	18,381	22,489	+22.3%	18.5%	25,546	+13.6%	19.6%	32,253	+26.3%	22.3%
Other	333	261	-21.6%	0.2%	293	+12.3%	0.2%	258	-11.9%	0.2%
Total	120,691	121,852	+1.0%	100.0%	130,495	+7.1%	100.0%	144,338	+10.6%	100.0%

Major countries on each region

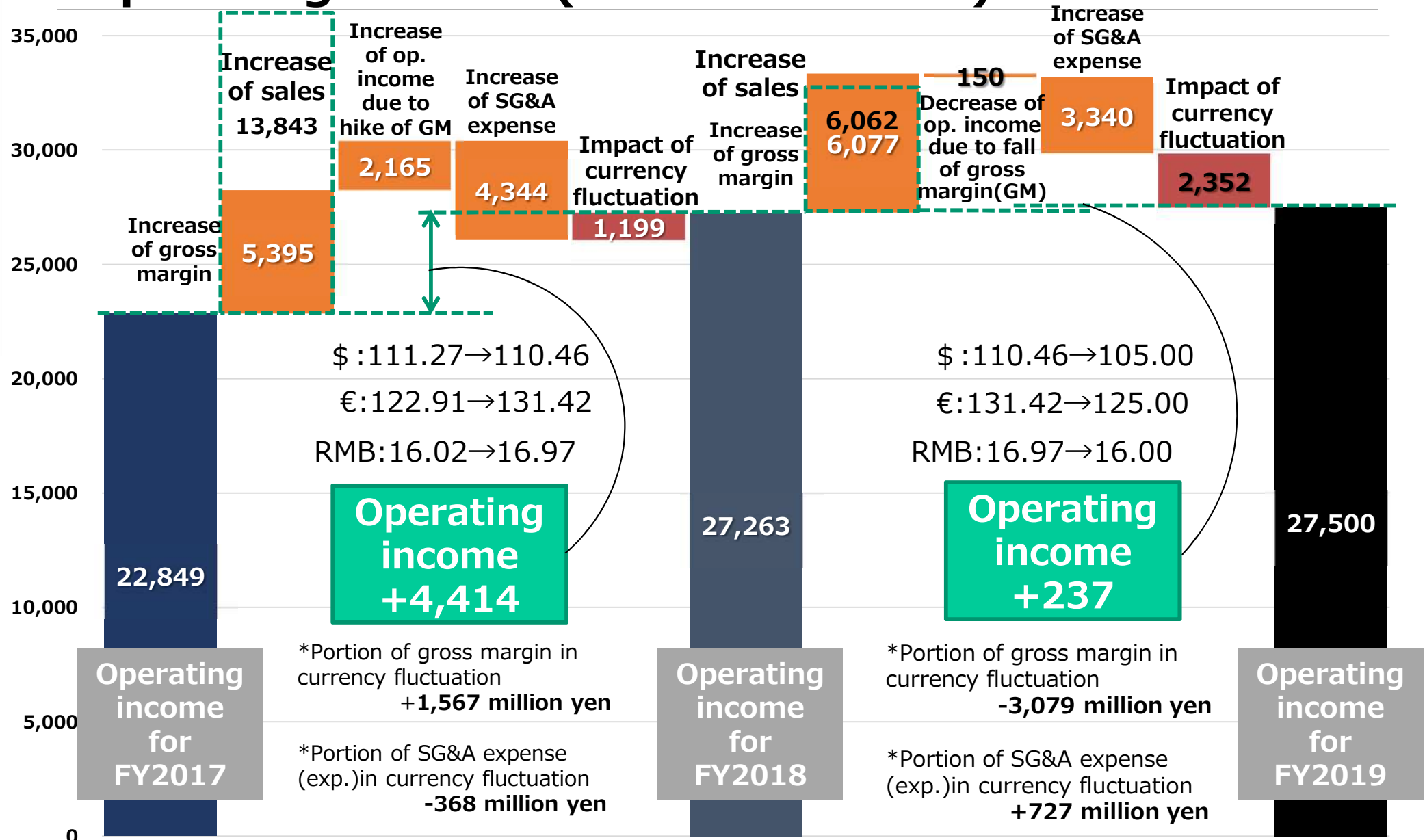
- **North America: United States of America**
- **Europe: Germany, France, U.K., Sweden, Italy**
- **Asia and China: China, South Korea, Taiwan
Israel, India,**
- **Other: Australia**

Sales by region



Analysis of impact of currency fluctuation to operating income (trial calculation)

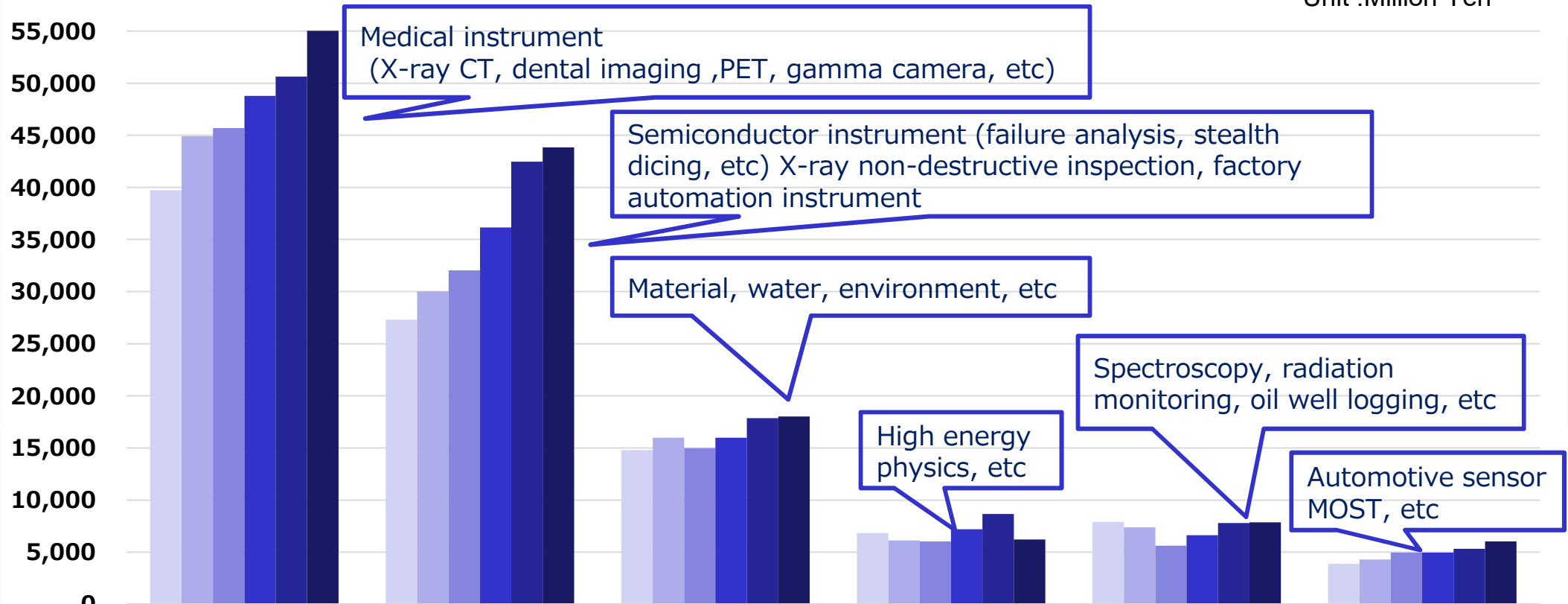
Unit : Million Yen



*numbers are rounded down to the nearest million yen

Sales by industry & application

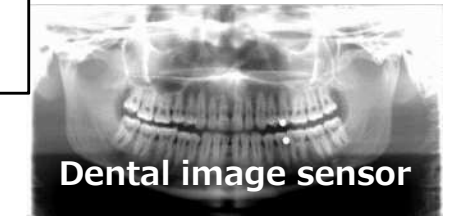
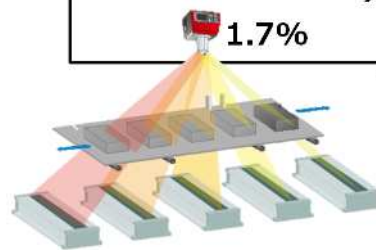
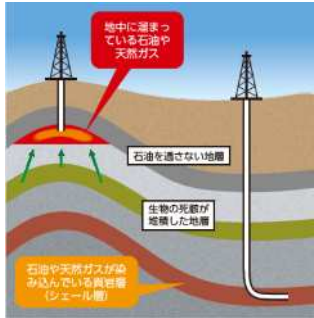
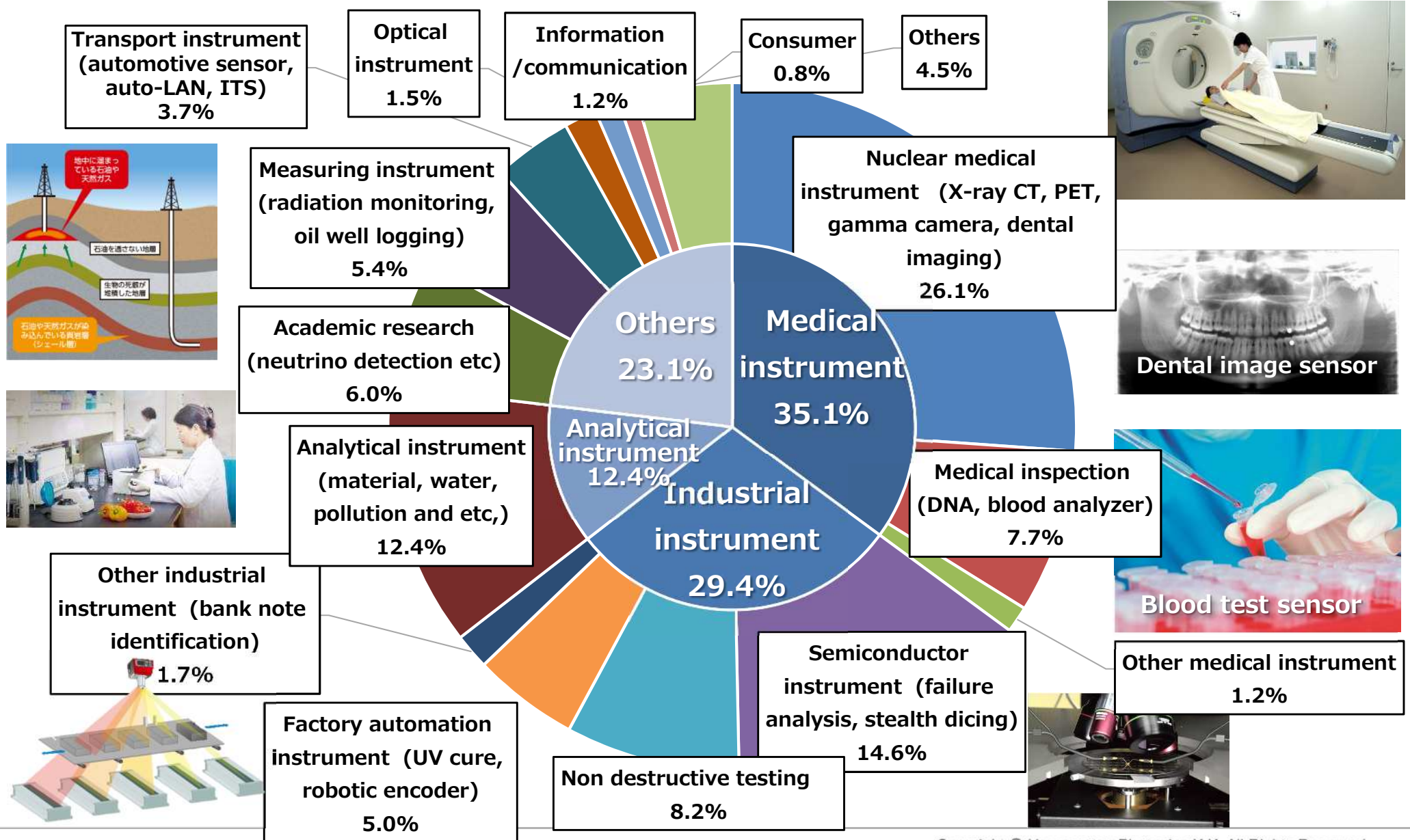
Unit :Million Yen



	Medical Instrument	Industrial Instrument	Analytical Instrument	Academic Research	Measuring Instrument	Transport Instrument
FY14	39,729	27,293	14,803	6,840	7,908	3,892
FY15	44,916	30,017	15,980	6,125	7,386	4,288
FY16	45,686	32,037	14,967	6,027	5,627	4,961
FY17	48,773	36,155	15,986	7,210	6,635	4,968
FY18	50,634	42,457	17,862	8,660	7,790	5,333
FY19 (Plan)	55,018	43,844	18,009	6,211	7,861	6,034

*numbers are rounded down to the nearest million yen

FY18 sales by industry & application



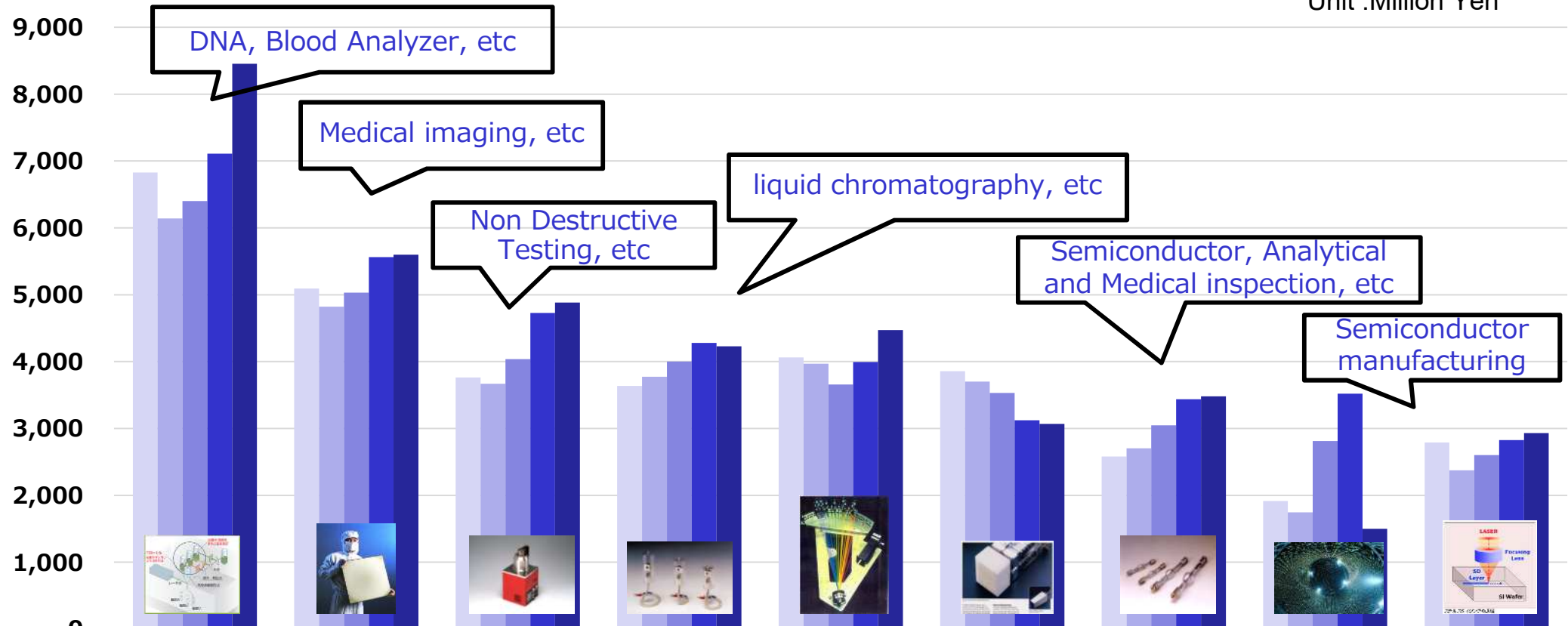
Electron tube segment (Electron tube division)



Toyooka factory in Iwata-city, Shizuoka-pref.

Sales of core electron tube products

Unit : Million Yen



	PMT for Medical Inspection	Scintillator	Microfous X-ray Source	Deuterium Lamp	PMT for Analytical Instrument	PMT for PET	Xenon Lamp	PMT for High-Energy	Stealth Dicing
■ FY15	6,829	5,092	3,761	3,635	4,064	3,855	2,581	1,915	2,791
■ FY16	6,142	4,823	3,668	3,772	3,968	3,702	2,703	1,744	2,375
■ FY17	6,401	5,030	4,037	4,002	3,658	3,532	3,046	2,810	2,602
■ FY18	7,108	5,561	4,727	4,281	3,995	3,121	3,437	3,519	2,828
■ FY19 (Plan)	8,454	5,600	4,882	4,230	4,470	3,068	3,480	1,498	2,930

*numbers are rounded down to the nearest million yen

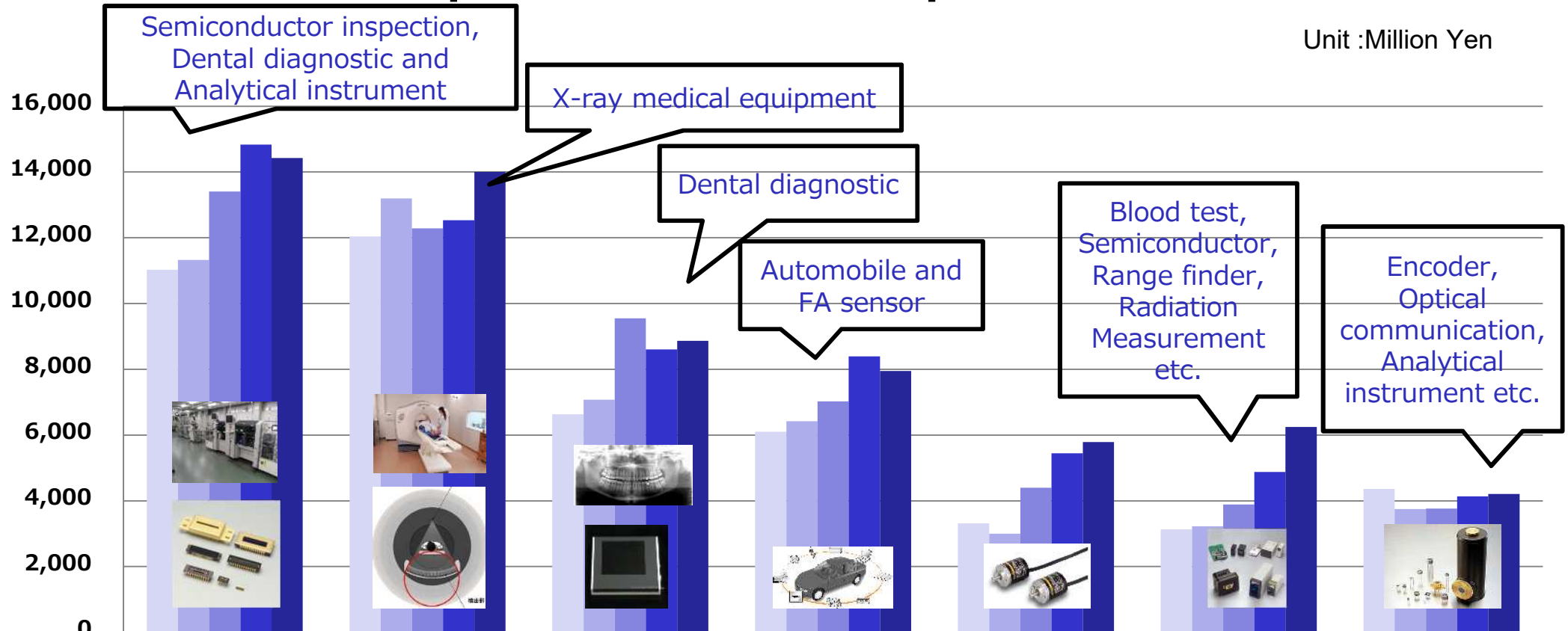
Opto-semiconductor segment (Solid state division)



**Ichino main factory in Hamamatsu-city,
Shizuoka-pref.**

Sales of core opto-semiconductor products

Unit : Million Yen



	Linear/Area image sensor	Si Photodiode for Medical Instrument	Flat panel sensor	Photo IC	Si Photodiode for FA	Applied products and module	Compound Semiconductor
FY15	11,023	12,037	6,628	6,103	3,313	3,130	4,360
FY16	11,322	13,195	7,077	6,417	2,998	3,223	3,752
FY17	13,409	12,286	9,548	7,021	4,397	3,885	3,766
FY18	14,832	12,534	8,600	8,390	5,445	4,876	4,134
FY19 (Plan)	14,423	14,003	8,866	7,945	5,784	6,249	4,208

*numbers are rounded down to the nearest million yen

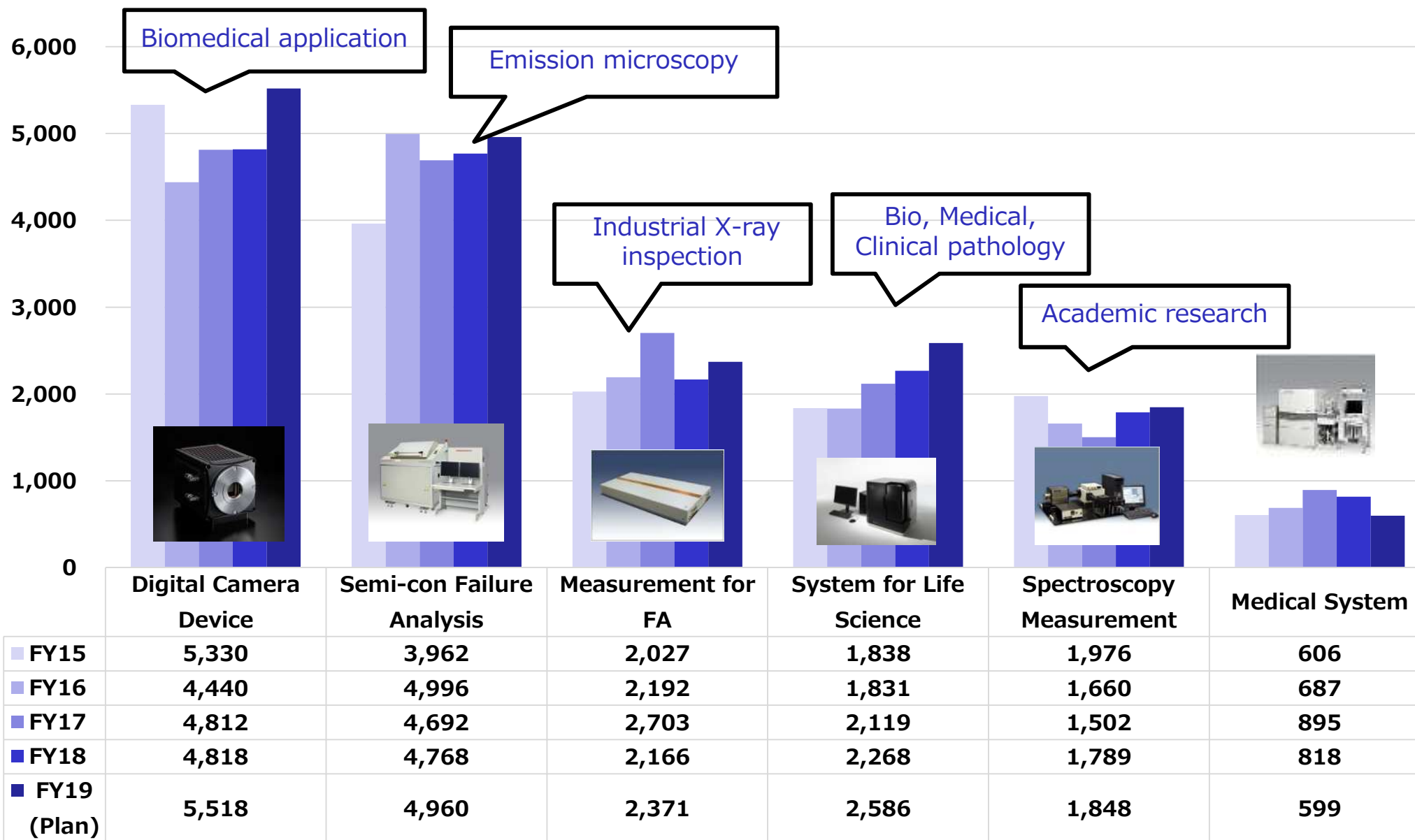
Imaging and measurement instruments segment (Systems division)



Joko factory in Hamamatsu-city,
Shizuoka-pref.

Sales of core imaging & measurement instruments products

Unit :Million Yen



*numbers are rounded down to the nearest million yen

Sales of laser products

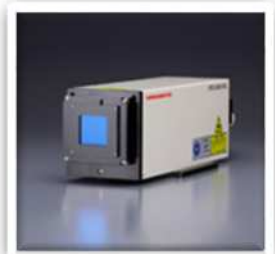
Unit :Million Yen



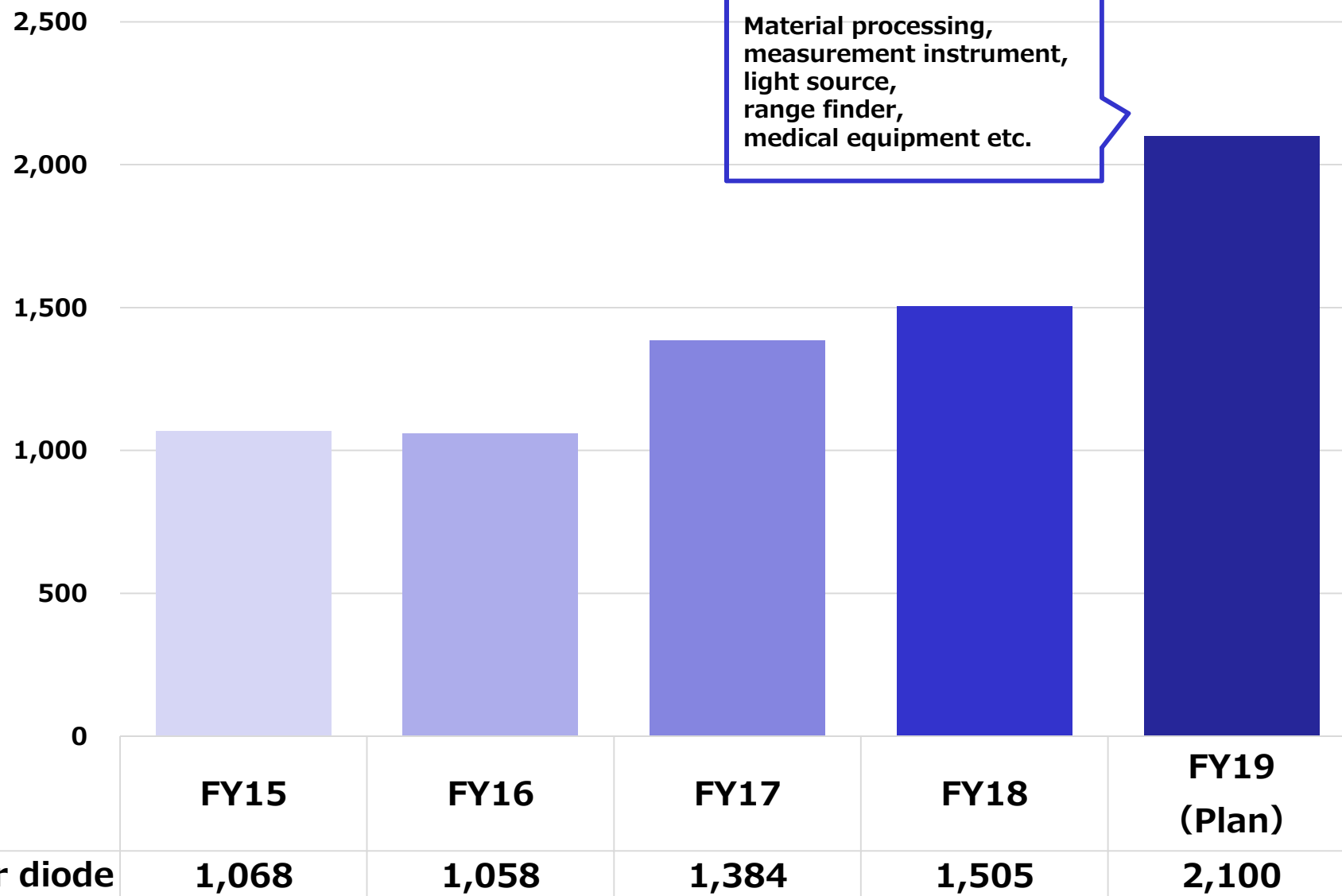
Laser diode



High power laser diode bar module



Direct diode laser, fiber out laser diode



*numbers are rounded down to the nearest million yen

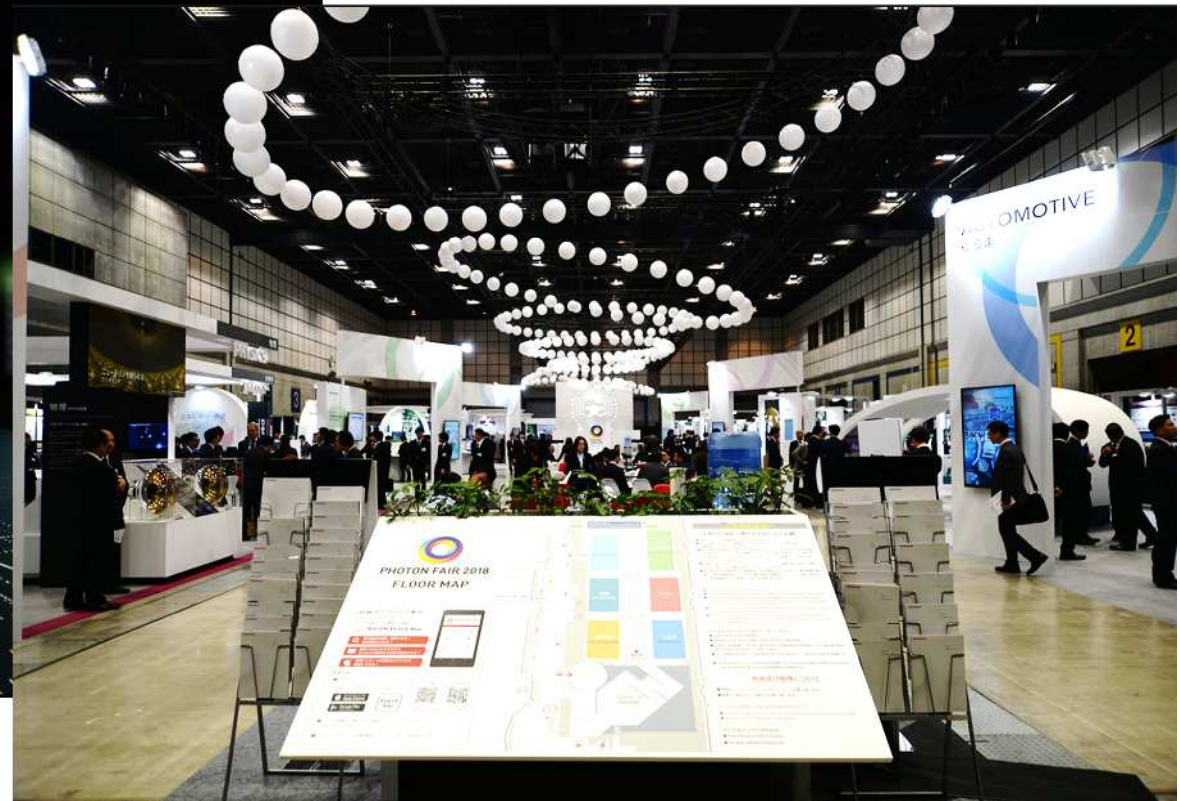
High-energy physics experiments using photomultiplier tubes

Type	Project Name	Purpose	Place	Expected year of first delivery	number
Underground	Hyper-Kamiokande	Neutrino, Proton decay	Japan	2020	82,000 14,000
	JUNO(Daya Bay II)	Neutrino	China	2016	5,000
Deep-sea	KM3NeT	Neutrino	Mediterranean Sea	2018	175,000
	Baikal-GVD	Neutrino	Russia	2015	10,000
Ice experiment	IceCube Upgrade	Neutrino	Antarctica	2018	600 9,000
	IceCube-Gen2	Neutrino	Antarctica	2025	350,000
Ground-surface	CTA	Gamma-ray space telescope	Southern and Northern Hemisphere	2015	96,000
Satellite	K-EUSO	Cosmic ray	I S S	2020	2,000

Topics

PHOTON FAIR 2018 exhibition

Journey to the future of Photonics with Hamamatsu



November 1st to 3rd, 2018

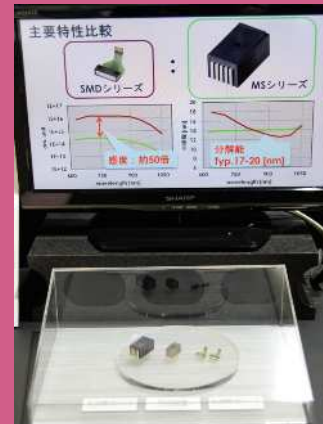
Over 10,000 visitors

PHOTON FAIR 2018 exhibition

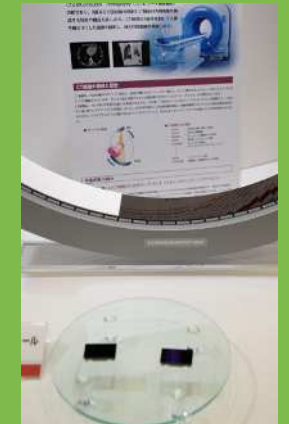
Experience the future of photonics technology in six areas



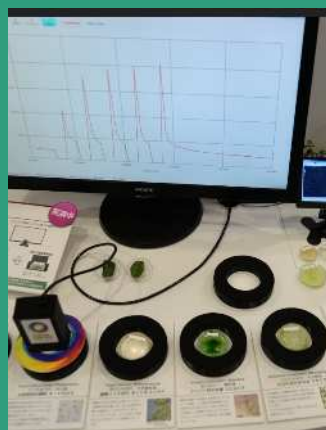
Automotive



Life



Medical & life science



Environment

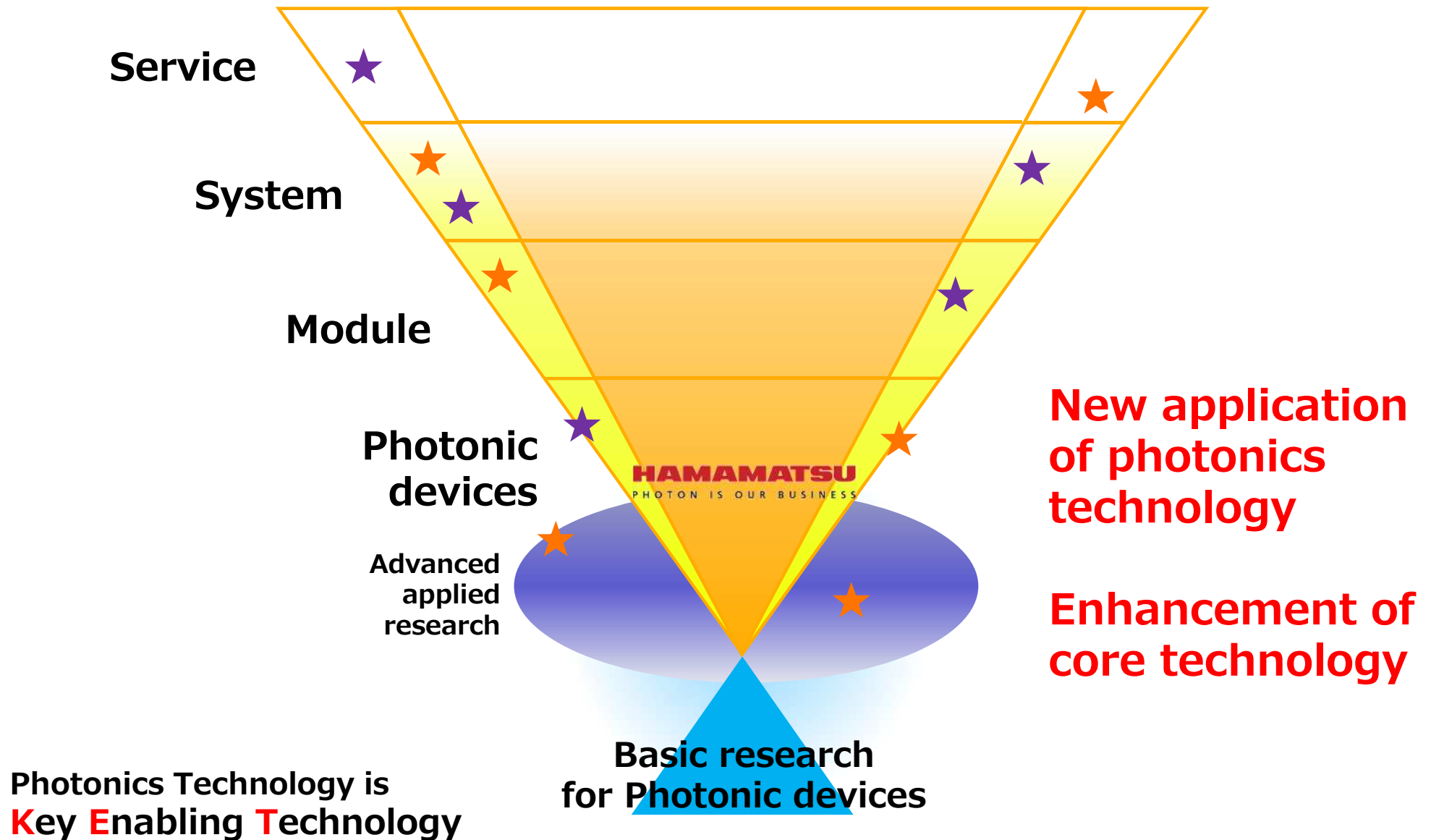


Manufacturing

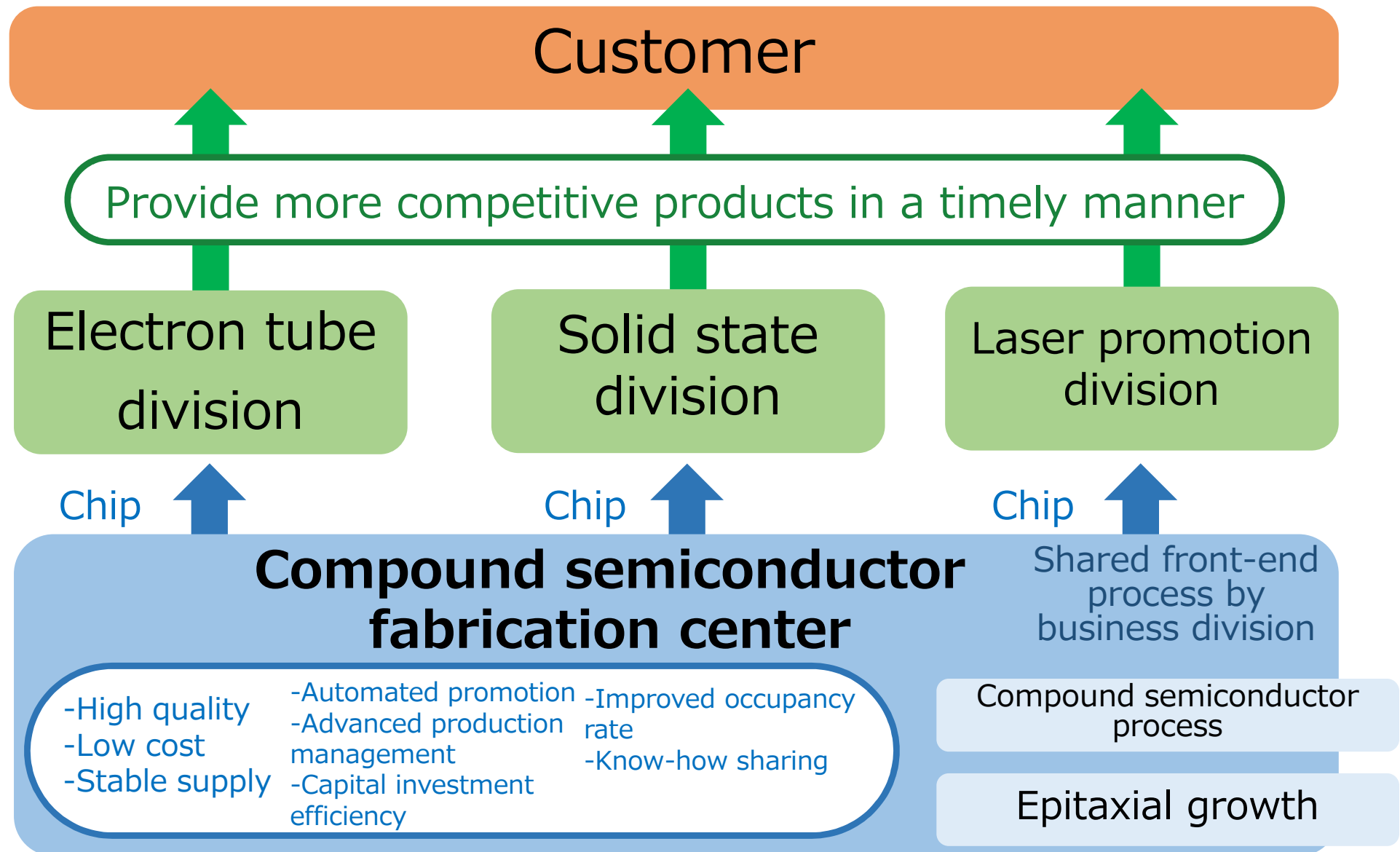


Science & research

PHOTON FAIR 2018 exhibition

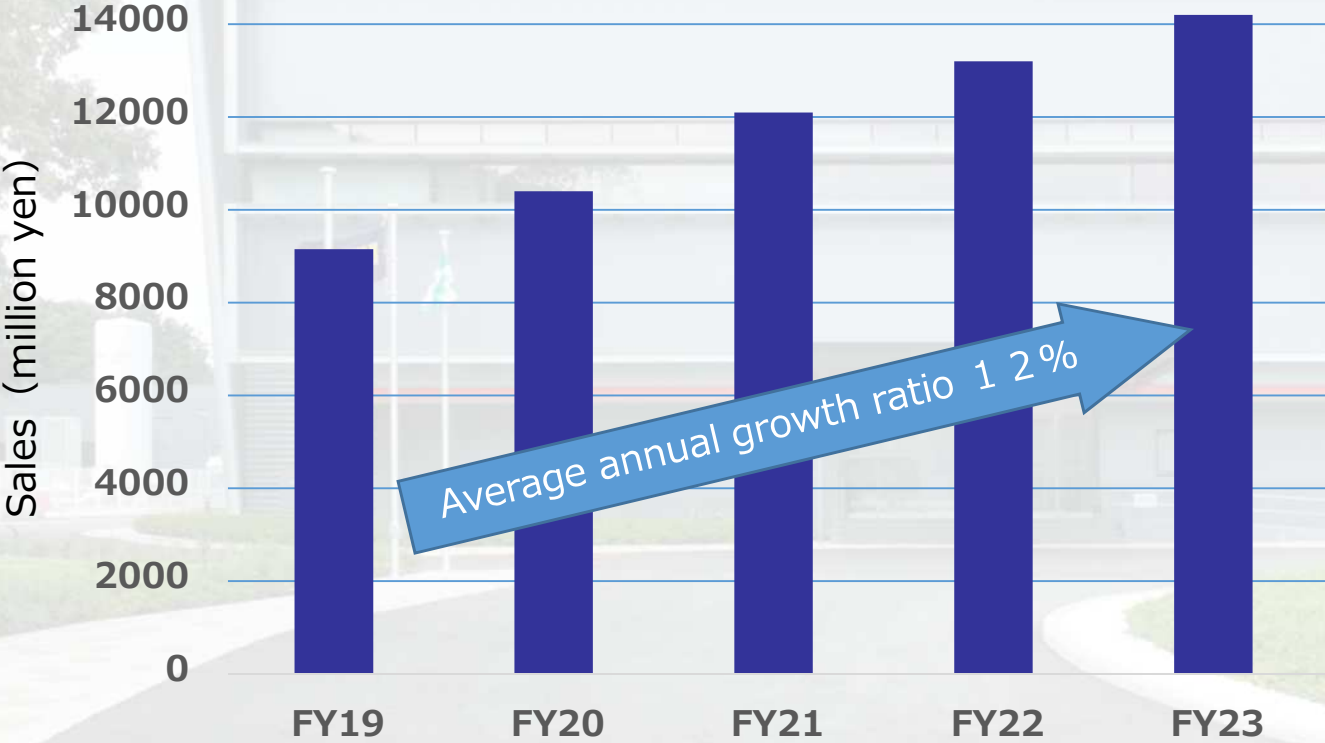


Infrastructure development for production and technological enhancement



Compound semiconductor fabrication center

Compound semiconductor product sales forecast



Micro focus X-ray source(MFX)

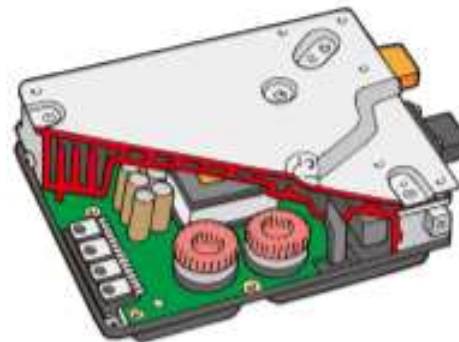
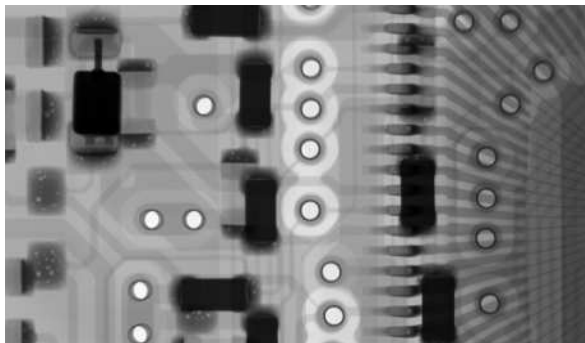


● Application

- Electrical circuit board inspection
- Lithium ion battery inspection
- X-ray Metrology etc.

● market growth ratio

53% increase in next 5 years



ECU (Engine control unit)

Mass spectrometry related products



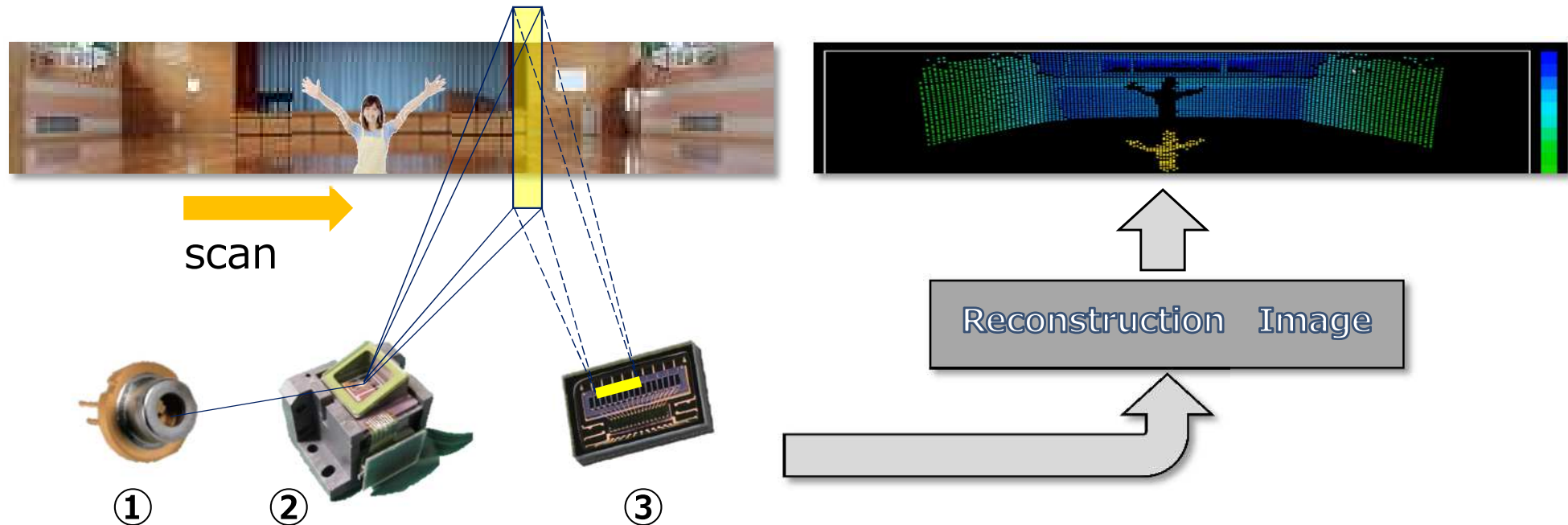
● Application

- Environment analysis
- Drug development
- Explosive Trace Detection
- Quality control of materials and foods

● market growth ratio

385% increase in next 5 years

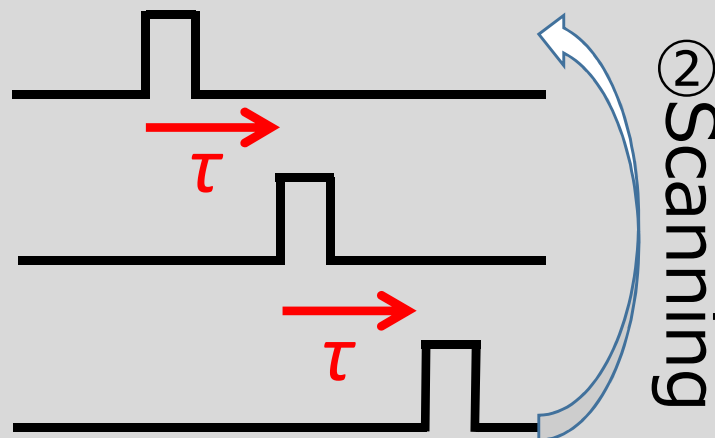
LiDAR (Light Detection and Ranging)



① Emission

Reflection

③ Detection



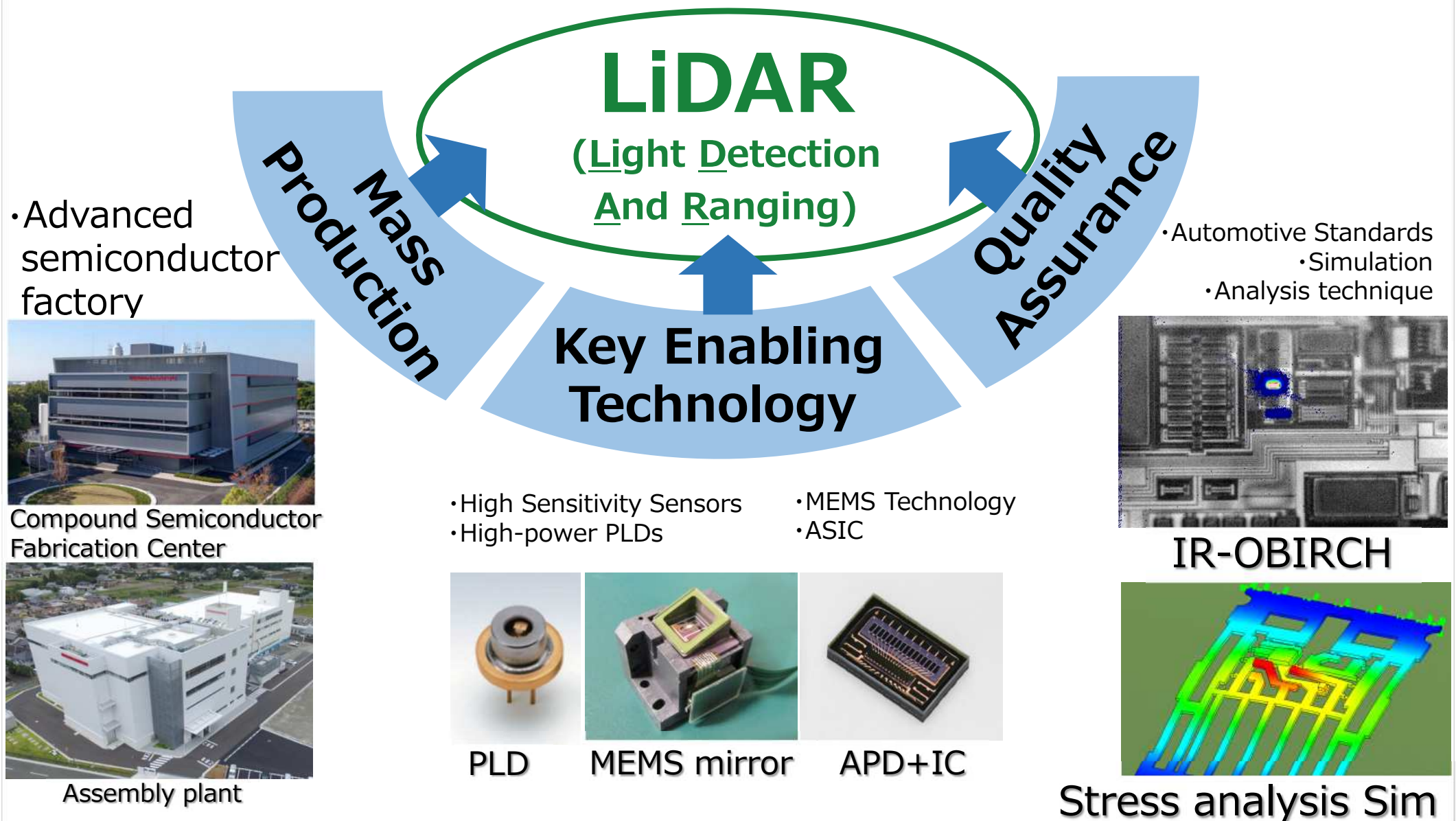
$$C = 299,792 \text{ km/s}$$

$$\approx 300 \text{ mm/1ns}$$

$$\text{Distance } D = \tau / C$$

$$\text{Ex. : Delay } 10 \text{ ns} = 3 \text{ m}$$

Approach to automatic driving technology



100% QE, Zero noise Aim for the ultimate 2D photon measurement

2013

2018

2020 -

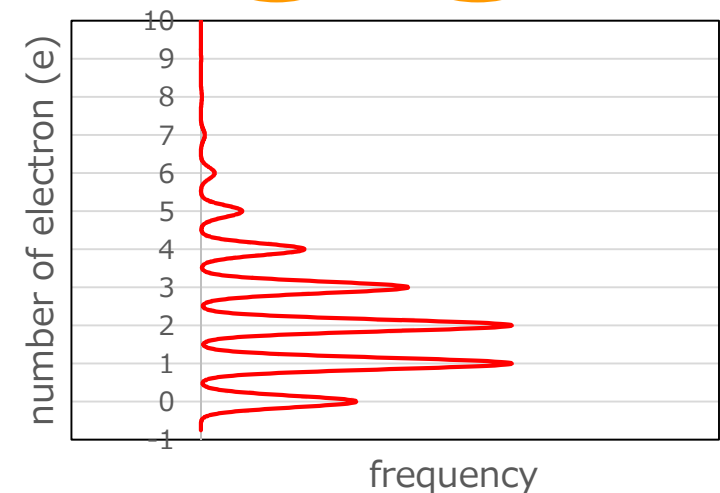
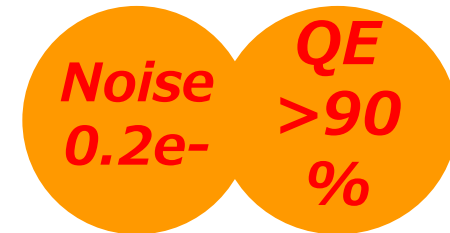
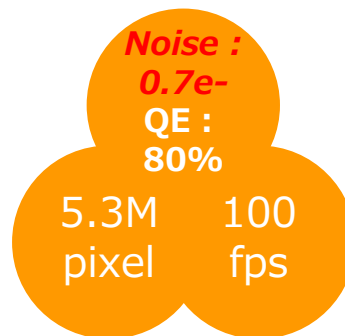
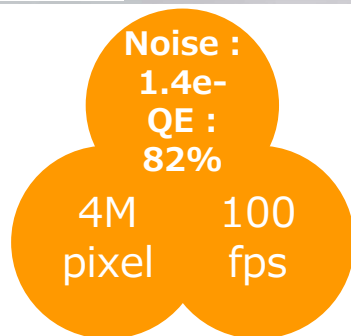
2G sCMOS Camera

3G sCMOS Camera

Photon-counting
SCMOS Camera

ORCA-Flash4.0

ORCA-Fusion



Realized high sensitivity,
high resolution and high
speed at the same time

Achieved sub-electron
noise

**Challenge to ultimate
photon measurement**

Brain PET

Patient-friendly brain PET is under development using our MPPC module.



Next-gen. brain PET concept

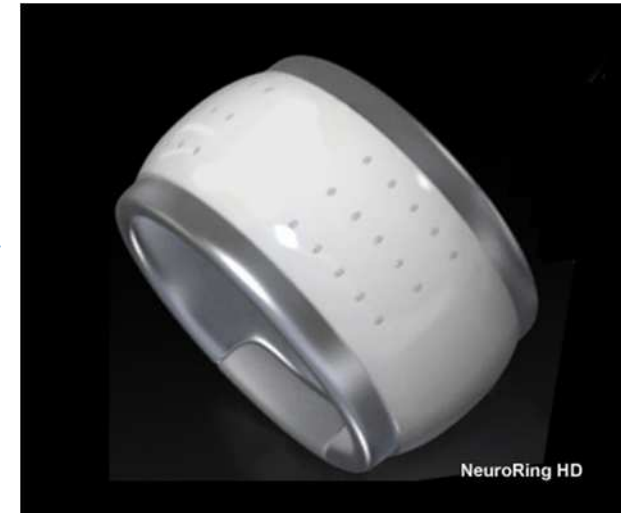


Image from Prof. Satoshi Minoshima at the University of Utah



Supine position



Seated position



Stand position



Cloud network connection concept

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HAMAMATSU

PHOTON IS OUR BUSINESS

Databook

Fiscal Year ended September 30, 2018



November 2018

Hamamatsu Photonics K.K.

Tokyo Stock Exchange: 6965

www.hamamatsu.com

Consolidated income statements

Unit :Million Yen

	FY17		FY18				FY19(Plan)				FY20(Plan)		FY21(Plan)	
	Year	%	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%	Year	%	Year	%
Net sales	130,495	100.0	73,074	71,264	144,338	100.0	74,900	75,500	150,400	100.0	162,300	100.0	176,400	100.0
Cost of sales	65,670	50.3	35,383	35,002	70,385	48.7	36,700	36,900	73,600	48.9	80,500	49.6	86,200	48.9
Gross profit	64,825	49.7	37,690	36,262	73,952	51.2	38,200	38,600	76,800	51.1	81,800	50.4	90,200	51.1
Selling, G & A expenses	30,199	23.1	16,638	17,219	33,857	23.4	17,500	17,100	34,600	23.0	35,700	22.0	37,100	21.0
R & D Expense	11,776	9.0	6,057	6,773	12,830	8.8	7,300	7,400	14,700	9.8	14,800	9.1	15,100	8.6
Operating profit	22,849	17.5	14,995	12,268	27,263	18.8	13,400	14,100	27,500	18.3	31,300	19.2	38,000	21.5
Non-operating income	1,407	1.1	486	719	1,205	0.8	400	400	800	0.5	700	0.4	700	0.4
Non-operating expense	219	0.2	264	117	381	0.2	100	200	300	0.2	300	0.2	300	0.2
Ordinary income	24,037	18.4	15,217	12,871	28,088	19.4	13,700	14,300	28,000	18.6	31,700	19.5	38,400	21.8
Extraordinary income	234	0.2	11	583	594	0.4	0	0	0	0.0	0	0.0	0	0.0
Extraordinary expense	701	0.5	800	305	1,105	0.7	0	0	0	0.0	0	0.0	0	0.0
Pre-tax income	23,570	18.1	14,428	13,149	27,577	19.1	13,700	14,300	28,000	18.6	31,700	19.5	38,400	21.8
Income taxes etc.	5,793	4.4	3,999	2,355	6,354	4.4	3,400	3,400	6,800	4.6	8,300	5.2	10,100	5.8
Net income	17,777	13.6	10,429	10,793	21,222	14.7	10,300	10,900	21,200	14.1	23,400	14.4	28,300	16.0

*numbers are rounded down to the nearest million yen

Sales by industry & application (consolidated)

Unit :Million Yen

Application	FY17				FY18				FY19(Plan)			
	March	September			March	September			March	September		
	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%
Medical instrument	24,641	24,132	48,773	37.4	25,731	24,903	50,634	35.1	27,404	27,614	55,018	36.9
Medical instrument (X-ray CT, PET, Gamma camera, Dental imaging)	19,133	18,405	37,538	28.8	18,909	18,806	37,715	26.1	19,912	20,052	39,965	26.6
Medical inspection (DNA, Blood analyzer)	4,838	5,056	9,894	7.6	5,881	5,258	11,139	7.7	6,650	6,697	13,348	8.9
Other medical instrument	670	669	1,339	1.0	941	838	1,779	1.2	840	863	1,704	1.1
Industrial instrument	17,324	18,831	36,155	27.7	20,334	22,123	42,457	29.4	21,572	22,272	43,844	29.2
Semiconductor instrument (Failure analysis, Stealth dicing)	8,176	9,062	17,238	13.2	9,914	11,152	21,066	14.6	10,285	10,296	20,581	13.7
Non destructive testing	5,350	5,240	10,590	8.1	5,951	5,864	11,815	8.2	6,107	6,625	12,732	8.5
Factory automation instrument (UV cure, Robotic encoder)	2,787	3,391	6,178	4.7	3,388	3,774	7,162	5.0	3,917	4,030	7,948	5.3
Other industrial instrument (Bank note identification)	1,009	1,139	2,148	1.6	1,078	1,334	2,412	1.7	1,262	1,320	2,582	1.7
Analytical instrument Material, water, environment	7,886	8,100	15,986	12.3	9,402	8,460	17,862	12.4	8,877	9,131	18,009	12.0
Academic research Neutrino/ gamma ray	3,850	3,360	7,210	5.5	4,965	3,695	8,660	6.0	3,455	2,756	6,211	4.1
Measuring instrument Radiation monitoring, oil well logging	3,174	3,461	6,635	5.1	3,927	3,863	7,790	5.4	3,856	4,004	7,861	5.2
Transport instrument Automotive sensor, auto-LAN, ITS	2,467	2,501	4,968	3.8	2,638	2,695	5,333	3.7	2,971	3,063	6,034	4.0
Information/ communication Optical communication, printer	1,004	796	1,800	1.4	922	743	1,665	1.2	662	667	1,330	0.9
Optical/ photographic instrument Auto focus, LSM	1,082	973	2,055	1.6	1,069	1,136	2,205	1.5	1,049	1,310	2,359	1.6
Consumer instrument Audio link & etc.	425	494	919	0.7	667	556	1,223	0.9	701	587	1,288	0.9
Others/not classified	3,093	2,897	5,990	4.6	3,415	3,088	6,503	4.5	4,348	4,092	8,440	5.6
Total	64,953	65,542	130,495	100.0	73,074	71,264	144,338	100.0	74,900	75,500	150,400	100.0

*numbers are rounded down to the nearest million yen

Major subsidiaries income statements (America, Europe)

Unit: Thousand local currency

Company	Account item	Local currency(thousand dollars)				Yen(million yen)		
		FY17		FY18		FY17	FY18	
		Year	%	Year	%	Year	Year	
Hamamatsu Corporation American sales company	Net sales	331,930	100	342,360	100	36,933	37,817	
	Gross profit	69,688	21	80,196	23	7,754	8,858	
	Ordinary income	22,954	7	28,553	8	2,554	3,154	
	Net income	13,361	4	20,698	6	1,486	2,286	
					Exchange rate (one dollar)		111.27	110.46

Company	Account item	Local currency(thousand euros)				Yen(million yen)		
		FY17		FY18		FY17	FY18	
		Year	%	Year	%	Year	Year	
Hamamatsu Photonics Deutschland GmbH German sales company	Net sales	136,748	100	145,368	100	16,807	19,104	
	Gross profit	25,200	18	27,219	19	3,097	3,577	
	Ordinary income	10,533	8	12,646	9	1,294	1,662	
	Net income	7,791	6	9,370	6	957	1,231	
Hamamatsu Photonics France S.A.R.L. French sales company	Net sales	42,739	100	44,443	100	5,253	5,840	
	Gross profit	12,184	29	13,592	31	1,497	1,786	
	Ordinary income	2,997	7	4,242	10	368	557	
	Net income	2,111	5	3,066	7	259	402	
					Exchange rate (one euro)		122.91	131.42

Major subsidiaries income statements (China)

Unit: Thousand RMB

Company	Account item	Local currency(thousand RMB)				Yen(million yen)	
		FY17		FY18		FY17	FY18
		Year	%	Year	%	Year	Year
HAMAMATSU PHOTONICS (CHINA)Co., Ltd. Chinese sales company	Net sales	773,290	100	947,693	100	12,395	16,082
	Gross profit	132,605	17	192,396	20	2,125	3,264
	Ordinary income	75,005	10	122,261	13	1,202	2,074
	Net income	51,077	7	90,476	10	818	1,535
				Exchange rate (one RMB)		16.03	16.97

Consolidated sales by business segment FY17 - FY21

Unit :Million Yen

	FY17	FY18		FY19 (Plan)			FY20	FY21	
	Year	1 st half	2 nd half	Year	1 st half	2 nd half	Year	(Plan)	(Plan)
Electron tube	50,449	28,725	29,056	57,781	29,350	29,900	59,250	62,900	67,250
Opto- semiconductor	61,526	34,560	32,934	67,494	34,900	35,050	69,950	75,350	80,800
Imaging and measurement instruments	17,242	8,686	8,483	17,169	9,350	9,000	18,350	19,450	21,200
Other (incl. laser and excl. internal sales)	1,277	1,101	792	1,893	1,300	1,550	2,850	4,600	7,150
Total	130,495	73,074	71,264	144,338	74,900	75,500	150,400	162,300	176,400

*Including inter-segment sales

Electron tube's consolidated performance

Unit :Million Yen

	FY17		FY18				FY19 (Plan)				FY20 (Plan)		FY21 (Plan)	
	Year	%	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%	Year	%	Year	%
Net sales	50,449	100.0	28,725	29,056	57,781	100.0	29,350	29,900	59,250	100.0	62,900	100.0	67,250	100.0
Cost of sales	22,762	45.1	12,560	12,781	25,341	43.9	12,350	13,050	25,400	42.9	27,450	43.6	28,500	42.4
Gross profit	27,687	54.9	16,164	16,276	32,440	56.1	17,000	16,850	33,850	57.1	35,450	56.4	38,750	57.6
Selling, G & A expense	8,413	16.7	4,841	5,161	10,002	17.3	5,100	4,950	10,050	17.0	10,500	16.7	11,250	16.7
R & D expense	2,280	4.5	1,320	1,420	2,740	4.7	1,750	1,750	3,500	5.9	3,750	6.0	4,050	6.0
Segment profit	16,992	33.7	10,003	9,694	19,697	34.1	10,150	10,150	20,300	34.3	21,200	33.7	23,450	34.9

*Including inter-segment sales

Opto-semiconductor's consolidated performance

Unit :Million Yen

	FY17		FY18				FY19 (Plan)				FY20 (Plan)		FY21 (Plan)	
	Year	%	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%	Year	%	Year	%
Net sales	61,526	100.0	34,560	32,934	67,494	100.0	34,900	35,050	69,950	100.0	75,350	100.0	80,800	100.0
Cost of sales	33,264	54.1	18,025	17,343	35,368	52.4	18,750	18,550	37,300	53.3	40,600	53.9	43,150	53.4
Gross profit	28,262	45.9	16,535	15,590	32,125	47.6	16,150	16,500	32,650	46.7	34,750	46.1	37,650	46.6
Selling, G & A expense	6,905	11.2	3,860	3,997	7,857	11.6	3,900	4,000	7,900	11.3	8,500	11.3	8,750	10.8
R & D expense	3,201	5.2	1,392	1,554	2,946	4.4	1,750	1,800	3,550	5.1	3,550	4.7	4,300	5.3
Segment profit	18,155	29.5	11,282	10,038	21,320	31.6	10,500	10,700	21,200	30.3	22,700	30.1	24,600	30.4

*Including inter-segment sales

Imaging & measurement instrument's consolidated performance

Unit :Million Yen

	FY17		FY18				FY19 (Plan)				FY20 (Plan)		FY21 (Plan)	
	Year	%	1 st half	2 nd half	Year	%	1 st half	2 nd half	Year	%	Year	%	Year	%
Net sales	17,242	100.0	8,686	8,483	17,169	100.0	9,350	9,000	18,350	100.0	19,450	100.0	21,200	100.0
Cost of sales	8,764	50.8	4,175	4,190	8,365	48.7	4,650	4,250	8,900	48.5	9,350	48.1	10,000	47.2
Gross profit	8,477	49.2	4,511	4,292	8,803	51.3	4,700	4,750	9,450	51.5	10,100	51.9	11,200	52.8
Selling, G & A expense	4,268	24.8	2,190	2,271	4,461	26.0	2,450	2,500	4,950	27.0	4,850	24.9	5,050	23.8
R & D expense	664	3.9	439	318	757	4.4	450	400	850	4.6	850	4.4	850	4.0
Segment profit	3,544	20.6	1,880	1,704	3,584	20.9	1,800	1,850	3,650	19.9	4,400	22.6	5,300	25.0

*Including inter-segment sales

Consolidated sales by product line 1

Unit : Million Yen

		FY15	FY16	FY17	FY18	FY19 (Plan)
Segment	Product	Year	Year	Year	Year	Year
Electron tube segment	PMT for medical inspection	6,829	6,142	6,401	7,108	8,454
	Scintillator(FOS, ACS, ALS)	5,092	4,823	5,030	5,561	5,600
	PMT for analysis	4,064	3,968	3,658	3,995	4,470
	Micro-focus X-ray light source	3,761	3,668	4,037	4,727	4,882
	Deuterium lamp	3,635	3,772	4,002	4,281	4,230
	PMT for PET	3,855	3,702	3,532	3,121	3,068
	Xe lamp	2,581	2,703	3,046	3,437	3,480
	Stealth dicing	2,791	2,375	2,602	2,828	2,930
	PMT for high-energy physics	1,915	1,744	2,810	3,519	1,498
	Image intensifier(I.I.)	1,091	1,549	1,224	1,374	1,686
	PMT for gamma-ray camera	1,489	1,483	1,514	1,486	1,621
	PMT for semi-con. & NDT	1,517	1,556	1,752	1,874	1,856
	PMT for oil-well logging	1,615	511	978	1,712	1,865
	Microchannel plate, fiber optic plate	563	476	571	601	709
	PMT for radiation monitoring	795	506	574	457	459
Photoionizer	490	457	562	631	608	

Consolidated sales by product line 2

Unit : Million Yen

		FY15	FY16	FY17	FY18	FY19 (Plan)
Segment	Product	Year	Year	Year	Year	Year
Opto- semicond uctor segment	Si photodiode for medical instrument	12,037	13,195	12,286	12,534	14,003
	Linear/area image sensor	11,023	11,322	13,409	14,832	14,423
	Flat panel image sensor	6,628	7,077	9,548	8,600	8,866
	Photo IC	6,103	6,417	7,021	8,390	7,945
	Compound semiconductor	4,360	3,752	3,766	4,134	4,208
	Applied products & modules	3,130	3,223	3,885	4,876	6,249
	Si photodiode for FA	3,313	2,998	4,397	5,445	5,784
	Device for optical communication	279	184	210	202	368
Imaging and measure ment instru ments segment	Digital camera device	5,330	4,440	4,812	4,818	5,518
	Semi-con. failure analysis	3,962	4,996	4,692	4,768	4,960
	Measurement for FA	2,027	2,192	2,703	2,166	2,371
	System for life science	1,838	1,831	2,119	2,268	2,586
	Spectroscopy measurement	1,976	1,660	1,502	1,789	1,848
	Drug screening system	606	687	895	818	599
	Medical system	454	544	490	519	468
Laser	Laser diode	1,068	1,058	1,384	1,505	2,100

Consolidated capital investment, R & D expenses and depreciation

Unit : Million Yen

FY14 – FY19

		FY14		FY15		FY16		FY17		FY18		FY19 (Plan)	
			Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)
Capital investment	1 st quarter	4,961	19.0	3,122	10.9	1,441	4.8	4,441	14.8	4,235	12.4	-	-
	2 nd quarter	7,957	14.0	7,283	11.7	3,888	6.2	6,901	10.6	7,939	10.9	-	-
	3 rd quarter	12,745	15.4	11,787	13.1	6,513	7.1	11,026	11.5	10,467	9.7	-	-
	Year	15,499	13.8	14,338	11.9	9,315	7.6	13,572	10.4	14,221	9.9	22,300	14.8
R & D expenses	1 st quarter	2,525	9.7	2,717	9.5	2,748	9.2	2,872	9.6	3,012	8.8	-	-
	2 nd quarter	5,308	9.4	5,479	8.8	5,862	9.3	5,824	9.0	6,057	8.3	-	-
	3 rd quarter	8,057	9.7	8,510	9.4	8,825	9.7	8,707	9.1	9,151	8.5	-	-
	Year	10,977	9.8	11,615	9.6	11,873	9.7	11,776	9.0	12,830	8.9	13,400	9.8
Depreci- -ation	1 st quarter	1,645	6.3	1,633	5.7	2,262	7.6	2,132	7.1	2,184	6.4	-	-
	2 nd quarter	3,434	6.1	3,585	5.8	4,704	7.5	4,413	6.8	4,566	6.2	-	-
	3 rd quarter	5,332	6.4	5,902	6.5	7,184	7.9	6,822	7.1	7,151	6.6	-	-
	Year	7,396	6.6	8,561	7.1	9,888	8.1	9,441	7.2	10,261	7.1	11,800	7.8

Asia

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