

IR Presentation 2018

Q1 2019 Results & Q2 2019 Guidance



May 2019
OE Solutions IR

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Q1 2019 Result Review



Financial Results

Q19 Revenue 43.4B KRW, 151.5% (YoY)

Operating income 9.7B KRW (22.4%), 76% (QoQ)

Increase in revenue and profitability due to increased sales of 5G(NR) products in Korea

(Unit : million KRW)

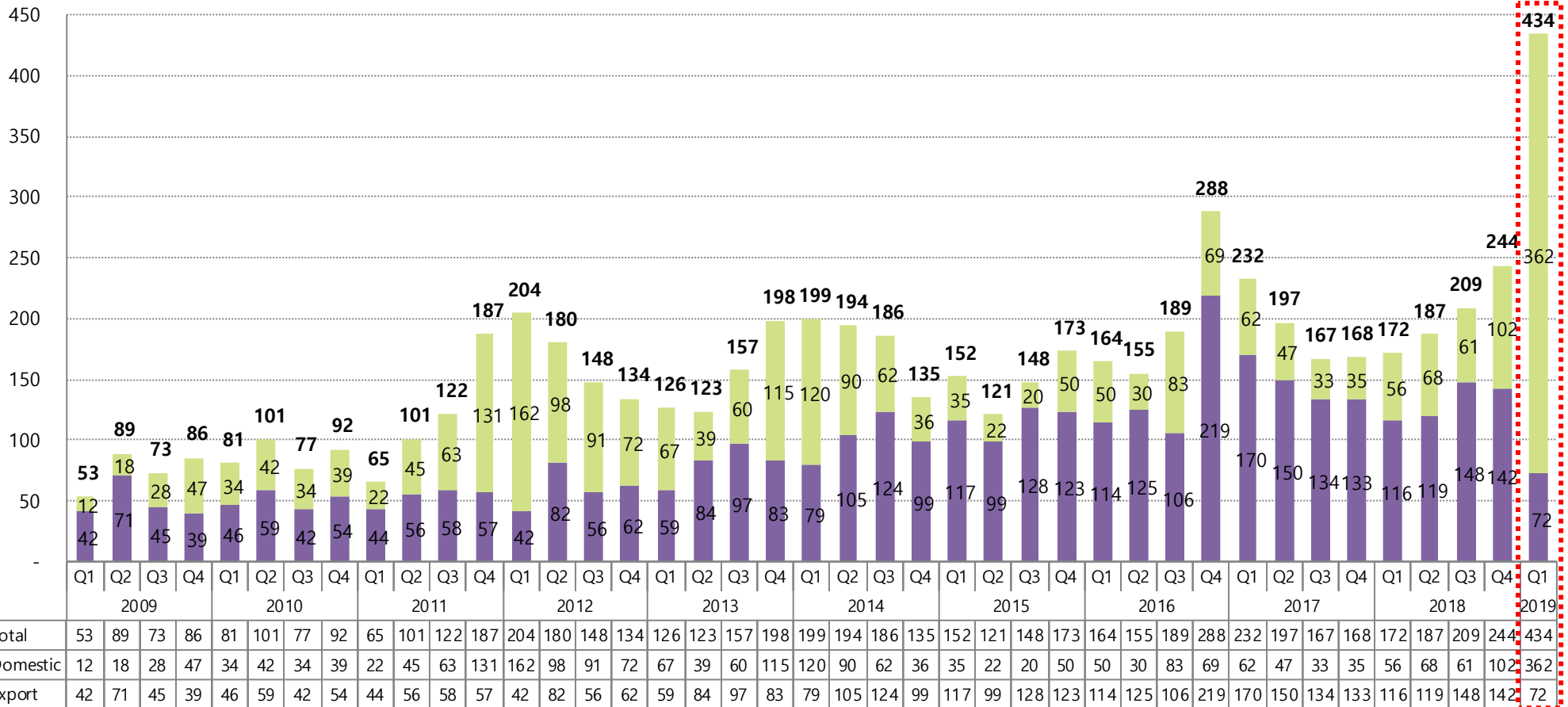
구분	Q1 18	Q1 19	%	YoY	Q4 18	QoQ
Revenue (Sales)	17,255	43,409		151.5%	24,657	76.0%
Gross profit	4,032	16,725	38.5%	314.3%	9,328	79.3%
Selling general administrative expenses	6,343	6,989	16.1%	10.2%	7,634	-8.4%
Operating income(loss)	(2,311)	9,735	22.4%	N/A	1,695	N/A
Profit (loss) before tax	(1,996)	9,641	22.2%	N/A	1,935	N/A
Net income	(1,996)	9,641	22.2%	N/A	1,878	N/A

※ Based on consolidated

Quarterly Revenue trends

Korean sales expected to drive revenue growth in 2019.

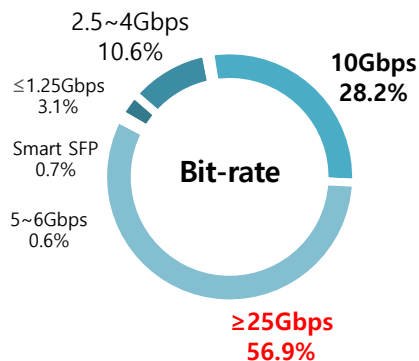
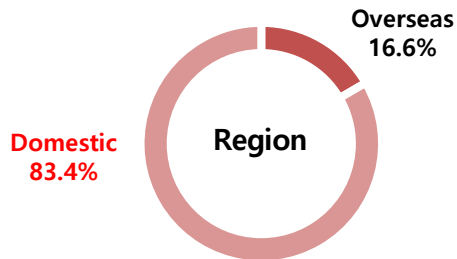
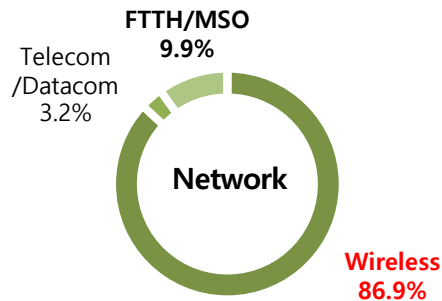
(Unit: 100 million KRW)



※ Based on separate standard

Sales details

Wireless accounts for 86.9% of sales and Korean sales for 83.4% of total sales
Revenue from new 25Gbps products targeted at 5G applications is 56.9% of total sales



(Unit: 100 million KRW)

	Q4 2018	Q1 2019	QoQ (%)
Network			
• Wireless	113.1	377.1	233.4%
• Telecom/Datacom	41.3	14.0	-66.1%
• FTTH/MSO	89.9	43.0	-52.2%
Region			
• Domestic	102.0	362.0	254.9%
• Overseas	142.3	72.1	-49.3%
Overseas sales ratio	58.2%	16.6%	
Bit-rate			
• ≤ 1.25Gbps	20.1	13.3	-33.8%
• 2.5~4Gbps	59.4	45.8	-22.9%
• 5~6Gbps	4.4	2.5	-43.2%
• 10Gbps	114.2	122.5	7.3%
• ≥25Gbps	10.7	247.1	2209.3%
• Smart SFP	32.3	2.9	-91.0%
• Others	3.4	-	-%
Total	244.5	434.1	77.5%

※ Based on separate standard

5G(NR) Mobile Network Business



5G(NR) Mobile Network Business

Revenue Growth due to Korean buildout of 5G infrastructure in 2019
Expected to be followed by growth in overseas market (North America, Japan)

5G(NR) Mobile Network



When 5G Ultra Wideband fuels your business, you're future-ready.

Welcome to your 5G Ultra Wideband business headquarters.



Market Environment and Business Outlook

• Domestic

- 5G(NR) service started in April 2019.
- 5G products Q1 2019 sales of approximately 31.6B KRW
- Publically announced sales contract with Samsung Electronics for 10.3B KRW on Feb. 22, 2019 and 13B KRW on April. 19, 2019
- Investment in Nationwide Network will be made between 4Q 2018 and 2022 for 3.5GHz/28GHz frequency bands

→ OES 10G/25G optical transceiver demand is expected to increase

• Overseas

- Verizon in the U.S. started 5G(NR) service in April 2019.
- North American operators such as AT&T and Japanese operators such as NTT Docomo and KDDI are also competing in the 5G market.
- Several overseas major countries exclude Huawei equipment from their 5G projects. Consequently, we expect OES main customers in USA, Europe and Japan to get additional opportunities from their customers.
- We expect 5G Infra construction to ramp in North America in H2 2019 and in Japan in early of 2020.

→ OES is in the process of qualifying 10G/25G optical transceivers for 5G with major customers, such as NOKIA, Samsung, Fujitsu and NEC, to serve overseas markets.

5G(NR) Coverage map in Domestic (As of 2019.05.10)

KT



- ✓ LTE
- ✓ LTE-A
- ✓ 3Band LTE-A

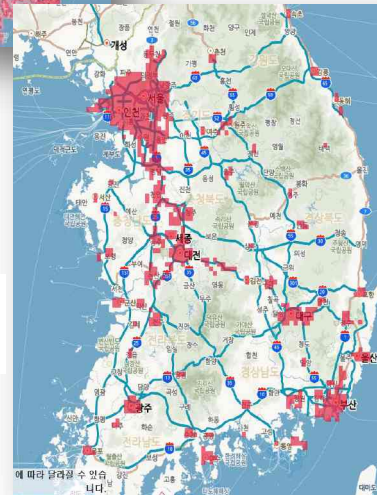


✓ 5G Coverage

SKT

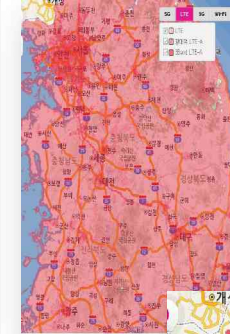


- ✓ LTE
- ✓ LTE-A
- ✓ 3Band LTE-A

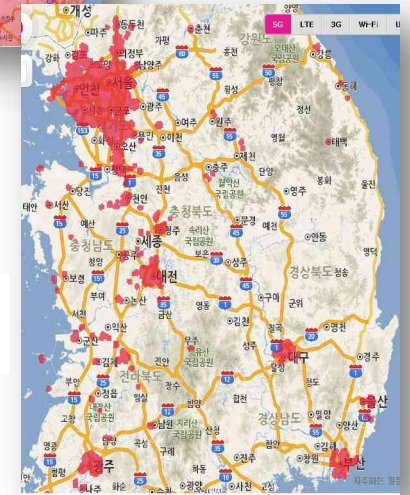


✓ 5G Coverage

LG U+



- ✓ LTE
- ✓ LTE-A
- ✓ 3Band LTE-A



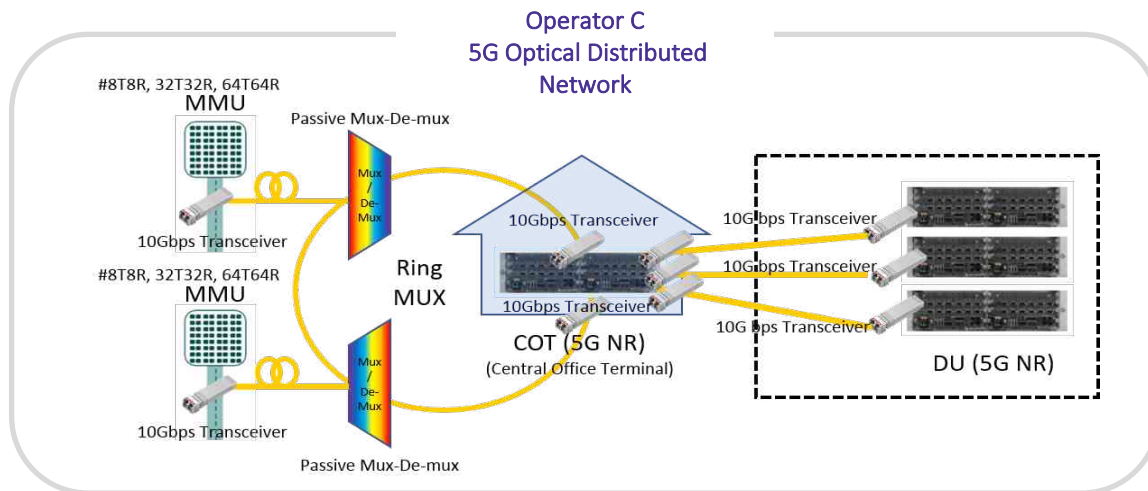
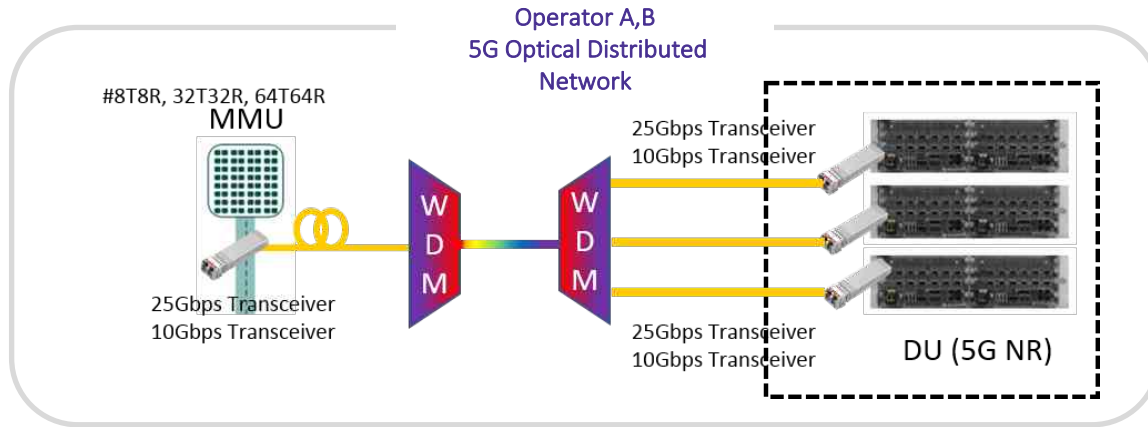
✓ 5G Coverage

(Source: KT, SKT, LG U+ Website)

5G(NR) Mobile Network Business

Optical Transceivers for 5G(NR) Network deployment

Domestic 5G(NR) Network architecture



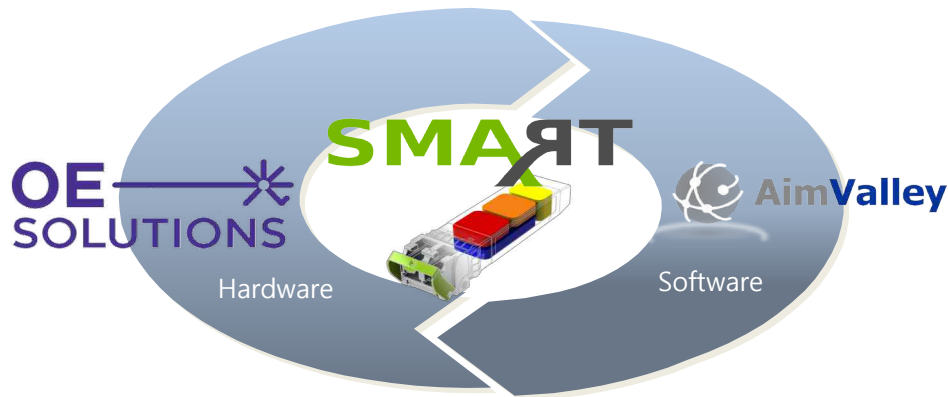
OE Solutions Strategic Product



Unique Products-Smart Transceivers

World's First Leading Technology Smart Transceiver

Smart Transceiver



Product Features



Smart Transceivers

The Network system features in the transceiver enable network migration at low cost and high efficiency.

OE Solutions/AimValley

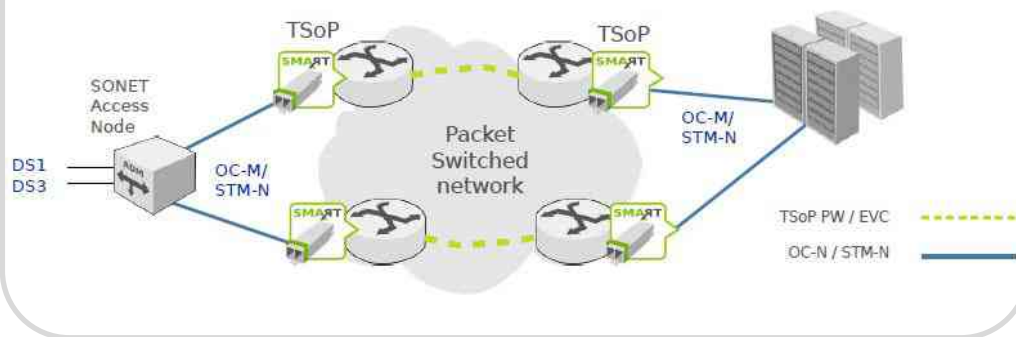
World's First Leading Technology

Major Customers

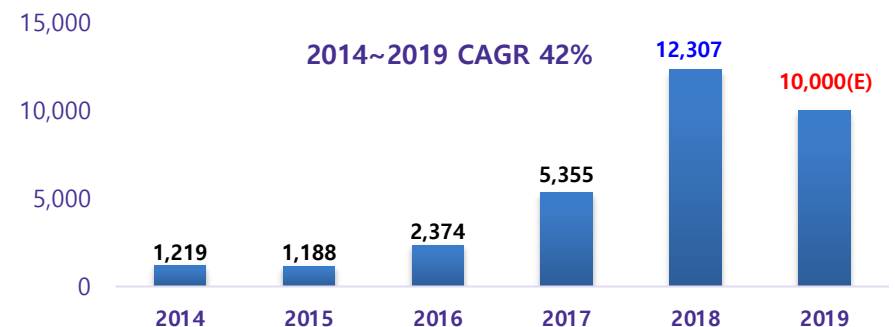
→ Ciena, CISCO, etc.

Simplify Network Migration

Example of using Smart SFP



Smart Transceiver Revenue (Unit: million KRX)



Domestic 10G Internet Service Turn-On

10Giga Internet



Internet service providers



- 10G Internet: Next-generation Internet service that supports data transmission of 10Gbps to a subscriber using fiber or cable

Market Environment

Demand of 10G Internet is expected to increase according to expansion of UHD(4K/8K) TV hardware and content as well as advanced networks.

Domestic Market

Mainly KT launched 10G Internet service in November 2018 and the nationwide 10G Internet coverage will reach 50% target by 2022. Currently, OE Solutions is supplying optical transceivers for KT 10G internet project as a sole vendor from March 2018. We are expecting growth in the market, but also that price competition will intensify.

Overseas Major Countries

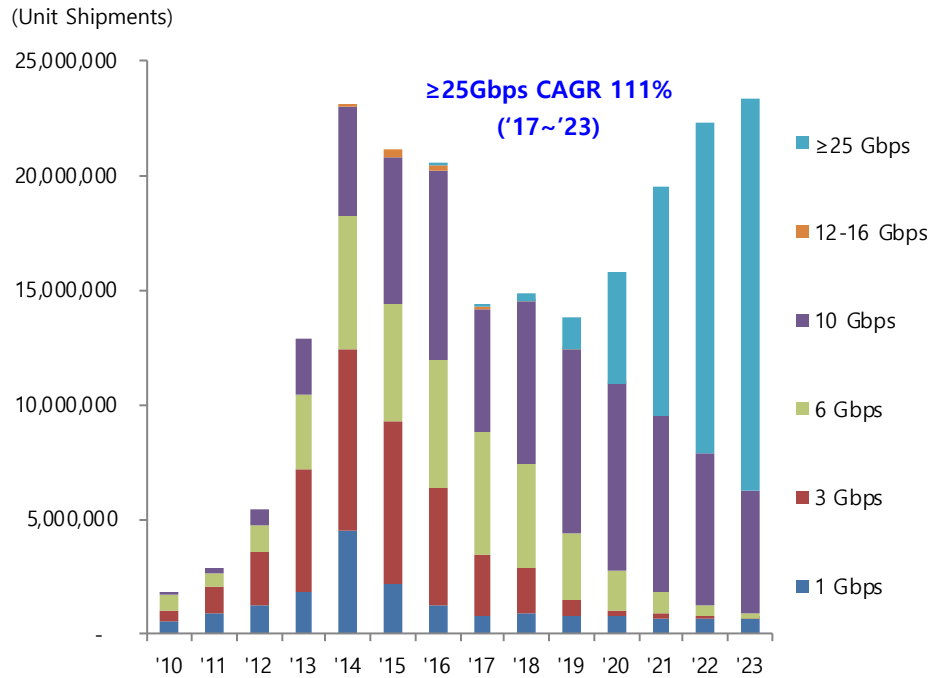
Japan has started to commercialize 10G Internet with mainly NTT docomo, KDDI. OES is the main supplier of 10G EPON products. North America is investing in establishing a 10G Internet network for MSOs. OE Solutions is supplying 10G optical transceivers also to this market.

LD Chip & Strategic Transceivers

5G deployments expected to increase demand for 25G laser chips and transceivers

Chip production is mid- to long-term strategy for supplier differentiation

Wireless Fronthaul Optics Forecast



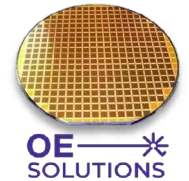
Shipments of optical transceivers used in wireless infrastructure (Historical Data and Forecast)

(Source: LightCounting 2018)

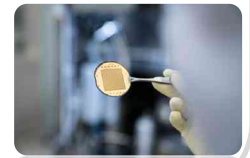
LD Chip

25G Laser Diode Chip

- Mass production scheduled for the second half of the year. Reliability Testing is in progress.
- 25G/100G will start using in-house laser chips
- LD Chip sales for China 5G and data center applications



Transceiver profitability and competitive advantage through In-house technology



Transceiver

25G/40G/100G Transceiver



Q2 of 19 Guidance



Q2 of 19 Guidance

Expected sales of 54B KRW – Growth of 189.5% (YoY), 24.4% (QoQ)
Revenue Growth due to continued Korean 5G infrastructure deployments

Quarterly Guidance

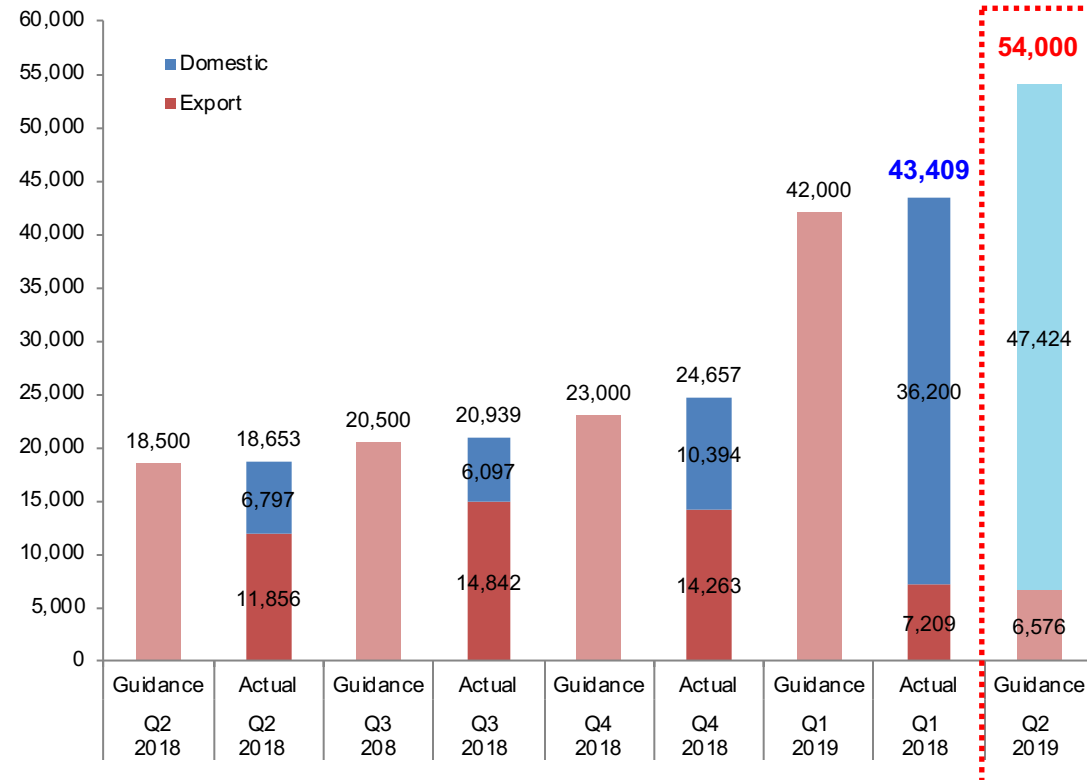
(Unit: million KRW)

	Q2 2018 Actual	Q3 2018 Actual	Q4 2018 Actual	Q1 2019 Actual	Q2 2019 Guidance
Revenue (Sales)	18,653	20,939	24,657	43,409	54,000
Domestic	6,797	6,097	10,394	36,200	47,424
Export	11,856	14,842	14,263	7,209	6,576

※ This is a consolidated basis and is based on our forecast as of May 2019.

Quarterly Trends

(Unit: million KRW)



Appendix

- Company Introduction
- Financials



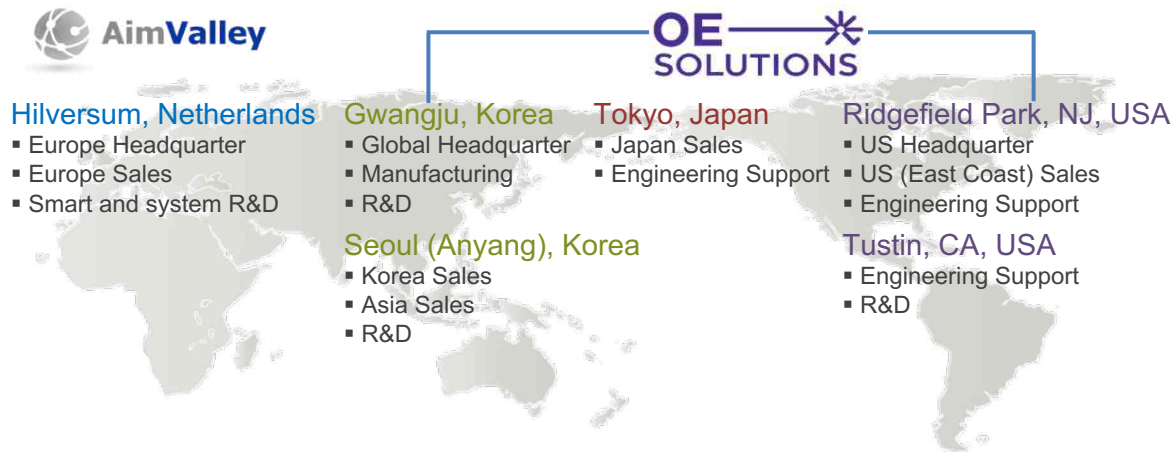
About OE Solutions

Overview

Name	OE Solutions, Co., Ltd	Date of Established	2003. 8. 7
Number of Employees	342 (Korea: 320 / USA: 18 / Japan: 4)	Date of Listing	2014. 2. 27 (KOSDAQ code : 138080)
Product	Optical Transceiver	Homepage	www.oesolutions.com
Locations	Head Quarter : Gwangju, South Korea / US : Ridgefield Park, NJ, USA / JAPAN : Tokyo Japan		

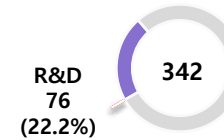
(As of 2019.04.30)

Locations

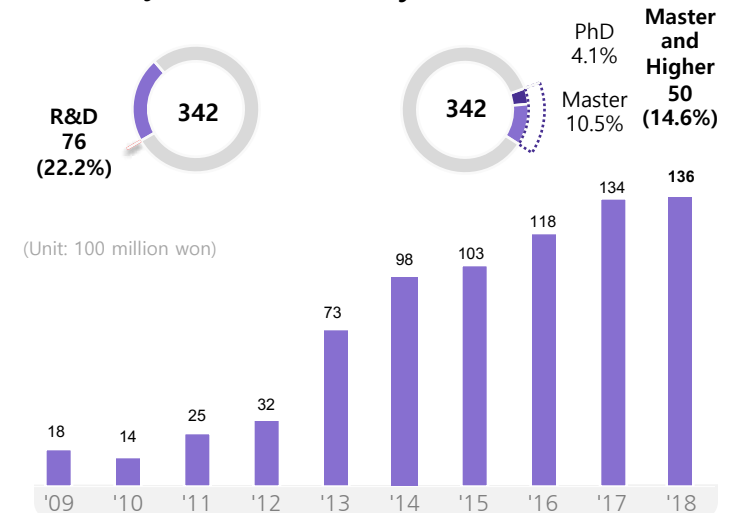


R&D Engineer & Cost

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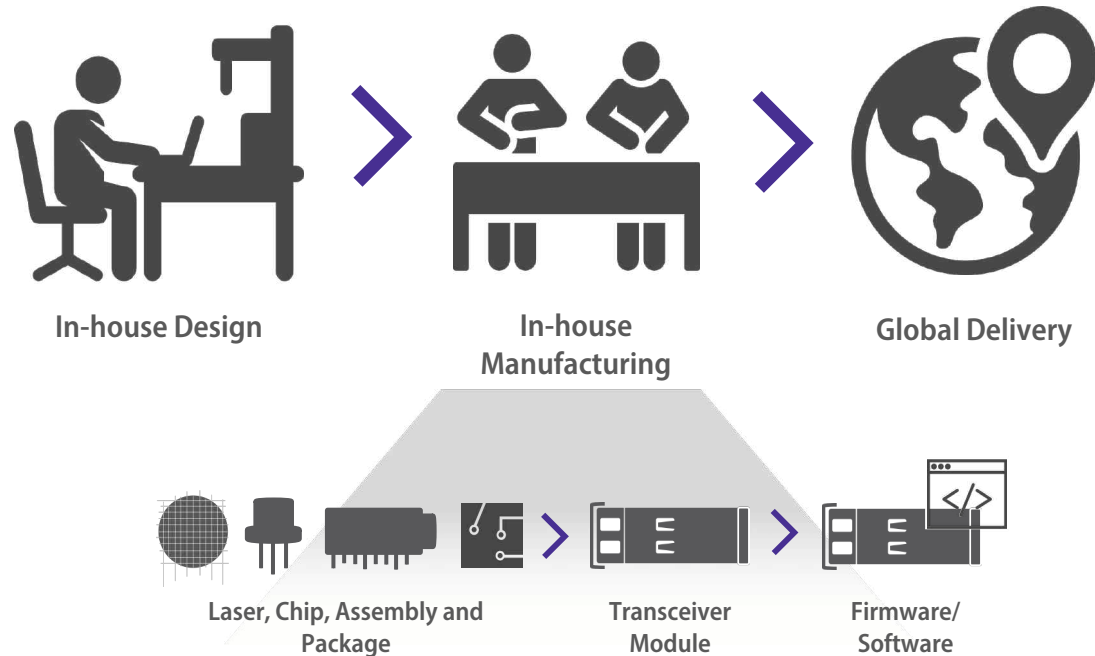


OE Solutions – A Global Supplier of Transceivers

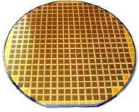


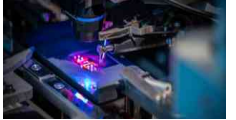

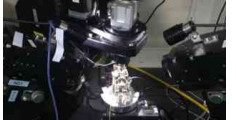






Leading Supplier of High-Reliability Optical Components for Challenging Deployment Environments



- ❑ Leading supplier of optical components since 2003
- ❑ Founded by a team of Bell Labs and Samsung veterans
- ❑ Traded on KOSDAQ since 2014
- ❑ Key supplier to tier-1 MSO and Wireless OEMs
- ❑ Serving global customer in over 50 countries
- ❑ Leading supplier of BIDI and I-Temp Optics
- ❑ Leading supplier of Smart SFPs (co-developed with AimValley)
- ❑ Vertically integrated production
- ❑ In-house production in Gwangju, S. Korea factory
- ❑ R&D sites in Korea, USA and the Netherlands



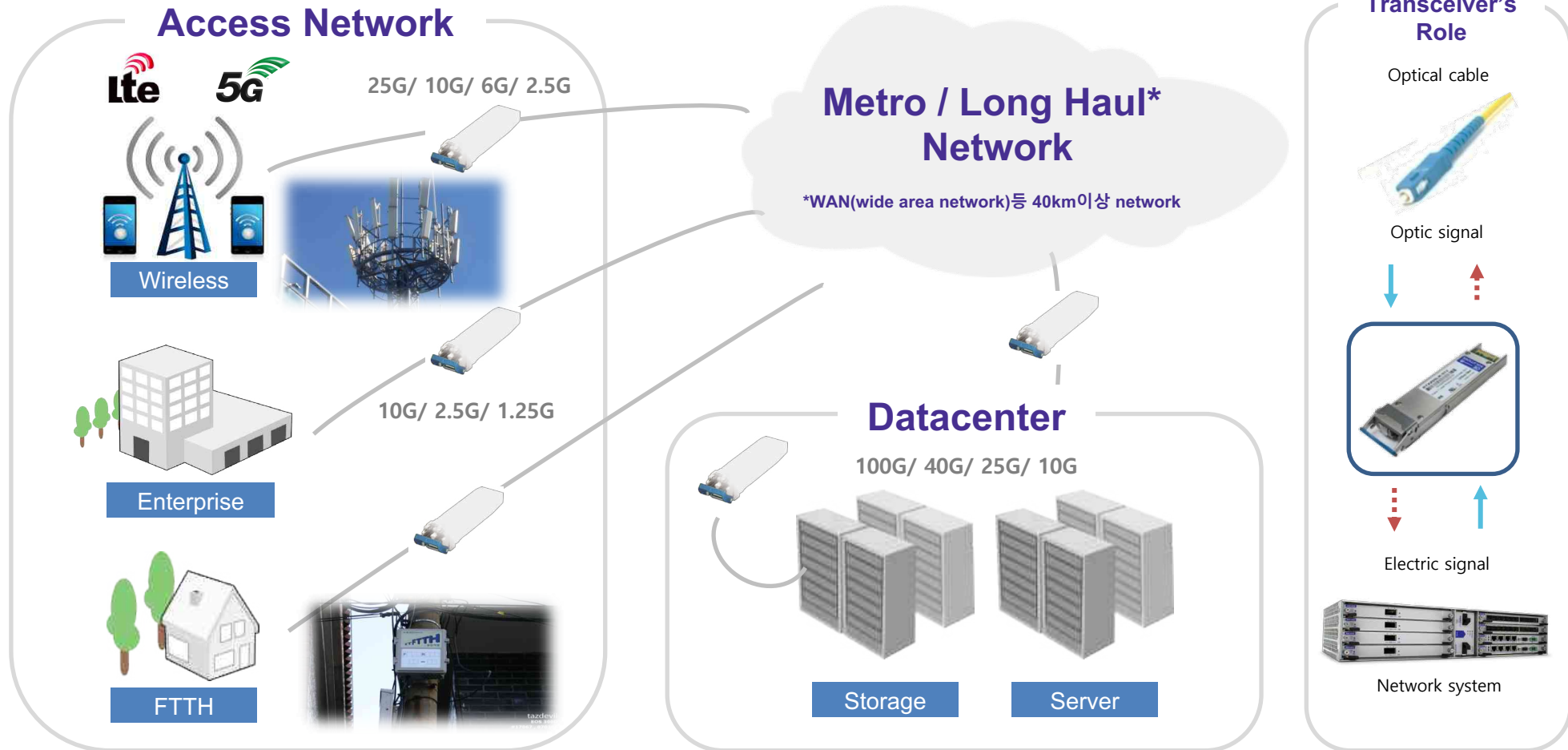
Vertical Integration

Manufacturing Process			Manufacturing Technology	
Chip		DML (2.5G/10G)	Epitaxy / Fabrication / Wafer Characterization	
Assembly		TO/ XMD (Cooled/ Uncooled)	Die Bonding, Wire Bonding, Seam Sealing, Burn-in, DC/AC Test	
Package		OSA (TOSA/ ROSA/ BOSA)	Laser welding, Epoxy bonding, DC/AC Test	
Circuit / Module		Transceiver (Tuning & Test)	Auto Soldering / Auto Tuning / Test	
Firmware / Software		Sub-system (Network Migration & Self-Monitoring Technology)	Co-developed with AimValley, a networking technology expert in Netherlands	
Production		Own manufacturing, assembly & testing facility	Low cost, flexible production	

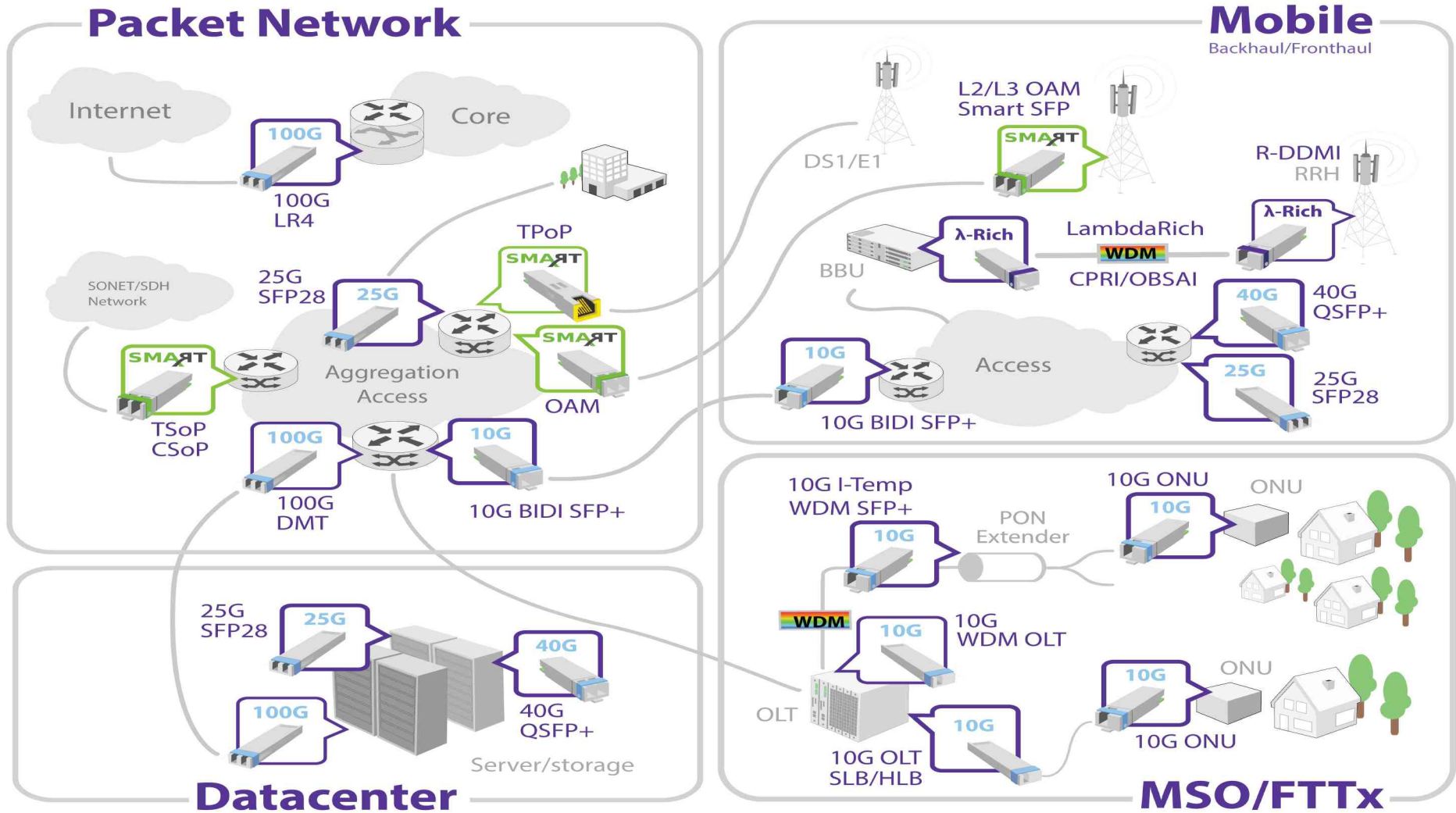
Transceiver Products Applications

The use of Transceiver in the Network

Transceiver required for network connections



Key Application Areas



Supplier to The World's Leading Network Equipment Manufacturers

Sales growth requires long-term product reliability, quality, customer response, etc.



THE ELASTIC NETWORK



Condensed income statement

Consolidated financial statement

(Unit : million KRW)

	2016	2017	2018	Q1 2019
Revenue (Sales)	79,720	76,594	81,504	43,409
Cost of sales	53,089	53,974	54,106	26,684
Gross margin	26,631	22,620	27,398	16,725
Operating expenses	21,910	24,537	27,164	6,989
Operating income(loss)	4,721	(1,917)	234	9,735
Profit (loss) before tax	6,076	(3,788)	1,951	9,641
Net income	6,127	(1,786)	2,584	9,641

* K-IFRS

Separate financial statement

(Unit : million KRW)

	2016	2017	2018	Q1 2019
Revenue (Sales)	79,590	76,535	81,406	43,409
Cost of sales	52,965	53,914	54,117	26,684
Gross margin	26,625	22,621	27,289	16,724
Operating expenses	22,375	25,174	26,925	6,669
Operating income(loss)	4,250	(2,553)	364	10,056
Profit (loss) before tax	5,553	(4,514)	1,945	10,219
Net income	5,929	(2,338)	2,641	10,219

Condensed statement of financial position

Consolidated financial statement

(Unit : million KRW)

	2016	2017	2018	Q1 2019
Current assets	52,923	57,247	57,027	68,216
Cash and cash equivalents	9,270	21,923	11,703	17,264
Accounts receivable	22,998	14,626	18,696	22,195
Inventory asset	17,662	18,840	19,740	23,996
Non-current assets	37,005	38,809	42,125	41,392
Tangible assets	30,011	29,597	30,476	29,966
Intangible assets	777	766	782	793
Total assets	89,928	96,056	99,152	109,608
Current liabilities	28,435	24,807	25,369	26,972
Short-term debt	20,000	20,000	19,400	19,400
Non-current liabilities	6,198	4,303	5,736	5,831
Total liabilities	34,633	29,110	31,105	32,803
Capital	2,590	3,870	3,870	3,870
Premium on capital stock	13,900	26,969	26,969	26,969
Retained earnings	36,286	33,937	34,868	43,581
Total equity	55,295	66,946	68,047	76,806

Separate financial statement

(Unit : million KRW)

	2016	2017	2018	Q1 2019
Current assets	52,218	55,648	55,790	67,047
Cash and cash equivalents	8,358	20,662	10,227	15,805
Accounts receivable	23,083	14,254	18,299	22,283
Inventory asset	17,662	18,840	19,740	23,996
Non-current assets	37,044	38,923	41,993	41,507
Tangible assets	29,624	29,306	30,119	29,614
Intangible assets	77	105	54	50
Total assets	89,262	94,572	97,783	108,554
Current liabilities	29,563	25,309	26,119	26,867
Short-term debt	20,000	20,000	19,400	19,400
Non-current liabilities	6,099	4,228	5,643	5,735
Total liabilities	35,662	29,538	31,761	32,602
Capital	2,590	3,870	3,870	3,870
Premium on capital stock	13,900	26,969	26,969	26,969
Retained earnings	34,550	31,650	32,638	41,929
Total equity	53,600	65,034	66,022	75,312

* K-IFRS

Thank you.

OE — 
SOLUTIONS

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