

# IR Presentation 2024 Q1



May 2024  
OE Solutions IR

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## Company overview



# About OE Solutions

## Overview

<b>Name</b>	OE Solutions, Co., Ltd	<b>Date of Established</b>	Aug.7, 2003
<b>Number of Employees</b>	334 (Korea: 316 / USA: 15 / Japan: 3)	<b>Date of Listing</b>	Feb.27, 2014(KOSDAQ code : 138080)
<b>Product</b>	Optical Transceiver & Laser Chip	<b>Homepage</b>	www.oesolutions.com
<b>Locations</b>	Head Quarter : Gwangju, South Korea / US : Ridgefield Park, NJ, USA / JAPAN : Tokyo Japan		

(As of April 30, 2024)

## Locations



- Hilversum, Netherlands**
- Europe Headquarter
  - Europe Sales
  - Smart and system R&D

- Gwangju, Korea**
- Global Headquarter
  - Manufacturing
  - R&D

- Tokyo, Japan**
- Japan Sales
  - Engineering Support

- Ridgefield Park, NJ, USA**
- US Headquarter
  - US (East Coast) Sales
  - Engineering Support

- Seoul (Anyang), Korea**
- Korea Sales
  - R&D

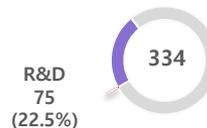
- Seoul (Suwon), Korea**
- Korea Sales
  - Engineering Support

- Irvine, CA, USA**
- R&D

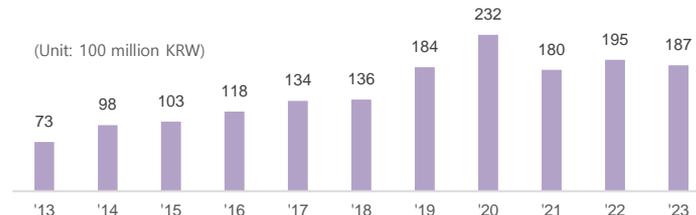
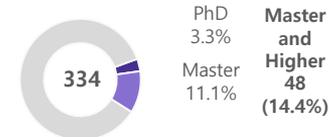
- Santa Barbara, CA, USA**
- R&D

## R&D Engineer & Cost

< By sector >

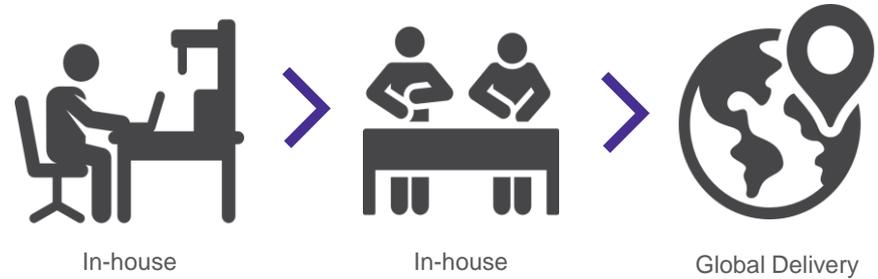


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# OE Solutions – Global Supplier of Transceivers

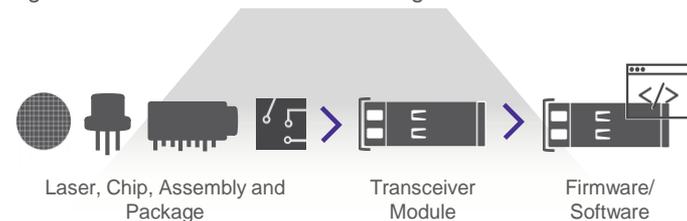
## Leading Supplier of High-Reliability Optical Components for Challenging Deployment Environments



In-house  
Design

In-house  
Manufacturing

Global Delivery



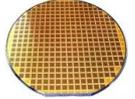
Laser, Chip, Assembly and  
Package

Transceiver  
Module

Firmware/  
Software

- ❑ Leading supplier of optical components and Transceiver 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 from Chip to Transceiver
- ❑ In-house production in Gwangju, South Korea factory
- ❑ R&D sites in Korea, USA and the Netherlands

# Vertical Integration

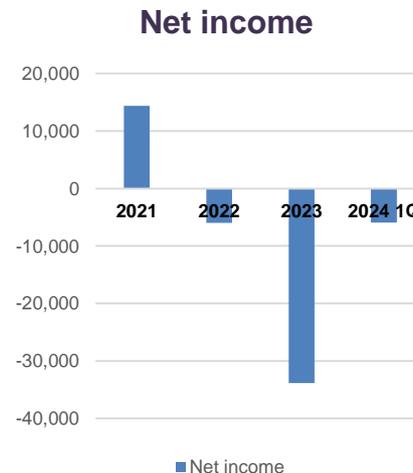
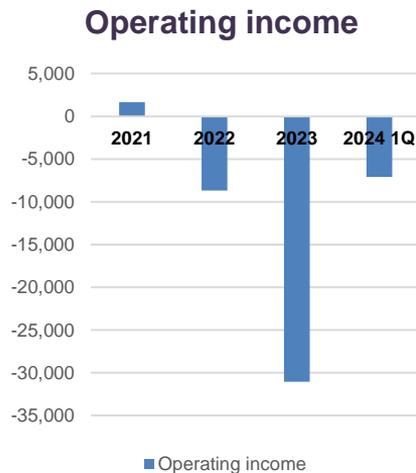
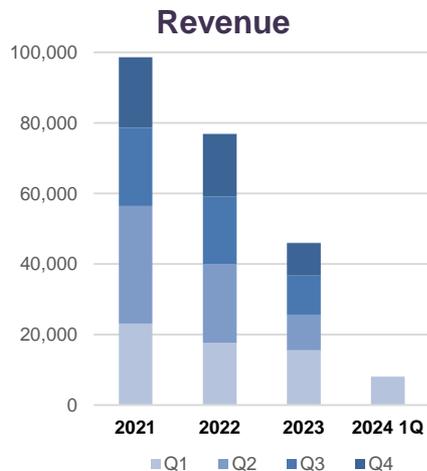
 <b>Manufacturing Process</b>		 <b>Manufacturing Technology</b>		
<b>Chip</b>		DML, EML, PIC (up to 50Gbps)	Epitaxy / Fabrication / Wafer Characterization	
<b>Assembly</b>		TO/ XMD (Cooled/ Uncooled)	Die Bonding, Wire Bonding, Seam Sealing, Burn-in, DC/AC Test	
<b>Package</b>		OSA (TOSA/ ROSA/ BOSA)	Laser welding, Epoxy bonding, DC/AC Test	
<b>Circuit / Module</b>		Transceiver (up to 400Gbps)	Auto Soldering / Auto Tuning / Test	
<b>Firmware / Software</b>		Sub-system (Network Migration & Self-Monitoring Technology)	Co-developed with AimValley, a networking technology expert in Netherlands	
<b>Production</b>		Own manufacturing, assembly & testing facility	Low cost, flexible production	

## 2024 Q1 Result review



# 2024 Q1 Results

2024 Q1 Revenue **8.1B KRW**, Operating income **-7.1B KRW(-87.6%)**, Net income **-5.9B KRW(-72.8%)**



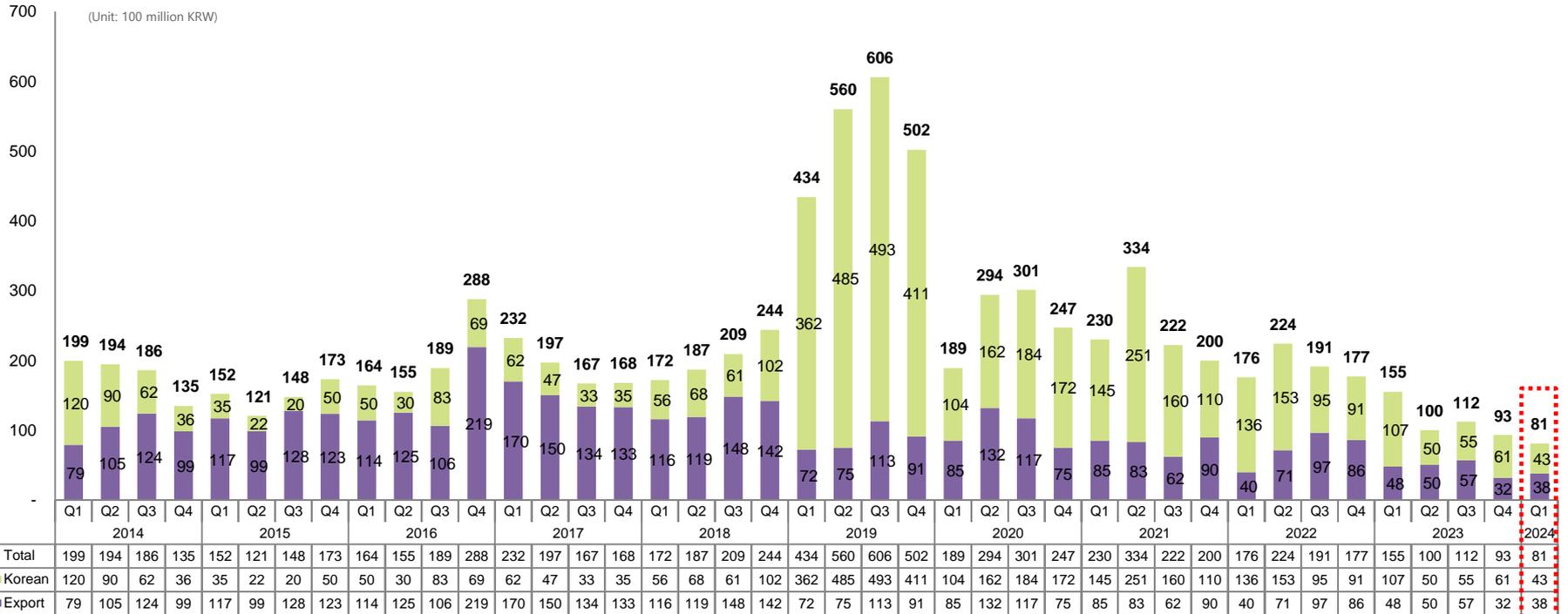
※ Based on consolidated

(Unit : million KRW)

	2021	2022	2023	2024 Q1
• Revenue	98,681	76,954	46,003	8,098
• Operating income	1,655	-8,705	-31,081	-7,095
• Operating margin	1.7%	-11.3%	-67.6%	-87.6%
• Net income	14,372	-5,977	-33,817	-5,897
• Net profit margin	14.6%	-7.8%	-73.5%	-72.8%

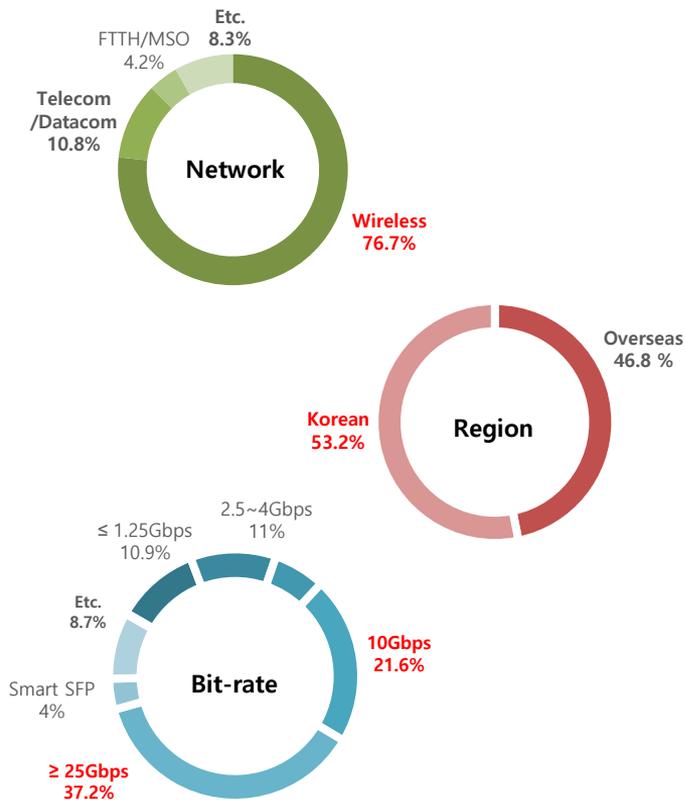
# Quarterly Revenue trends

## Anticipating a performance turnaround due to increased sales of High bit-rate products in 2H 2024



※ Based on separate standard

# Sales details



(Unit: 100 million KRW)

	2023 4Q	2024 1Q	QoQ (%)
<b>Network</b>			
• Wireless	73.7	62.0	-15.9%
• Telecom/Datacom	9.2	8.7	-5.4%
• FTTH/MSO	3.4	3.4	-
• etc.	6.5	6.7	3.1%
<b>Region</b>			
• Korean	61.2	43.0	-29.7%
• Overseas	31.6	37.9	-19.9%
<b>Overseas ratio</b>	34.1%	46.8%	
<b>Bit-rate</b>			
• ≤1.25Gbps	12.2	8.8	-27.9%
• 2.5~4Gbps	4.9	8.9	81.6%
• 5~6Gbps	1.1	5.4	390.9%
• 10Gbps	22.6	17.6	-22.1%
• ≥25Gbps	39.8	30.0	-24.6%
• Smart SFP	5.4	3.2	-40.7%
• Component / Chip	6.3	6.9	9.5%
• 기타 (상품 등)	0.5	0.1	-
<b>Total</b>	92.8	80.9	-12.8%

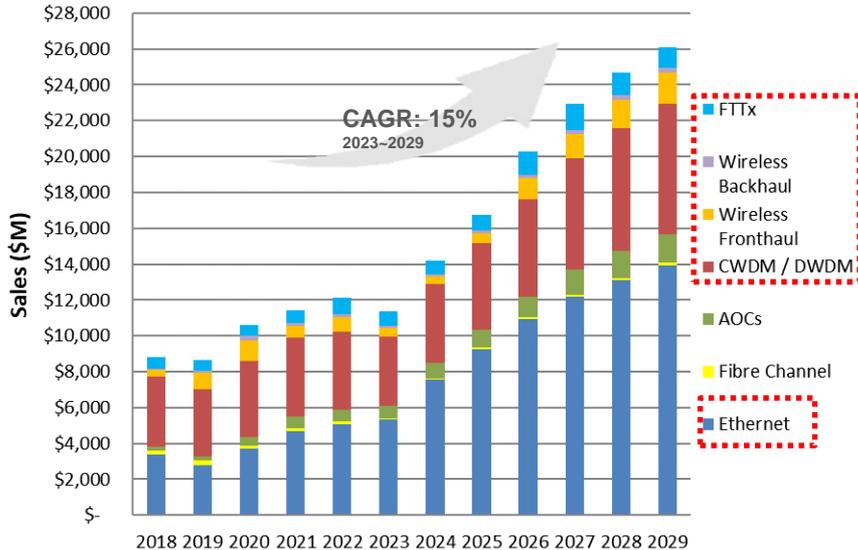
※ Based on separate standard

Global Network Market



## Transceiver Market Forecast

2023: 11.3B\$ ▶ 2029: 26.1B\$ / CAGR 15% ↑

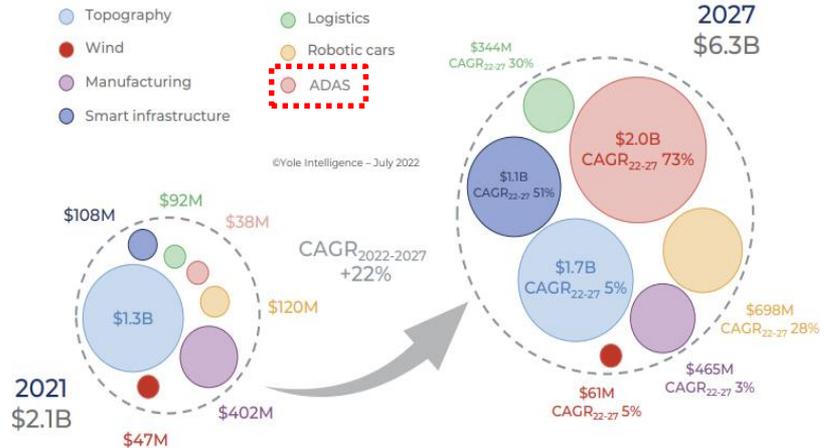


Source : Lightcounting 2024

## LiDAR Market Forecast

2023: 2.5B\$ ▶ 2027: 6.3B\$ / CAGR 22% ↑

LIDAR FORECAST – BY APPLICATION  
2021 – 2027 forecast



Source : Yole Intelligence 2022

# OE Solutions Vision & Strategy



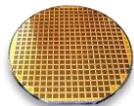
Vision

Connecting the world with customers through innovative solutions using OptoElectronic(OE) technology

Strategy

Laser Chip → Transceiver Vertical integration

## Laser Chip



- 10G / 25G / 50G / 100G will start using in-house laser chip
- 5G, 6G Wireless / Data center / LiDAR
- Through In-house capability 1)Cost competitive 2)Supply and demand stabilization
- Road map
  - Access : 10G / 25G / 50G EML, Tunable Chip
  - Data center : 50GBaud EML / 100G PAM4  
100GBaud EML / 200G PAM4  
HP Laser (VHP/UHP/SHP)
  - LiDAR : High power laser (1550nm, Low LW)

## Transceiver



- Global 5G Wireless Transceiver All line-up
- Transceiver profitability and competitive advantage through in-house technology
- High bit-rate Transceiver development to launch a variety of Network Target products (Data center, Telecom, FTTH)
- Road map
  - Wireless:10G/25G BiDi SFP/100G PAM4 QSFP28
  - ROADM/POTN:10G/25G Tunable SFP28, 100G/400G ZR/ZR+ DCO
  - Data center:40G/100G/200G/400G/800G PAM4, 400G/800G DCO
  - Broadband: 10G/25/50 PON OLT/ONU

## Market and Applications which OE Solutions Transceiver serves



5G/6G Wireless



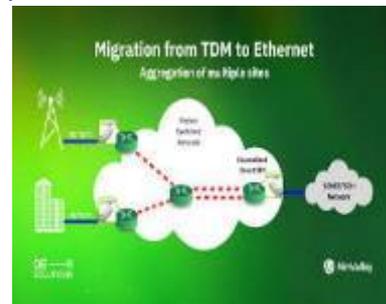
Data Center



Transport



Fixed Broadband

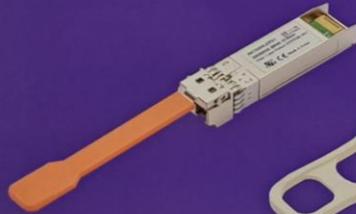


Network  
Migration & Enhancements

Strong in Wireless(5G, 6G) market, recently expanding the serving markets to Telecom and Data Center applications

## Optical Transceivers for Next-Generation Networks

50G SFP56 BIDI  
BR40/40km IT



100G QSFP28  
ZR4/80km ST



100G QSFP28  
DCO 120km IT



100G QSFP-DD  
DCO 120km IT



100/200G CFP2  
DCO EDFA 120km IT



OE SOLUTIONS

# OE Solutions Laser Chip



광통신 LD & OSA



AI/DC High Speed Laser



차세대 AI/DC HP Laser



HP Laser for LiDAR

## Applications

- ✓ 5/6G Wireless
- ✓ 10G/25G/50G FTTx
- ✓ DWDM Metro core

## Applications

- ✓ Intra DC (200G~800G)
- ✓ DC Interconnection (400G~800G)
- ✓ 800G/1.6T AI/ML DC / LPO

## Applications

- ✓ Co-Packaged Optics(CPO)
- ✓ Near-Packaged Optics(NPO)
- ✓ High Power ELSFP

## Applications

- ✓ ADAS
- ✓ Autonomous Driving
- ✓ Logistics

## Key Products

- ✓ 10G EML 1577nm (D-Class)
- ✓ 10/25G EML WDM(80km)
- ✓ 25G/50G EML SOA
- ✓ Tunable PIC &TOSA

## Key Products

- ✓ 50Gb'd EML (400G/800G)
- ✓ 100Gb'd EML (800G/1.6T)

## Key Products

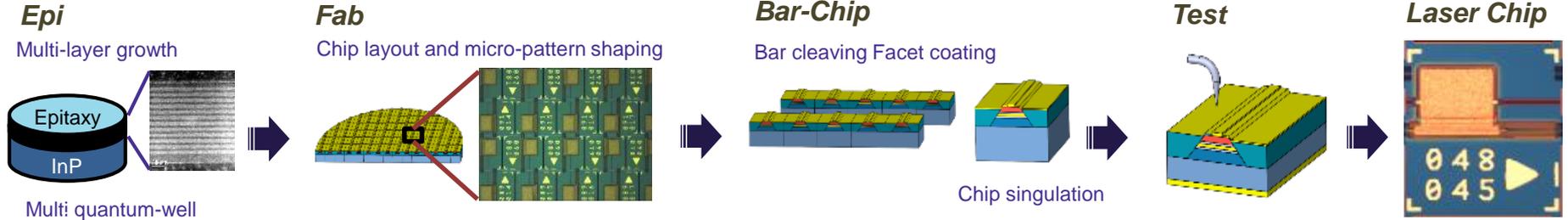
- ✓ High power Laser (VHP, 1310)
- ✓ High Power Laser with SOA (UHP, SHP)
- ✓ Tunable lasers

## Key Products

- ✓ 1550nm HP Laser (100kHz)
- ✓ 1550nm Gain chip

# Core Components and Process

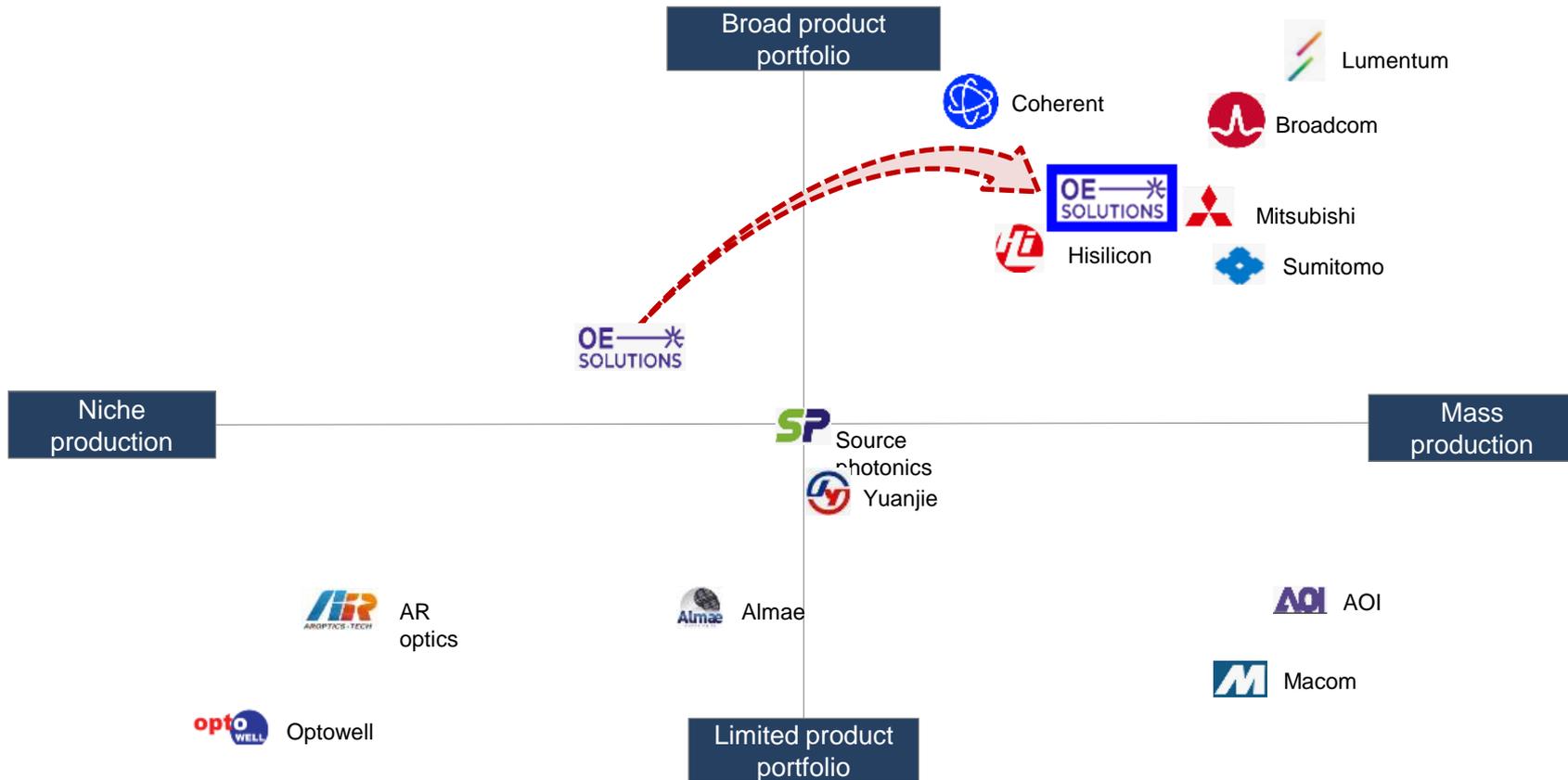
## Laser Chip Process



## Laser Chip Product



# OE Solutions Laser Chip Position



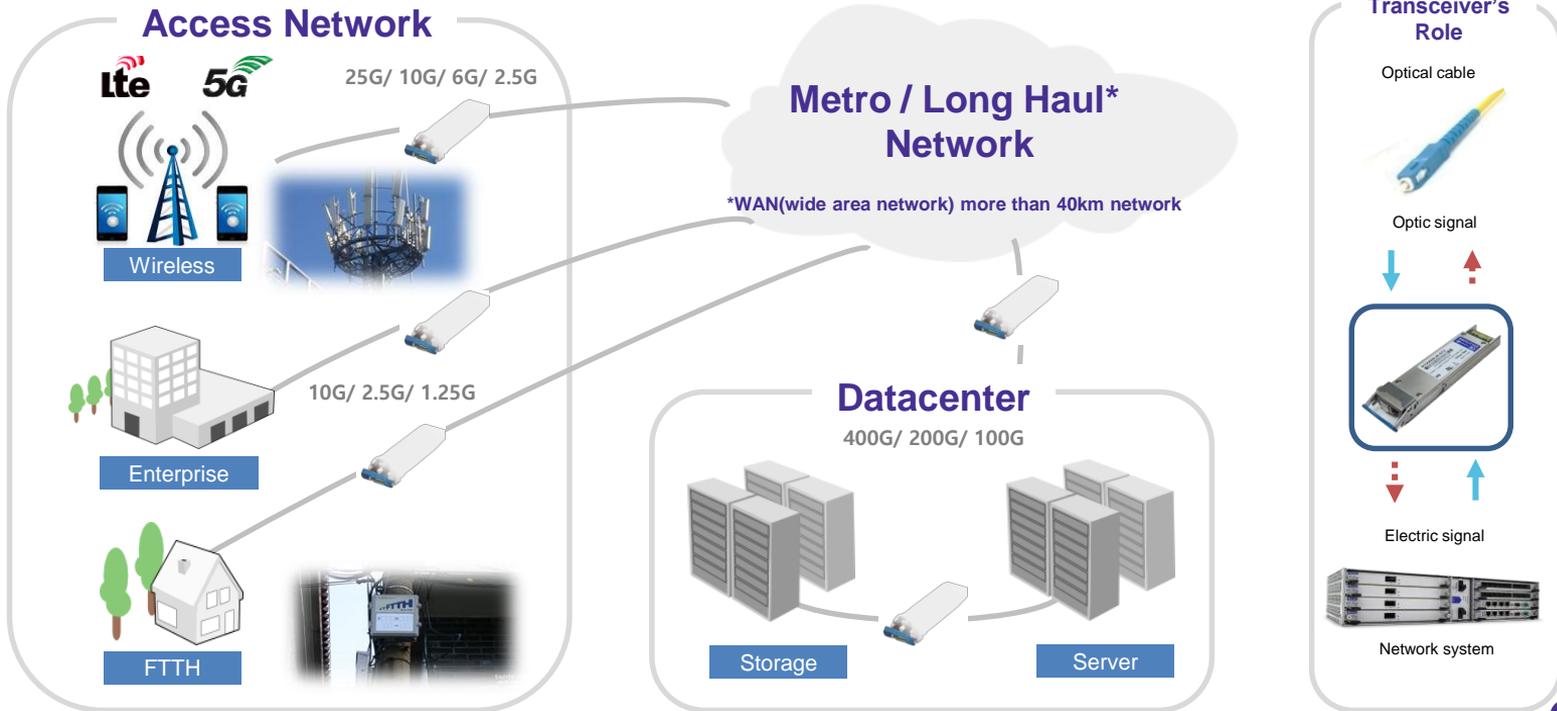
# Appendix

- Product Application
- Customers
- Financials statement



## The use of Transceiver in the Network

Transceiver required for network connections



# Supplier to The World's Leading Network Equipment Manufacturers

**NOKIA**

**ADTRAN**



**infinera**

**ciena**

**SAMSUNG**

**JUNIPER**  
NETWORKS

**FUJITSU**

**ARRIS**

**NEC**

**ADVA**  
Optical Networking

**Aviat**  
NETWORKS

**harmonic**



**ERICSSON**

# Consolidated financial statements

## Statement of financial position

(Unit : million KRW)

	2021	2022	2023	2024 1Q
Current assets	106,938	99,267	74,833	71,323
Non-current assets	94,901	88,652	77,136	74,665
<b>Total assets</b>	<b>201,839</b>	<b>187,920</b>	<b>151,969</b>	<b>145,988</b>
Current liabilities	40,745	38,921	39,477	40,304
Non-current liabilities	1,794	1,344	1,069	1,184
<b>Total liabilities</b>	<b>42,539</b>	<b>40,264</b>	<b>40,546</b>	<b>41,487</b>
Capital	5,312	5,312	5,312	5,312
Paid-in capital in excess of par value	52,002	52,002	52,002	52,002
Retained earnings	99,665	90,861	54,593	47,941
<b>Total equity</b>	<b>159,300</b>	<b>147,656</b>	<b>111,423</b>	<b>104,501</b>

## Income statement

(Unit : million KRW)

	2021	2022	2023	2024 1Q
<b>Revenue</b>	<b>98,681</b>	<b>76,954</b>	<b>46,003</b>	<b>8,098</b>
Cost of sales	62,416	52,818	46,752	8,354
Gross profit	36,265	24,136	-750	-256
Selling general administrative expenses	34,610	32,841	30,331	6,839
<b>Operating income</b>	<b>1,655</b>	<b>-8,705</b>	<b>-31,081</b>	<b>-7,095</b>
Profit before tax	11,967	-6,453	-29,457	-6,355
<b>Net income</b>	<b>14,372</b>	<b>-5,977</b>	<b>-33,817</b>	<b>-5,897</b>

Thank you.

**OE** —   
**SOLUTIONS**

# Contact Us

## **OE Solutions Korea Headquarters**

53, Cheomdanyeonsin-ro 30beon-gil,  
Buk-Gu, Gwangju, 61080, Korea

Tel: +82 (62) 960-5252

Fax: +82 (62) 960-5258

Email: [sales@oesolutions.com](mailto:sales@oesolutions.com)

## **OE Solutions America U.S. Headquarters**

65 Challenger Road STE 240  
Ridgefield Park, NJ 07660, USA

Tel: +1 (201) 568-1188

Fax: +1 (201) 568-1177

Email: [sales@oesolutions.com](mailto:sales@oesolutions.com)

## **Website**

[www.oesolutions.com](http://www.oesolutions.com)

## **OE Solutions Seoul (Anyang) Office**

Unit B-#1619, Geumgang Penterium IT Tower, 282, Hagui-ro,  
Dongan-gu, Anyang-si, Gyeonggi-do, 14056, Korea

Tel: +82 (31) 450-2800

Fax: +82 (31) 450-2815

Email: [sales@oesolutions.com](mailto:sales@oesolutions.com)

## **OE Solutions Japan Japan Headquarters**

3F Nagai Building, 1-24-2, Shinjuku, Shinjuku-ku, Tokyo, 160-  
0022, Japan

Tel: +81 (3) 6274-8543

Fax: +81 (3) 6274-8549

Email: [sales@oesolutions.com](mailto:sales@oesolutions.com)

