ASM Pacific Technology

2019 Interim Results Announcement

24 July 2019

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ASM Pacific Technology

Top 100 Global Technology Leaders

The Only Back-end Equipment Supplier Being Recognized

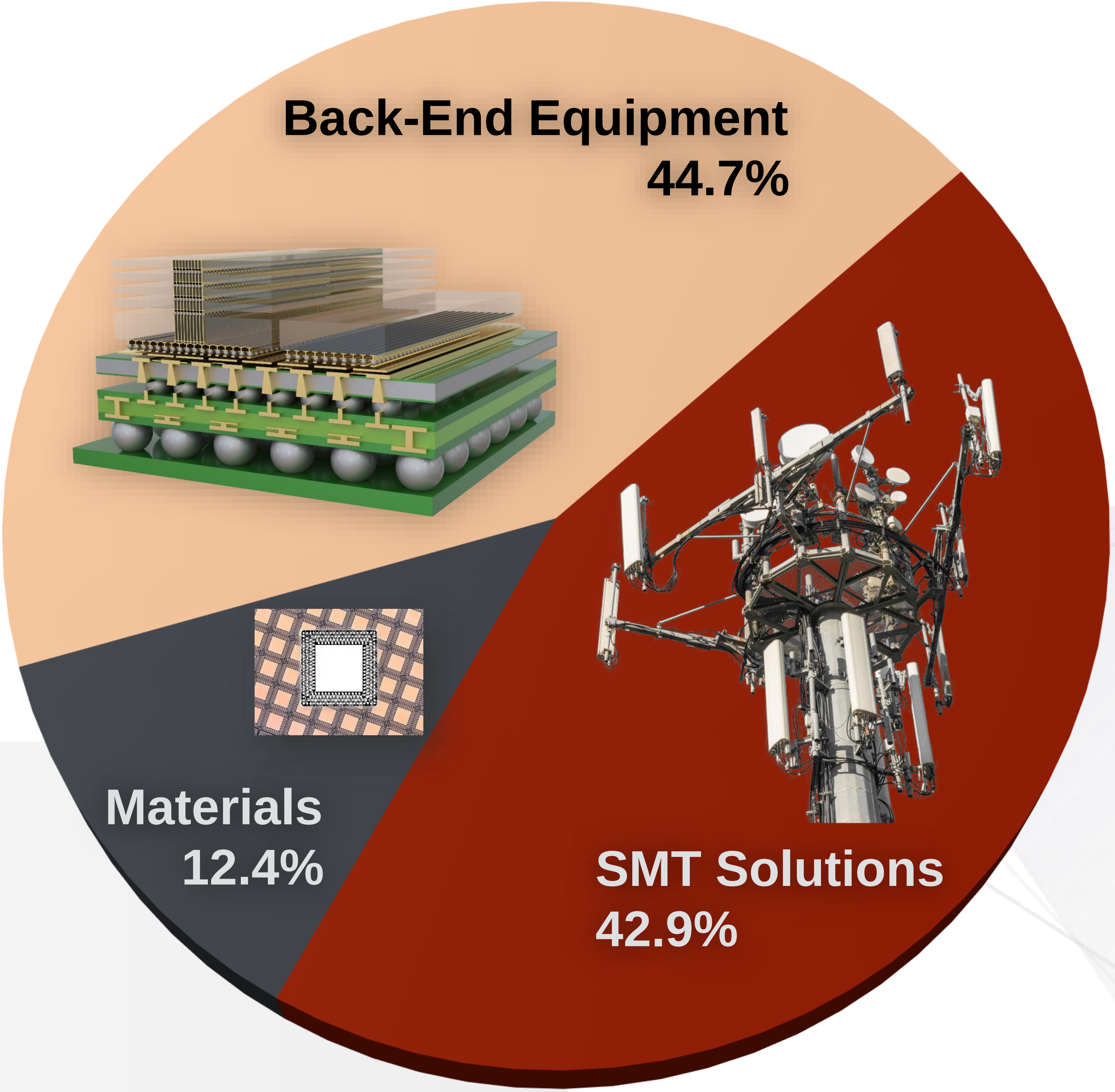
Recognised alongside:

Microsoft	*Apple*
Intel	*TSMC*
Cisco	*SAP*
IBM	*Texas Instruments*
Alphabet	*Accenture*

> “*The Top 100 Global Technology Leaders are the organizations poised to* ***propel the future of technology***
>
> *Brian Scanlon, Chief Strategy Officer*
> *Thomson Reuters, 2018*

2018 THOMSON REUTERS
TOP100
GLOBAL TECH LEADER

The World's Technology & Market Leader



Q2 2019 Group Revenue:

USD 461m

(CAGR 2009 - Q2 2019 LTM 13.8%)

ASMPT
Global Presence

>2,000
Global R&D staff

>1,400
Patents on key leading edge technologies

10
R&D centres worldwide

12
Manufacturing facilities

● Sales Offices

⬢ Business Centre / R&D / Manufacturing Site

ASMPT'S **Major Facilities** Around The World

- ● Sales Offices
- ⬢ Business Centre / R&D / Manufacturing Site

Three Business Segments With
Leading Market Positions

BACK-END EQUIPMENT

#1 in Assembly & Packaging Equipment Market

Since 2002

2018 Worldwide
PAE Market Share:
~25%

SMT SOLUTIONS

#1 in SMT Equipment Market

Since 2016

2018 Worldwide
SMT Market Share:
~23%

MATERIALS

#3 in Leadframe Market

Since 2018

2018 Worldwide
Leadframe Market Share:
~9%

Sources: Market share for Back-end Equipment is based on information on packaging and assembly equipment market by VLSI, leadframe market by SEMI, and SMT market by ASMPT SIPLACE Market Intelligence |

2019 Q2 Highlights

QoQ Bookings Rebound Across the Board

	USD	QoQ
Group	**602m**	**+30.8%**
Back-end Equipment Segment	**247m**	**+10.9%**
Materials Segment	**59m**	**+28.5%**
SMT Solutions Segment	**296m**	**+54.4%**

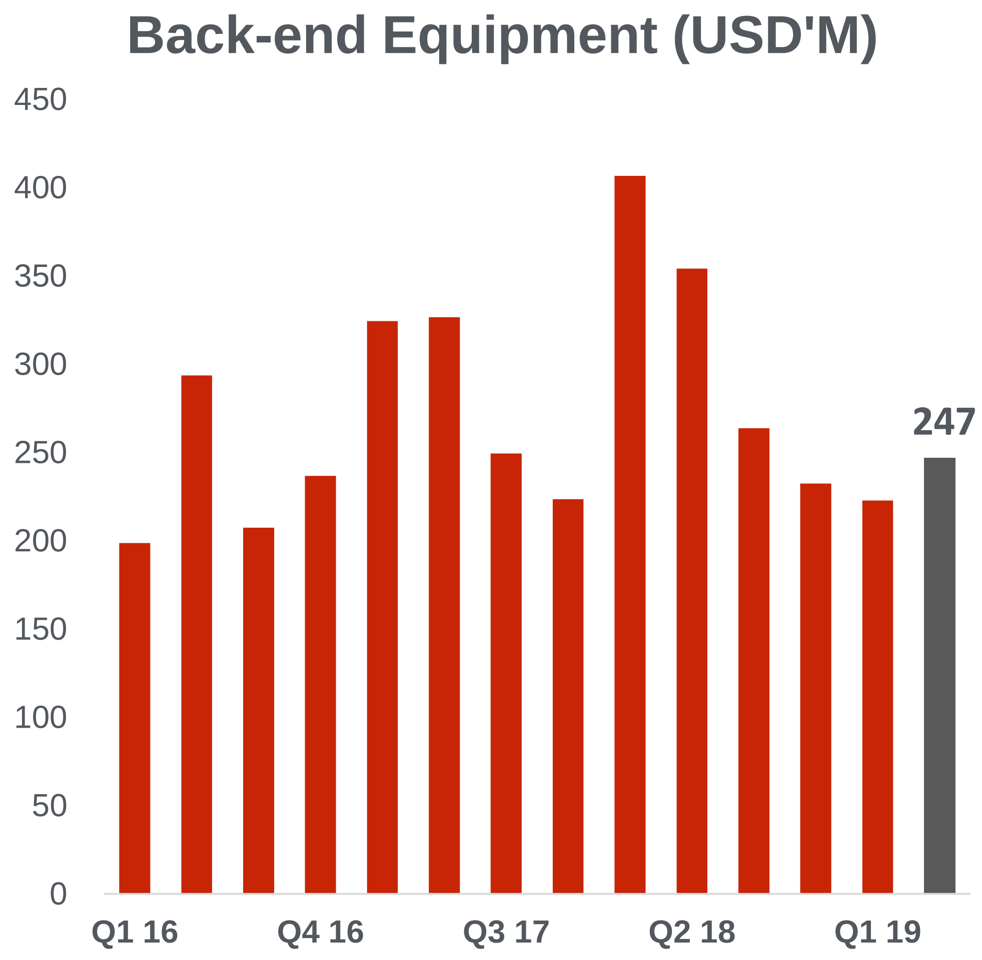
- **SMT:** Bookings surged 54.4% QoQ to a near record
- **CIS:** Momentum continued to be strong
- **Advanced Packaging:** Good momentum continuing
- **Materials:** Consecutive two quarters of QoQ bookings growth
- Near record Backlog of US$795m

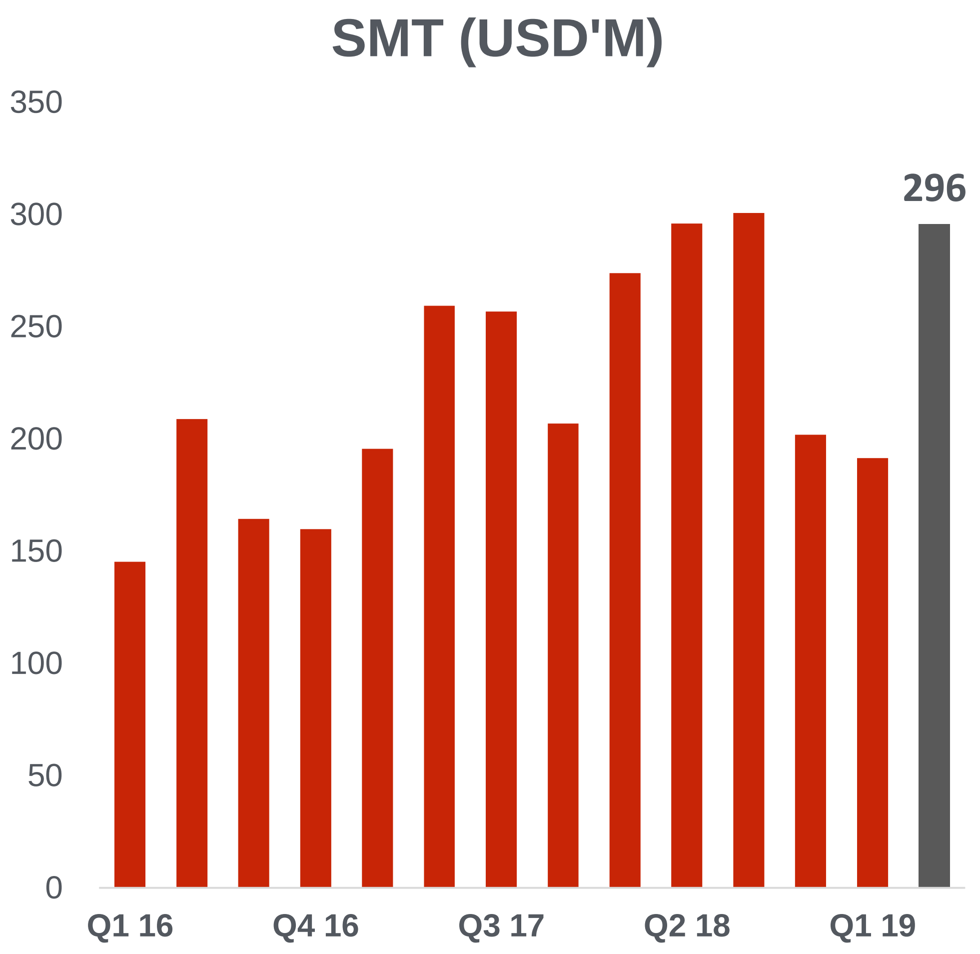
Q2 Bookings – Business Segments

QoQ Growth:
+10.9%

QoQ Growth:
+54.4%

QoQ Growth:
+28.5%





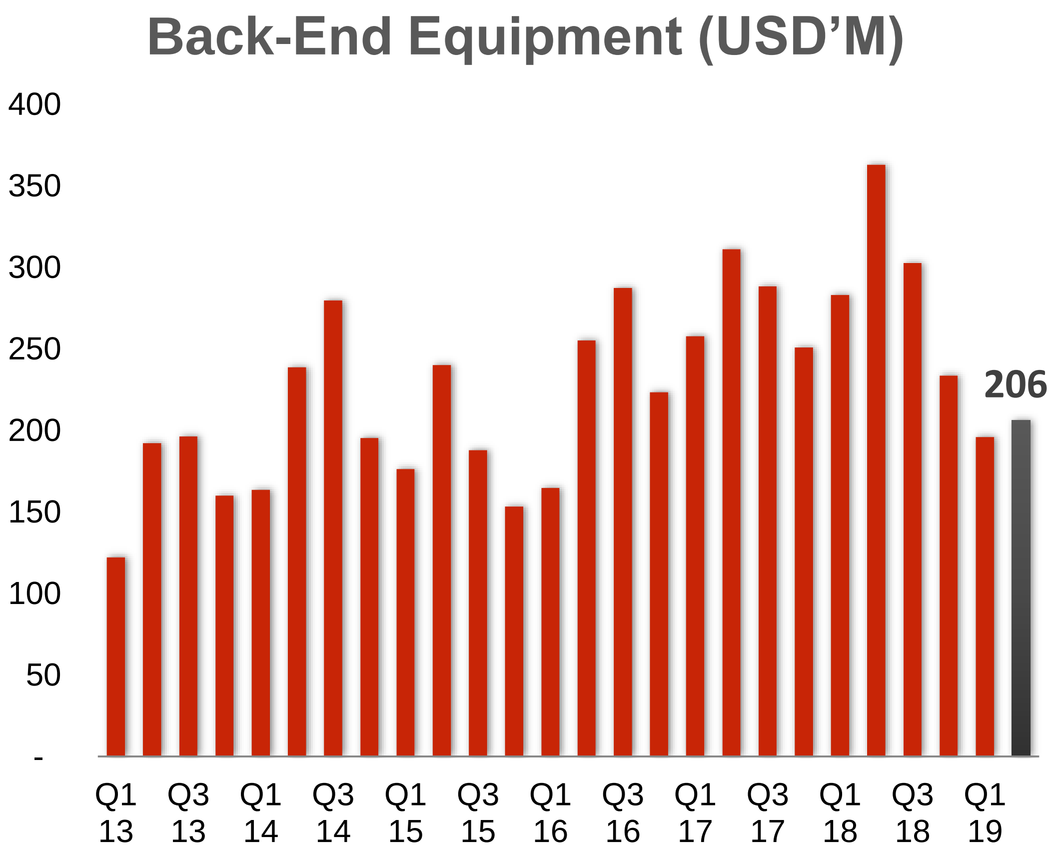
Q2 Billing Highlights

	USD	QoQ
Group	**461m**	**-1.2%**
Back-end Equipment Segment	**206m**	**+5.2%**
Materials Segment	**57m**	**+13.2%**
SMT Solutions Segment	**198m**	**-10.3%**

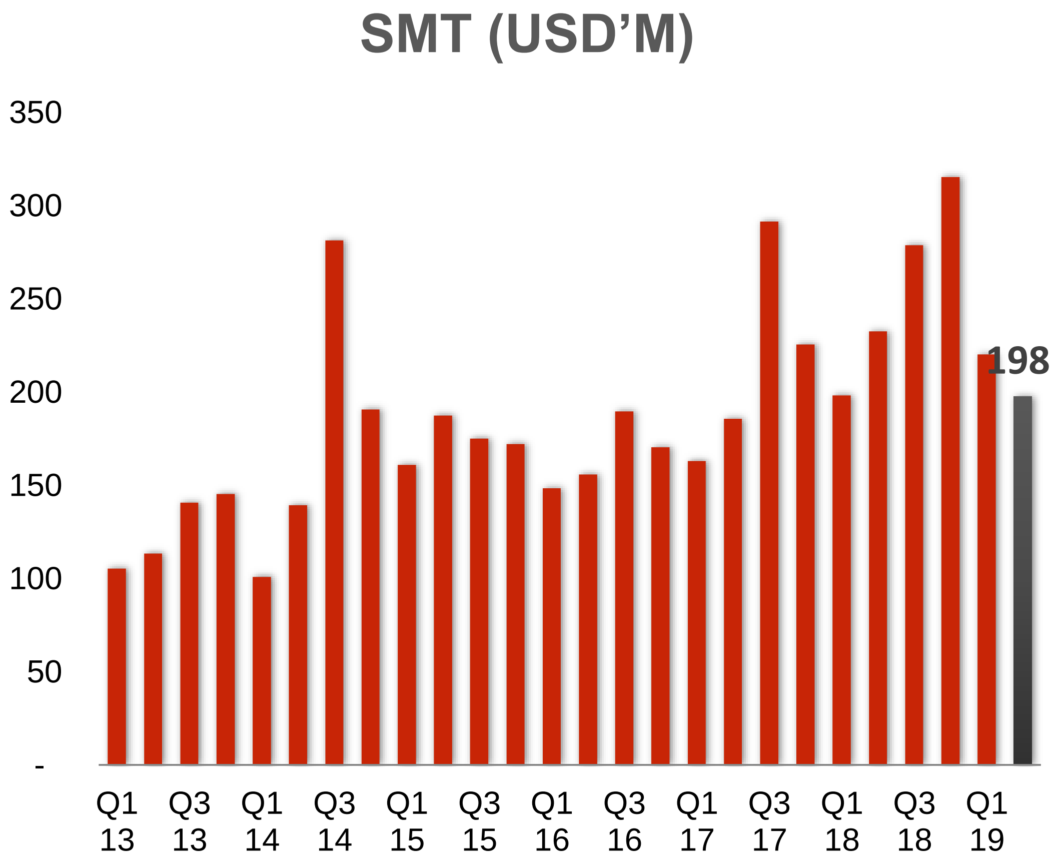
- Back-end Equipment bounced back
- Double-digit QoQ growth from Materials
- SMT revenue declined due to weak booking in previous quarter
- Strong Q2 orders to translate into good Q3 Billings

Q2 Billings – Business Segments

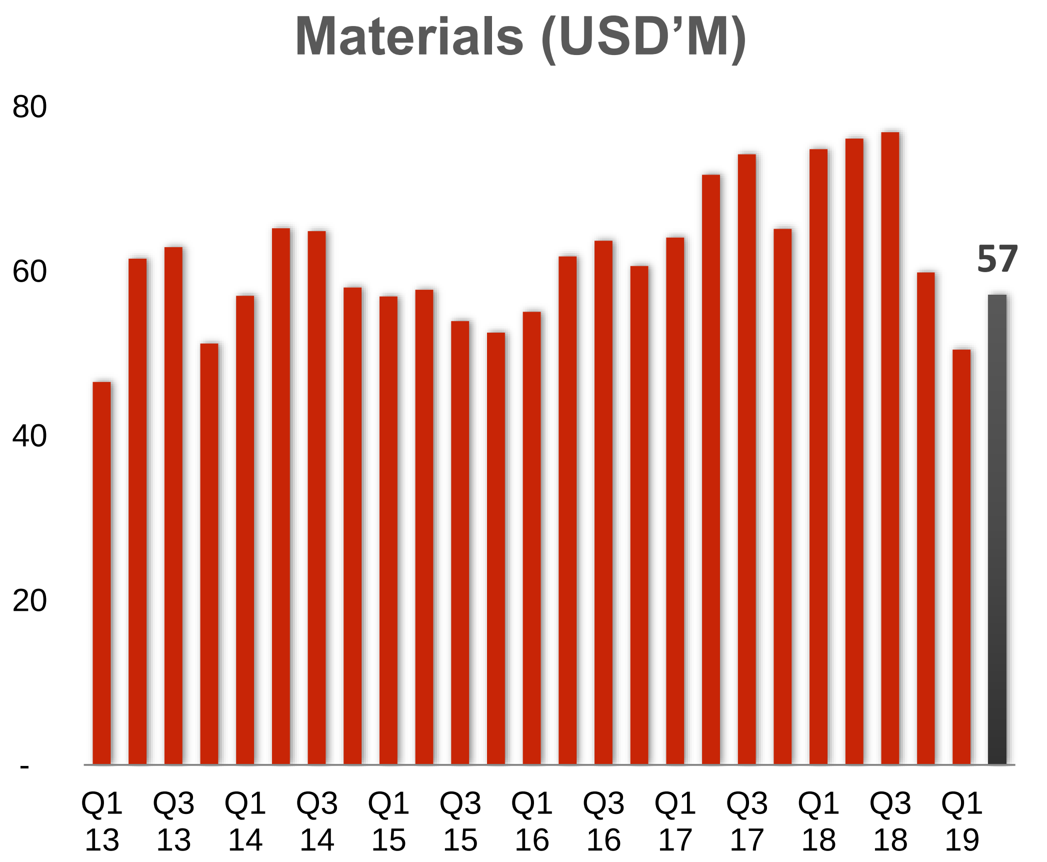
QoQ Growth:
+5.2%


Back-End Equipment (USD'M)

QoQ Growth:
-10.3%


SMT (USD'M)

QoQ Growth:
+13.2%


Materials (USD'M)

Q2 GM Improvement Across All Three Segments

		QoQ
Group	**35.7%**	**+185 bps**
Back-end Equipment Segment	**40.8%**	**+153 bps**
Materials Segment	**11.4%**	**+103 bps**
SMT Solutions Segment	**37.5%**	**+301 bps**

- Across the board cost reduction initiatives taking effect
- Favourable product mix due to contribution from Advanced Packaging and CIS
- Group headcount reduced YoY by ~2,400 contributed mainly by manufacturing
- Q2 Group OPEX reduced by 5.6% YoY (excluding acquisition effect: 14.5% YoY)

Key Highlights:

QoQ Bookings Growth:
+10.9%

Back-end Equipment Segment

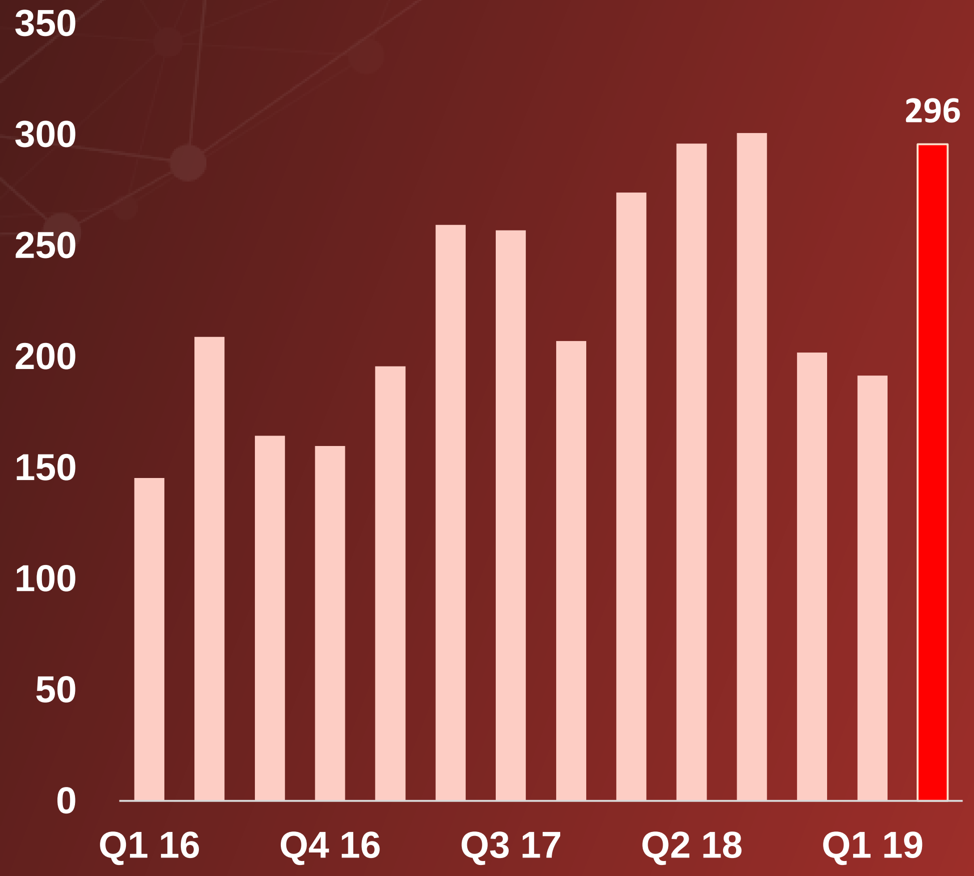
- **CIS**
  - Driven by folded lenses and multiple cameras
  - More cameras per phone offsetting smartphone shipment rate decline

- **Advanced Packaging**
  - Contributed close to 20% of Back-end Equipment
  - More revenue recognition expected to take place 2H19

- **Automated Optical Inspection**
  - Strong growth
  - Revenue for 1H19 > FY2018

- Traditional die/wire bonders demand remained weak
- Overall market recovery pushed back by trade war tensions

QoQ Growth:
+54.4%



Quarterly SMT Bookings (USD'M)

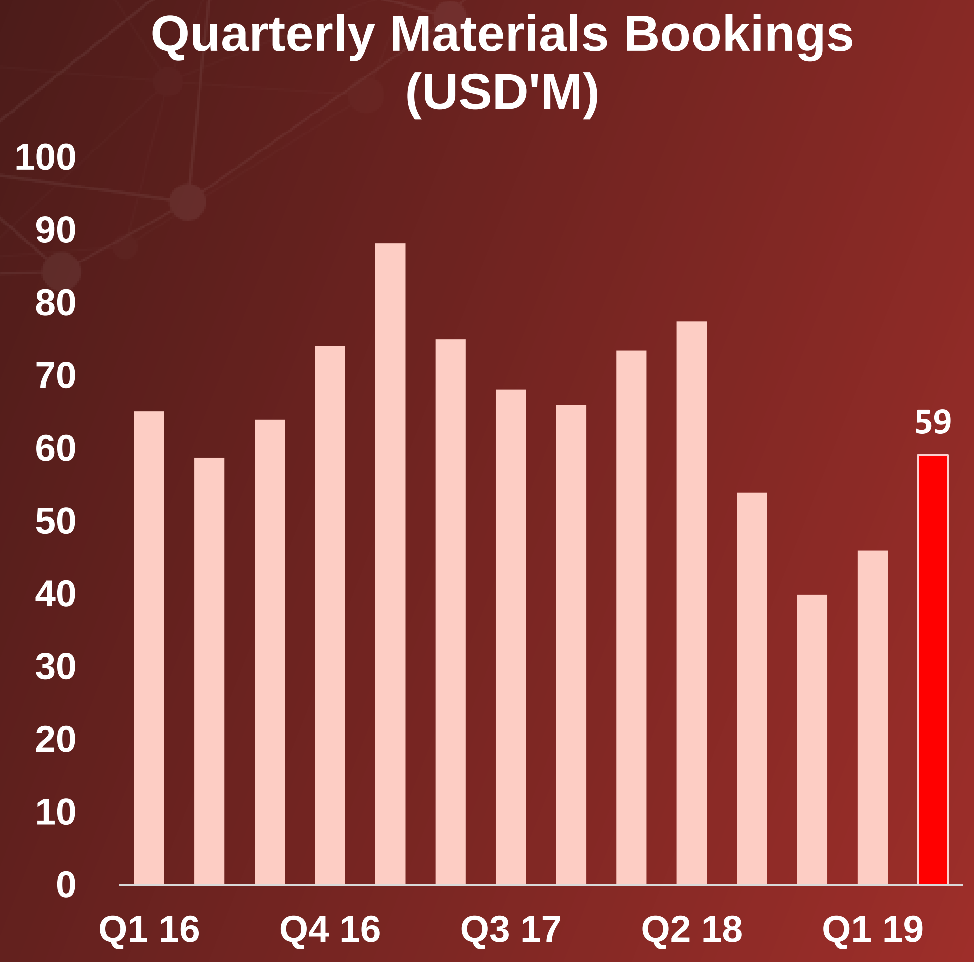
Key Highlights:

SMT Segment

- Benefited from 5G infrastructure build-up
- Strong demand from China market
- Continued demand from Automotive, Industrial and Consumer Applications

QoQ Growth:

+28.5%



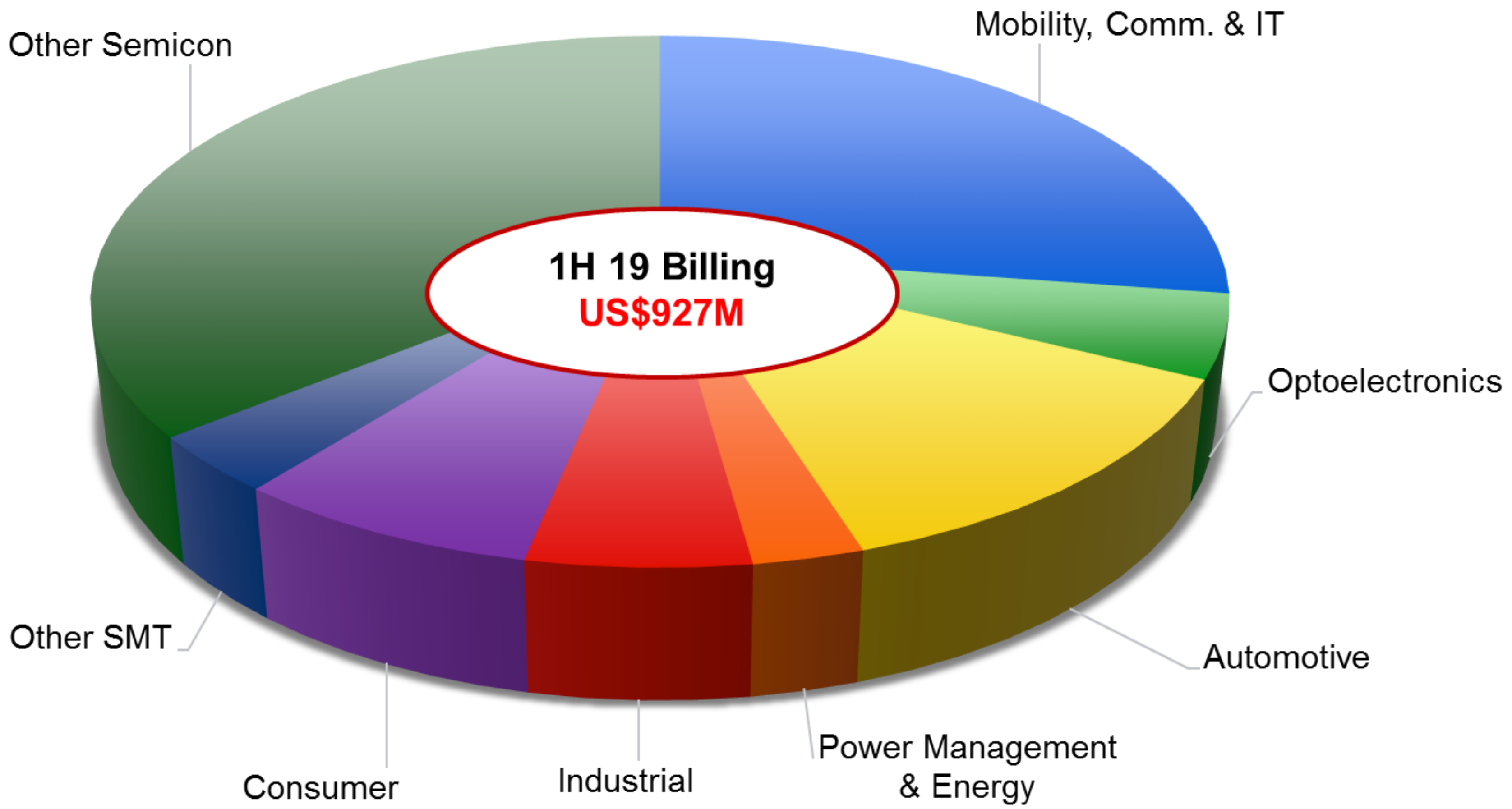
Key Highlights:

Materials Segment

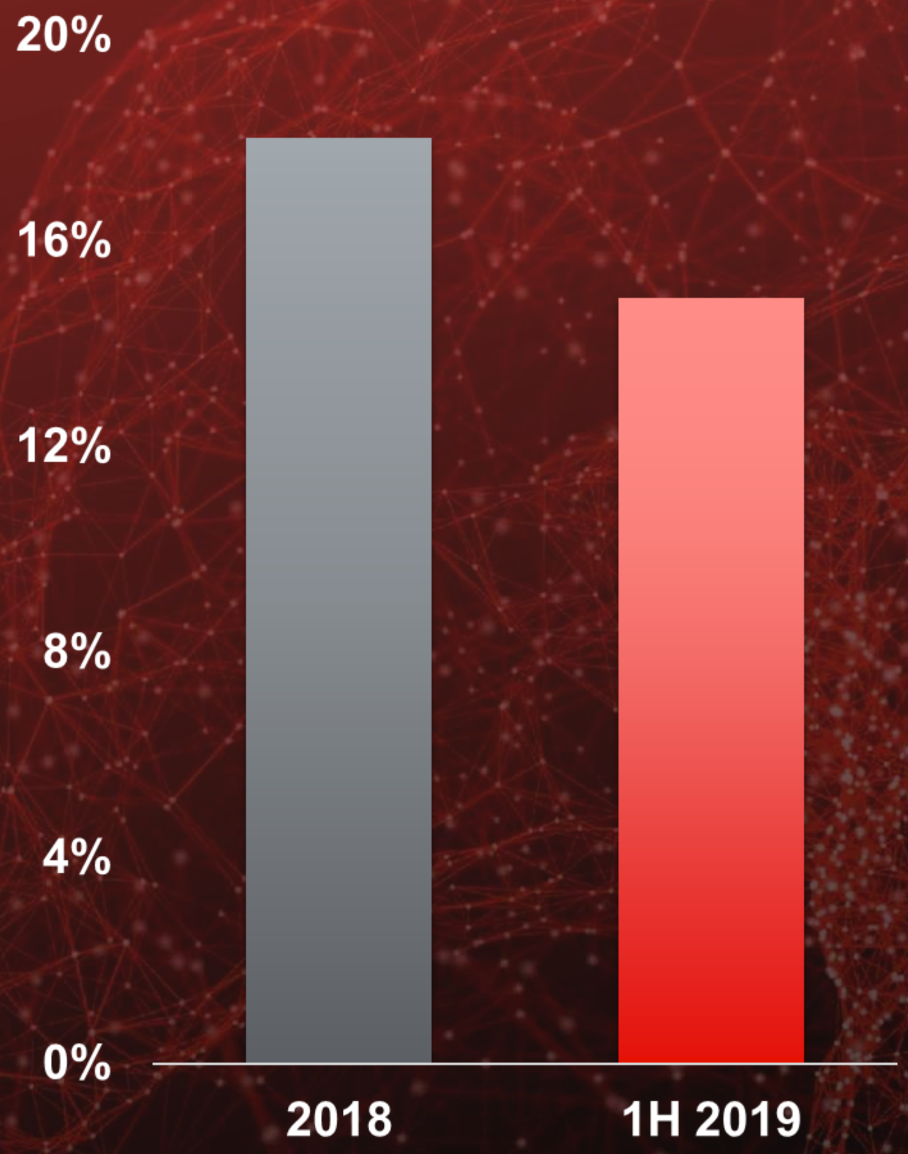
- Consecutive two quarters of QoQ Bookings growth
- Leadframe market has bottomed out
- Likely signaling market recovery; pace?

1H 2019 Revenue Breakdown by Application Markets

1H 2019 Billing by Market Application

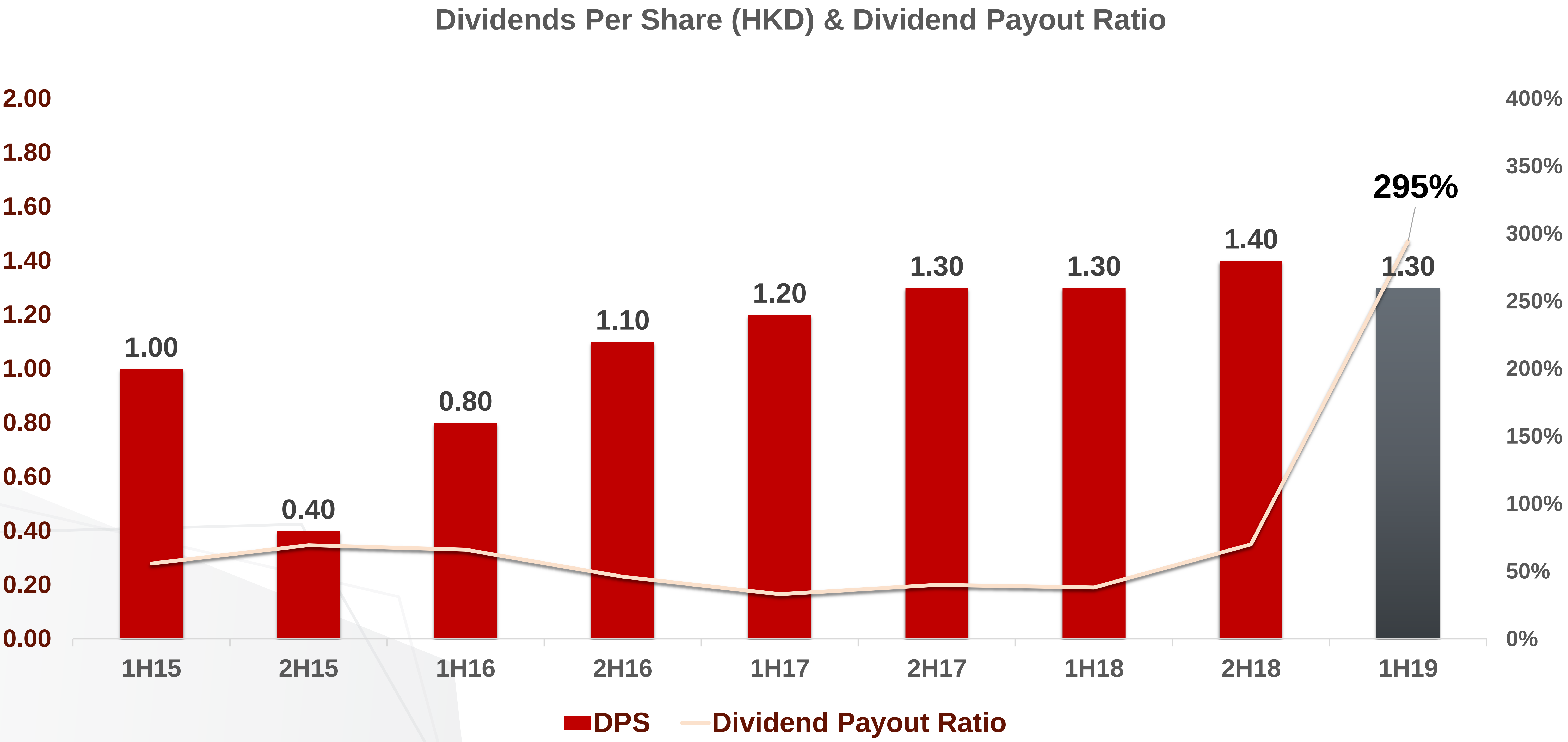


Top 5 Customers Revenue Contribution



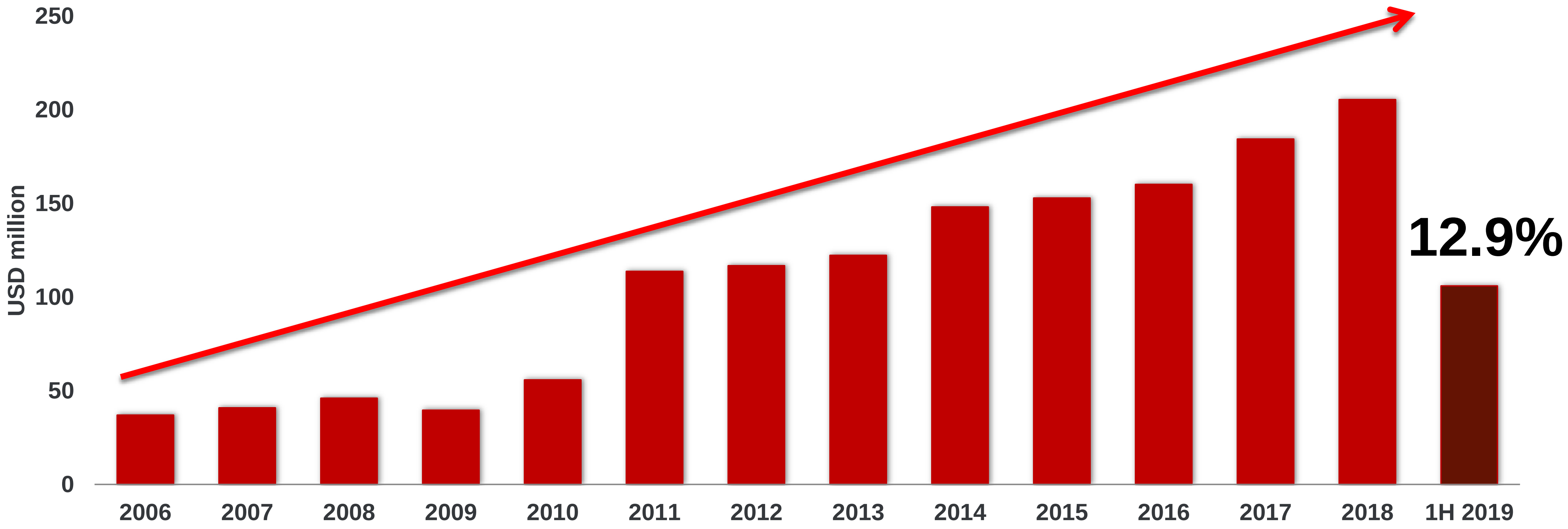
More Resilient in a Downturn with Multiple Application Markets Strategy

Sustainable and **Gradually Increasing** Dividends



ASM Pacific Technology

R&D Commitment Makes Us a Preferred Partner of Choice

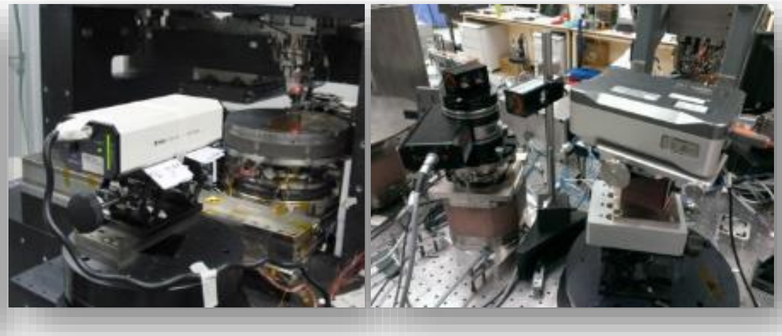


USD1,529 million invested in R&D

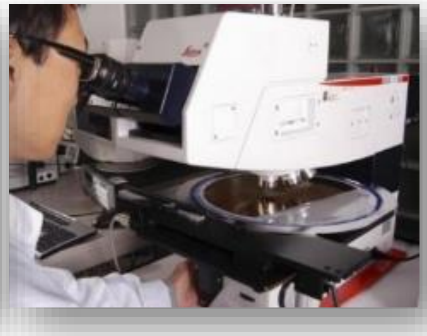
1H 2019 R&D expenditure

- US$ 106 million
- 12.9% of Equipment Sales


Package Interconnection

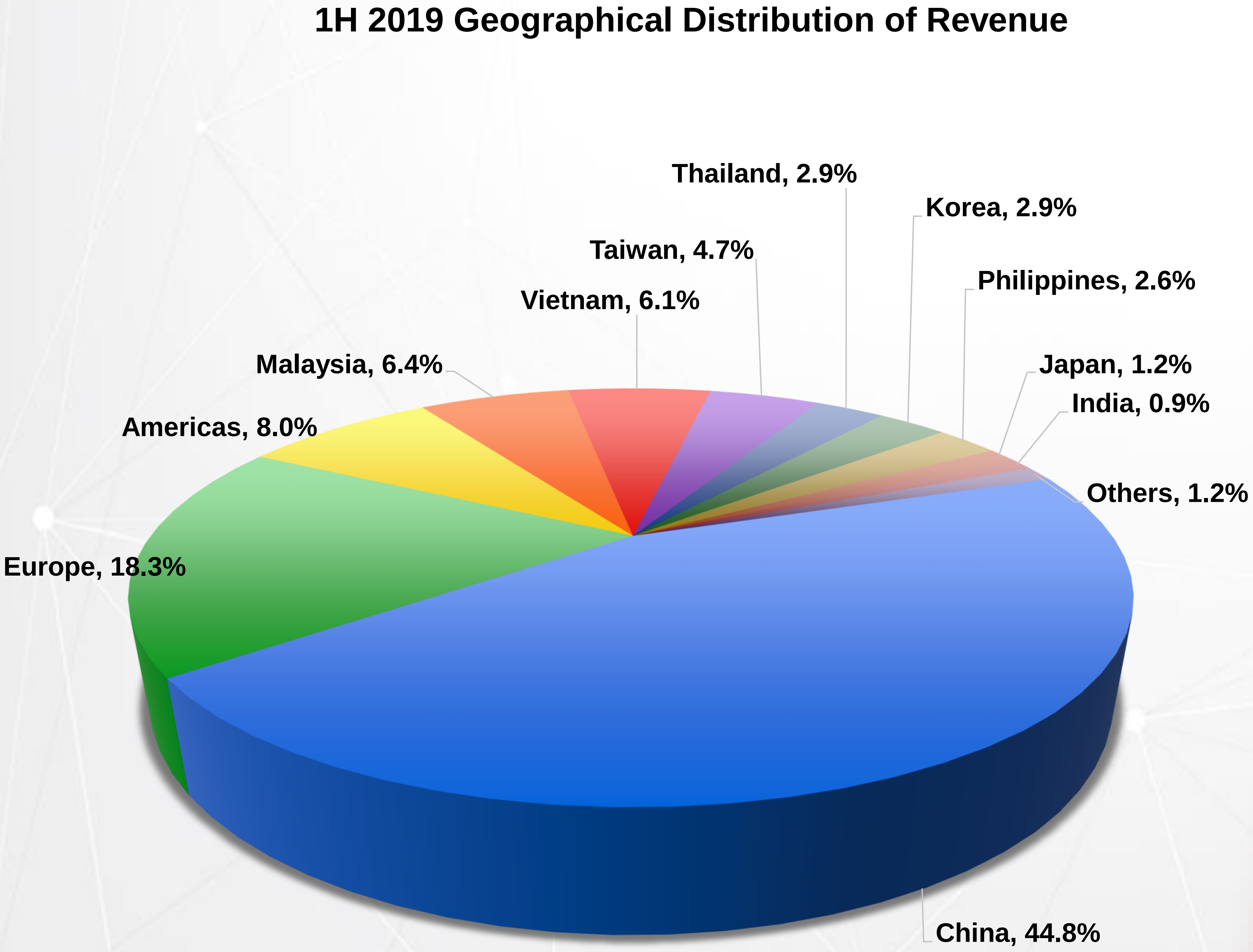

Optics precision engineering


Vibration control


Laser dicing & grooving


SMT

An Extensive Customer Base



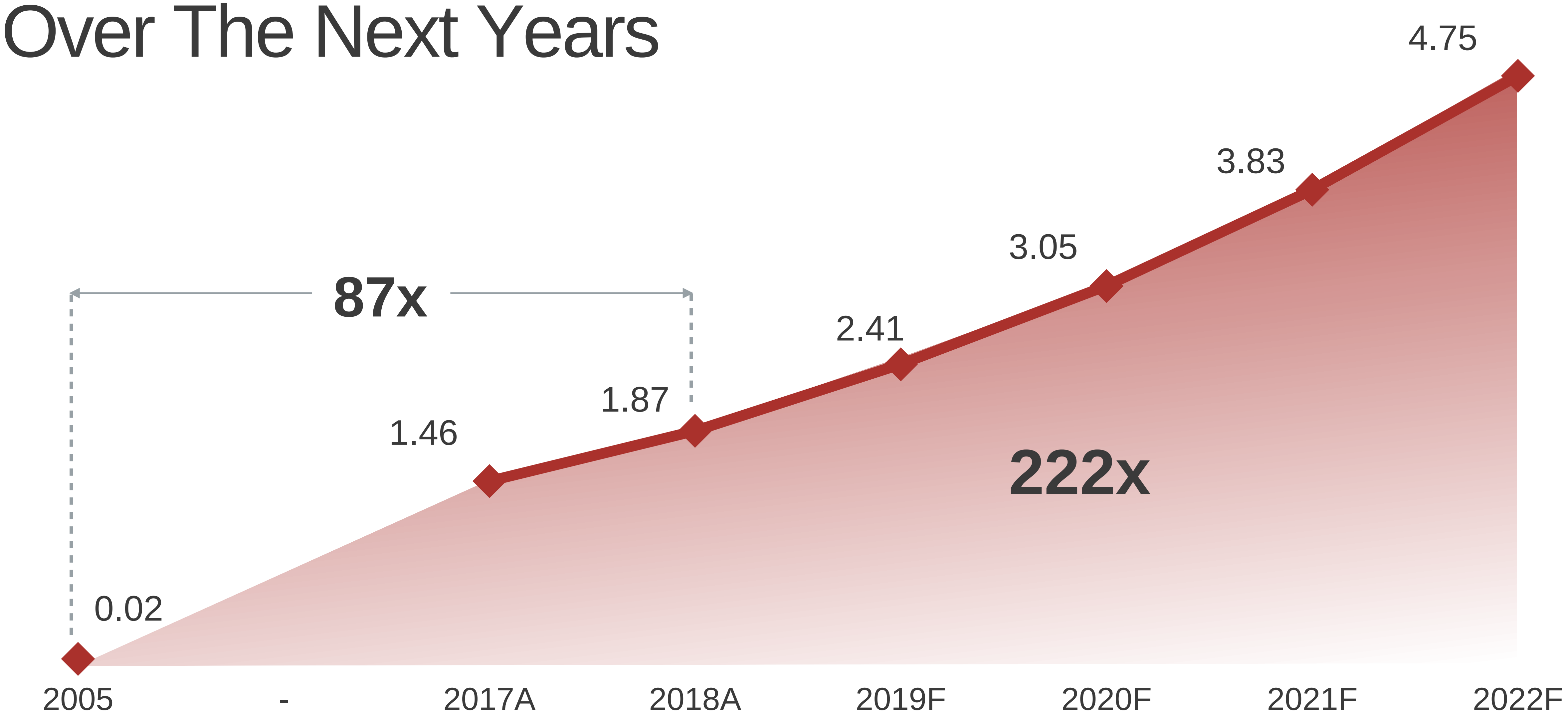
- No single customer accounted for more than 10% of Group revenue
- Top 5 customers accounted for 15% of Group's 1H 2019 revenue
- Top 20 customers include:
  - ➢ World's leading IDMs
  - ➢ Tier 1 OSATs, major OSATs in China
  - ➢ Key LED players
  - ➢ Major camera module makers
  - ➢ Top EMS providers
  - ➢ Leading automotive component suppliers
- Among Top 20 customers of Group:
  - ➢ 7 from SMT Solutions segment
  - ➢ 3 from both Back-End Equipment & SMT Solutions segment

Endless Opportunities for ASMPT in the Digital World

Data-Centric Era will **spur Semiconductor Demand**

	Collect	**Transmit**	**Store**	**Analyse**	**Visualise**
	Camera, 3D Sensing, Industry IoT, Sensor, LIDAR	*5G, WiFi, LiFi*	*Big Data Centre, Cloud Computing, Memory*	*AI, TPU, Data Analytics, HPC*	*AR, VR, Micro LED, Mini LED*
ASMPT's Enabling Solutions	• CMOS Imaging Sensors • Active Alignment • Precision Die Attach	• Silicon Photonics • RF Filters • Wire Bonding • SAW Filters • BAW Filters • SMT Solutions • PVD	• Silicon Photonics • TCB • Wire Bonding • PLFO • Laser Dicing	• WLFO • PLFO • Pick & Place • Laser Grooving • TCB • PVD/ECD • Precision Die Attach • Heterogeneous Integration	• High Precision Die Attach • Mini/Micro LED Displays

Data Traffic To Continue **'Exploding In Waves'** Over The Next Years

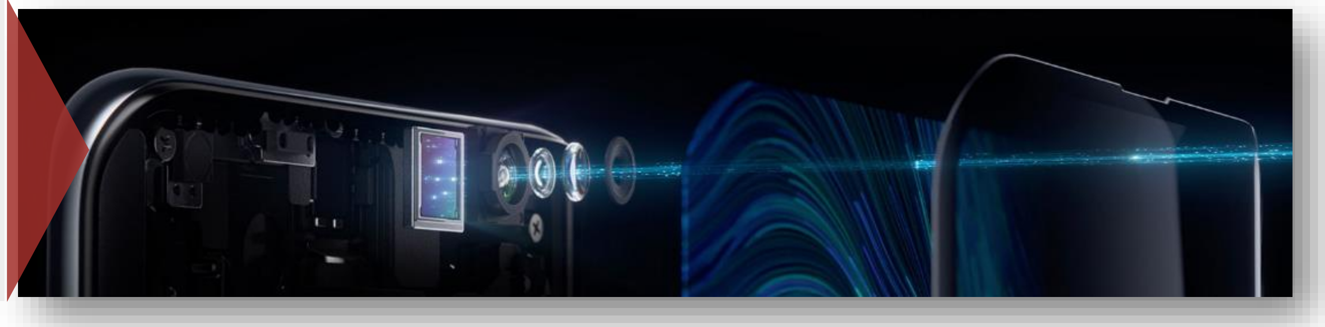


Global Data Traffic Facts (in Zettabytes)

Source: Cisco Visual Networking Index: Forecast and Trends, 2017–2022 White Paper (Updated February 2019)

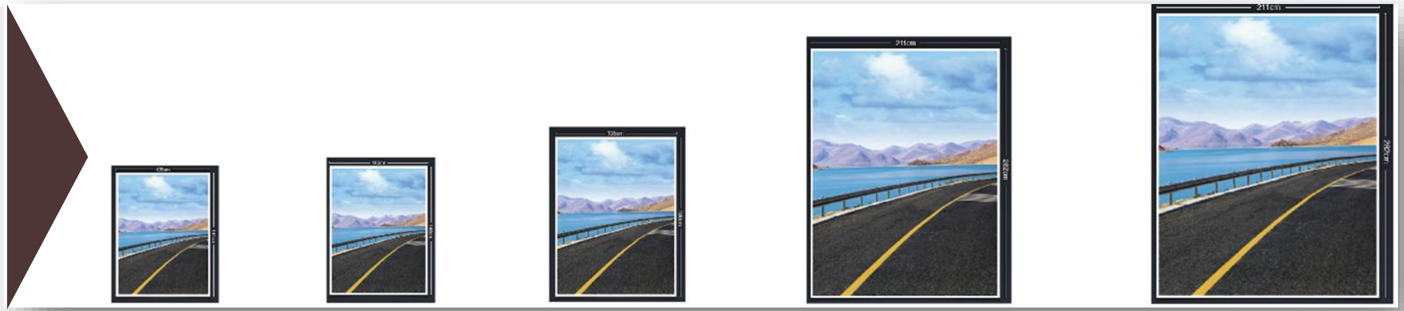
Smartphone Innovations
Continue to Drive CIS Business

Under-Screen Camera (USC)
(Super-thin, thread-less lens)



Multi-Camera Combo, Folded optics
(WFOV -> 50x Super Zoom)

Super High Resolution
(24MP -> 48MP -> 64MP -> 100MP)



Biometrics
3D sensing, Under-Display FPS

The Role Of The Camera In The Data Era **Redefined**

Today

- Videos
- Still Images
- Social Media Content

Future

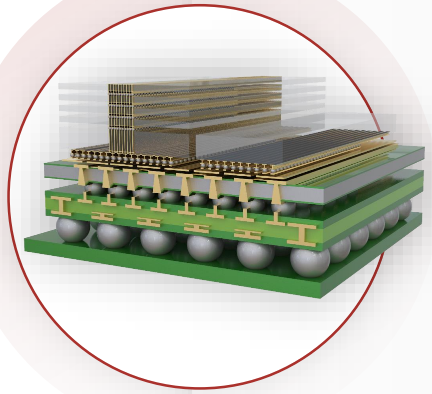
- Industrial Inspection with Drones
- Security: Features Recognition
- AR/VR
- Autonomous Vehicles
- Artificial Intelligence

Source: Youtube, Facebook, Instagram, IT World Canada, Nvidia, Precision Security Australia, Cramer.com, Weibo, Netflix, Youku |

Enhanced Technology That Meets Critical Requirements Of The Digital World

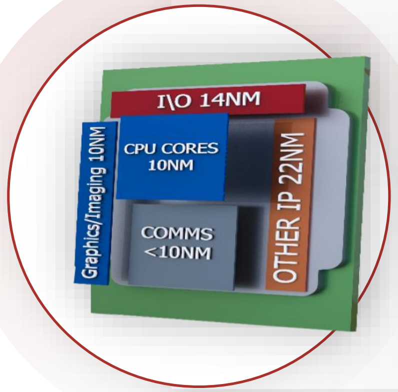
CRITICAL REQUIREMENTS:

- Greater Storage
- Higher Bandwidth
- No Latency
- Lower Power



Advanced Packaging

5G Connectivity Infrastructure



Heterogeneous Integration

Advanced Packaging: The Game Changer In Semiconductor Revolution

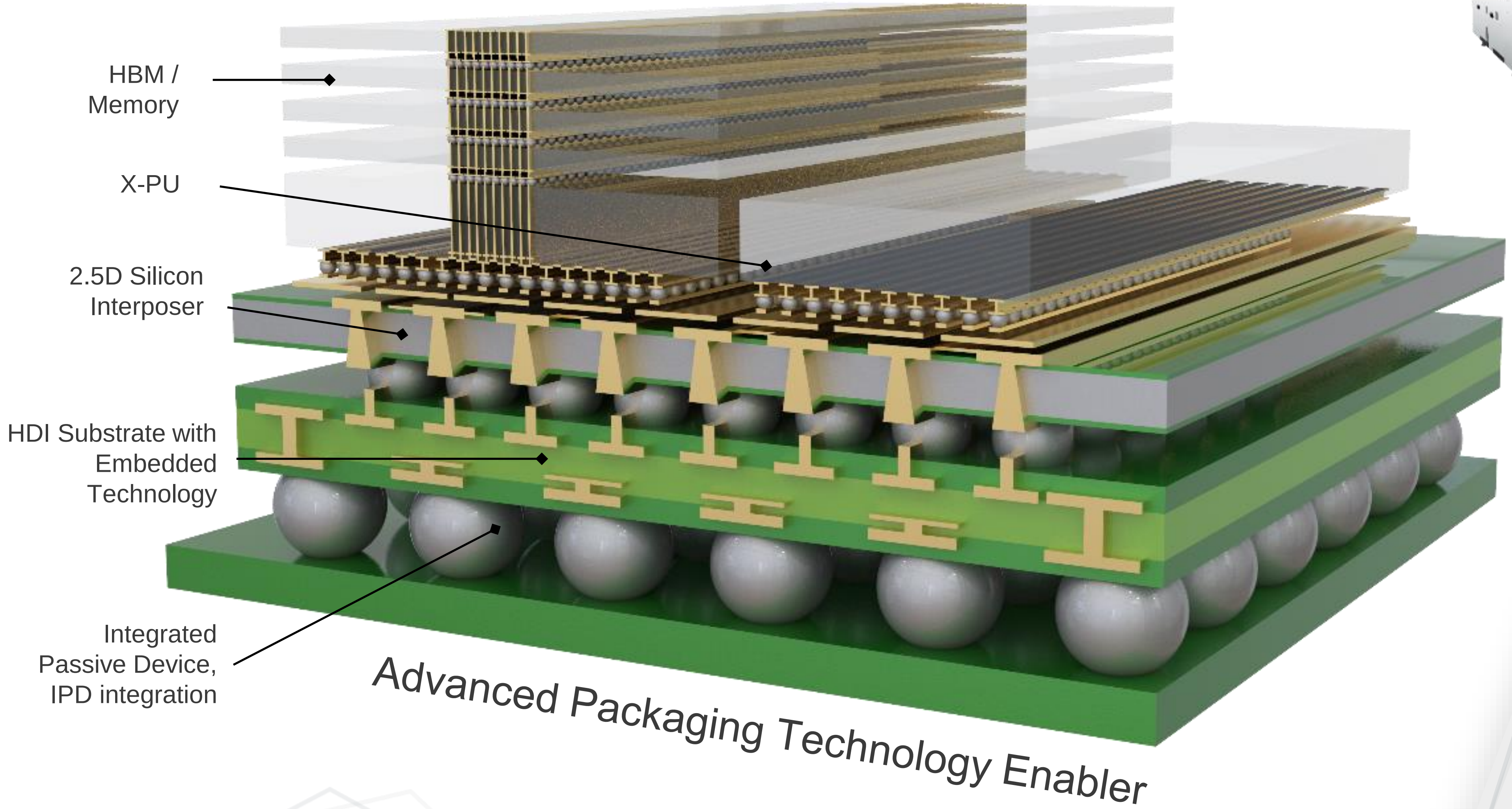
FIREBIRD
TCB
FLI

NEXX
PVD | ECD
Bumping,TSV
& RDL

LASER 1205
Laser Separation
Wafer Dicing and
Grooving

NUCLEUS
Pick and Place
Wafer and Panel

SIPLACE CA
Die Attach & SMT
Wafers and SMT
Feeders



End Applications:

DATACENTERS
for HPC, Machine
Learning

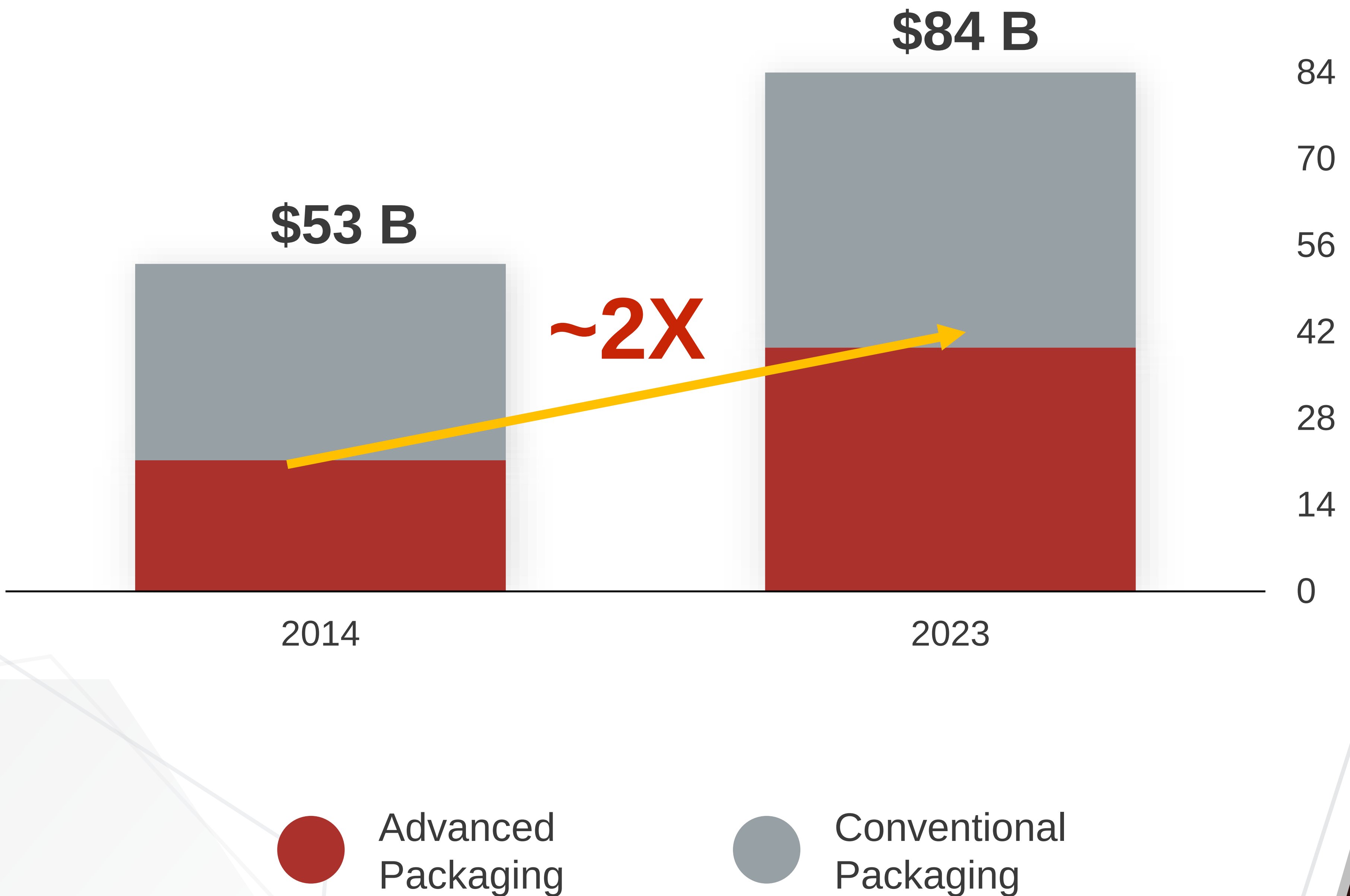
IoT ERA
Smart Wearables
& Smart Machines
(Factories)

AUTOMOTIVE
Sensors, Camera, Body
Electronics, Safety
Systems, Infotainment

GPU
for VR/AR & AI

Growth of Packaging Market Mainly Driven by Advanced Packaging

Global Packaging Market (Billion $)



A.I. Share within Semi Industry Expected to Grow to >$100B in the Next Decade

- Deep learning
- Language processing
- Robots
- Vision

Source: *YOLE Development, PwC Strategy & analysis, IC Insights, JP Morgan*

Expanding TAM to include AOI (Automated Optical Inspection)

Application Markets & Industry Requirements

CIS

- Zero Foreign Particles

Automotive

- Demands High Quality
- Zero PPM Defects

Advanced Packaging

- 100%, on-line high speed inspection

ASMPT's AOI Solutions

1µm Particle Inspection Capability with Auto Clean Solution

TwinSpector
Automated Optical Inspection

2D and 3D All-in-one Vision System

SkyHawk
3D Automated Optical Inspection

Strategic Investment in
X-Ray Inspection for Advanced Packaging

(100 times faster than current market solution)

Future Growth Drivers for **OPTO Business**

MiniLED

Medium to Large RGB / BLU Display

~ 66.1%

Market Size CAGR (2019 – 2027)

MicroLED

Small Gadget & Transparent Display

~ 139.5%

Market Size CAGR (2019 – 2027)

Source: Yanoresearch, Apr 2019

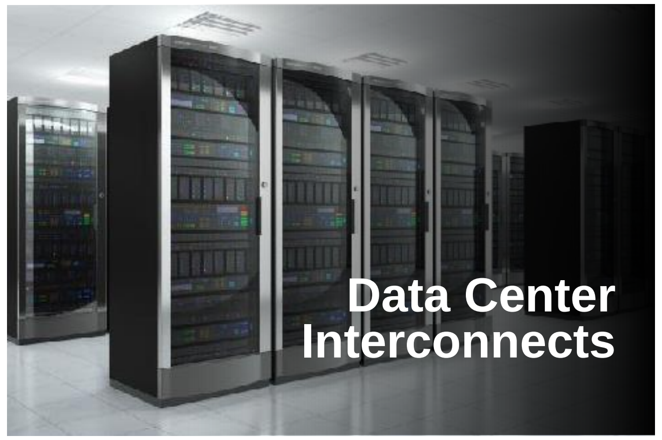
SOGO Department Store, Causeway Bay, Hong Kong

Booming Applications
In Photonics Market

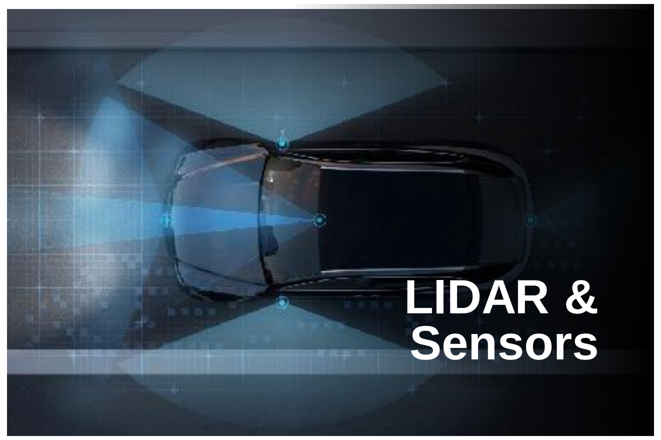
Si Photonics-based Transceivers
Revenue CAGR (2018 – 2024)

~ 44.5 %

Source: Yole, Apr 2019


Data Center Interconnects


Telecommunication


LIDAR & Sensors

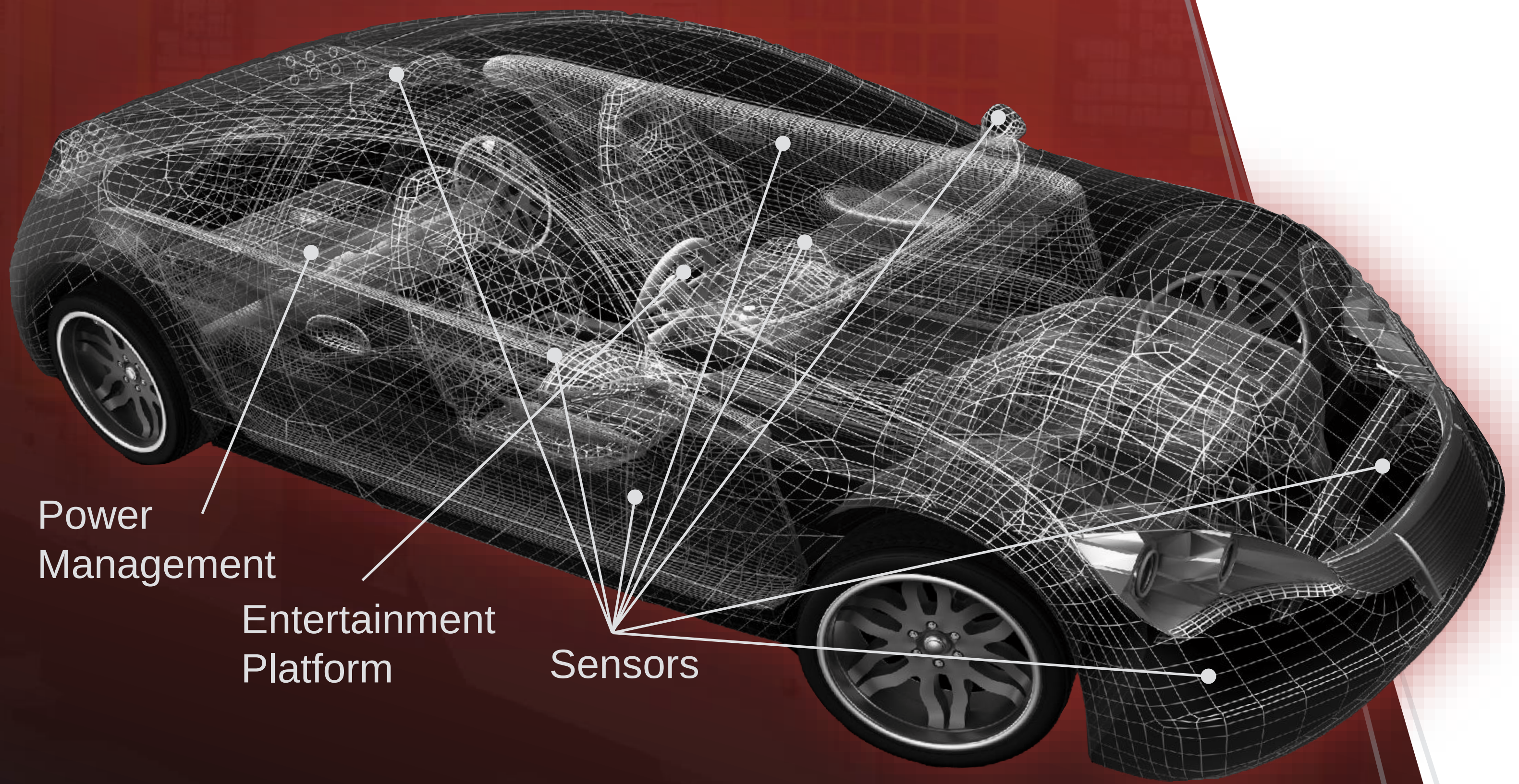

Defence & Aerospace


Intra-car Interconnects


Industrial Communication


Medical

How will 'Smart Cars' Drive ASMPT's Growth?



5G to Cloud Connectivity

Vehicle-to-X (Vehicle, Infrastructure, Network, Devices) communications

Enable "V2X" communications

Sensors

Image, LIDAR, Radar

The eyes and ears to gather information from the Road

Power Management

Battery Technology for thermal management

Thermal management (e.g. Ag Sintering) will play important role

Entertainment Platform

Television, Mobile devices, VR/AR, Gaming, etc.

Frees up driver's attention on road for entertainment

Outlook

Outlook

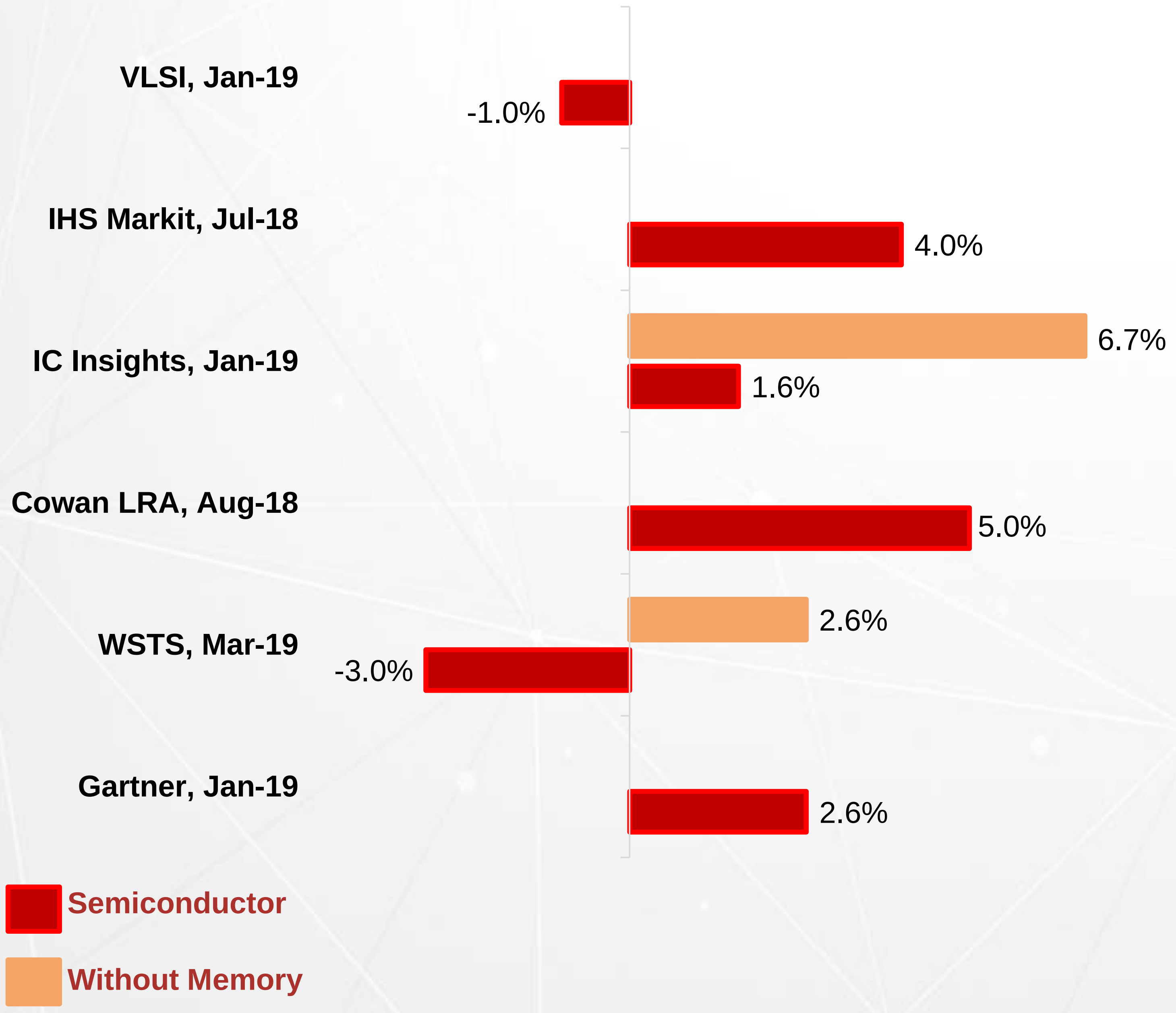
- **Q3 Group Billing**
  - Range of USD 550m to USD 600m
  - All three segments expected to deliver QoQ growth

- **Q3 Group Booking**
  - Expected ▼ QoQ due to seasonality
  - Back-end Equipment and Materials Likely ▲QoQ

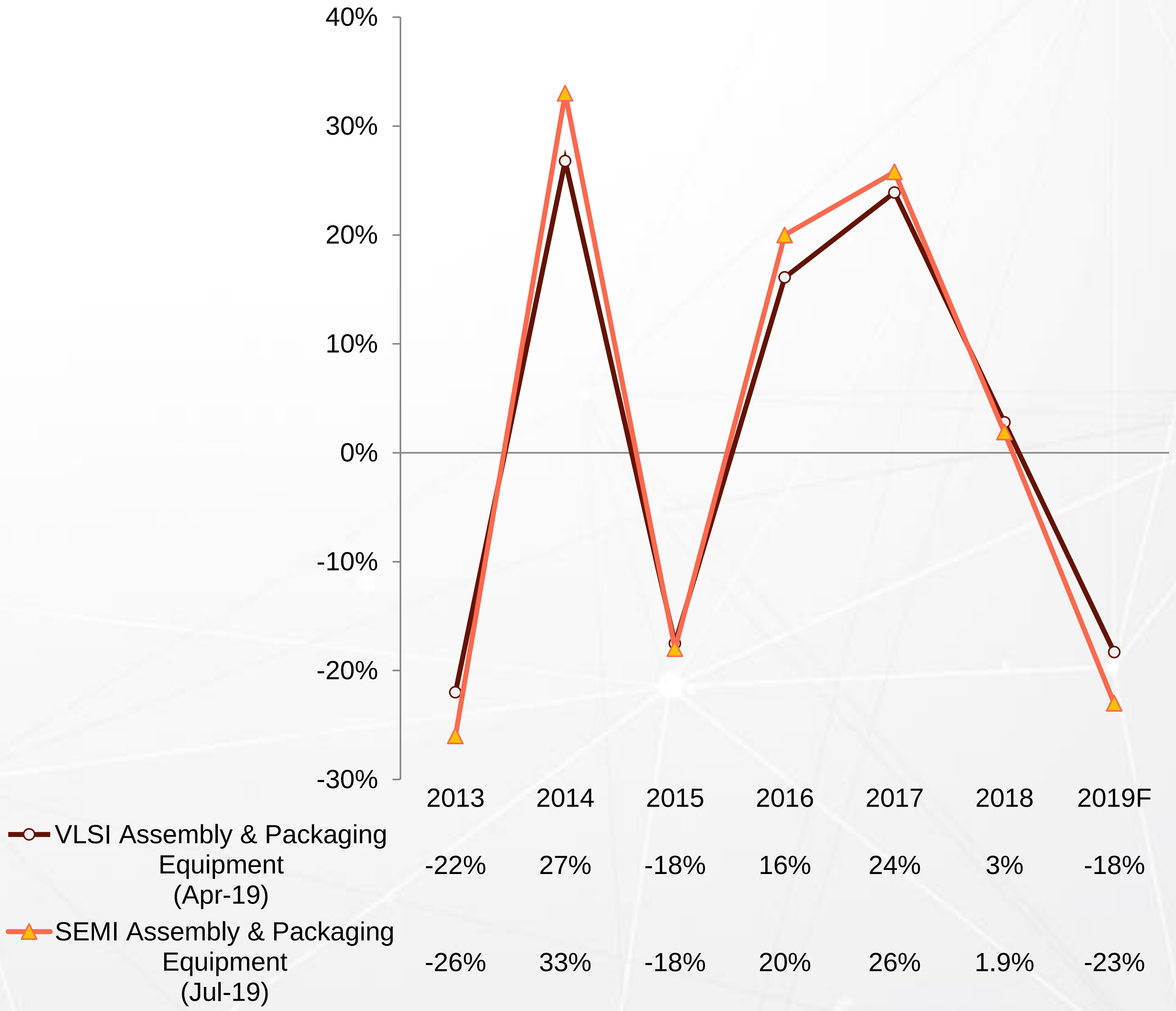
- **Q3 Group Gross Margin**
  - Expect slight improvement only, being constrained by geographical mix for SMT

Industry Growth Forecast (2019)

Semiconductor Industry



Forecast Global Assembly & Packaging Equipment Market



	2013	2014	2015	2016	2017	2018	2019F
VLSI Assembly & Packaging Equipment (Apr-19)	-22%	27%	-18%	16%	24%	3%	-18%
SEMI Assembly & Packaging Equipment (Jul-19)	-26%	33%	-18%	20%	26%	1.9%	-23%

Recent Awards & Recognition

Latest

- HKMA Quality Award (2019)
- It is conferred to ASMPT (Hong Kong Operations)
- Award for business excellence and quality achievement

- Technology Achievement Grand Award of HKIA 2017
- (for the third time)
- Federation of HK Industries

- Directors of the Year Awards 2017 (Collective Board)
- Directors of the Year Awards 2018 (Individual Director) Hong Kong Institute of Directors

- Hong Kong Outstanding Enterprises 2017-18

HK Economic Digest

- 2017 All Stars of the Semiconductor Industry

VLSI Research

SINGAPORE QUALITY CLASS

VLSIresearch's 2017 All Stars

Recent Awards & Recognition

Latest

VLSIresearch 10 BEST SUPPLIERS Customer Satisfaction 2019

10 BEST Segment	Rank	10 BEST CHIP MAKING EQUIPMENT SUPPLIERS OF 2019	Rating	Stars
LARGE	1	TERADYNE	9.44	★★★★★
	2	ADVANTEST	9.23	★★★★★
	3	ASML	9.18	★★★★★
	4	ASM Pacific Technology	8.79	★★★★½
	5	KLA Keep Looking Ahead	8.03	★★★★
	6	TEL TOKYO ELECTRON	7.83	★★★½
	7	KE KOKUSAI ELECTRIC	7.75	★★★½
	8	Lam RESEARCH	7.61	★★★½
	9	APPLIED MATERIALS	7.36	★★★
	10	Hitachi High-Tech	7.29	★★★
FOCUSED	1	Plasma-Therm	9.39	★★★★★
	2	AMEC	9.01	★★★★★
	3	FORMFACTOR	8.89	★★★★½
	4	EVG	8.51	★★★★½
	5	SPTS	7.46	★★★
	6	Cohu	7.09	★★★

Source: VLSIresearch css 10BEST v19.05

VLSIresearch THE BEST SUPPLIERS Customer Satisfaction 2019

WHAT THE BEST SUPPLIERS OF 2019 ARE BEST AT

ADVANTEST	Partnering Technical Leadership	AMEC	Partnering Commitment
APPLIED MATERIALS	Technical Leadership Software	ASM Pacific Technology	Partnering Trust in Supplier
ASML	Technical Leadership Partnering	Cohu	Trust in Supplier Partnering
EVG	Partnering Recommend Supplier	FORMFACTOR	Field Engineering Support Technical Leadership
Hitachi High-Tech	Uptime Product Performance	JEM JAPAN ELECTRONIC MATERIALS	Product Performance Support After Sales
KLA Keep Looking Ahead	Technical Leadership Application Support	KE KOKUSAI ELECTRIC	Partnering Support After Sales
Lam RESEARCH	Field Engineering Support Recommend Supplier	Nidec SV TCL	Commitment Support After Sales
Nikon	Partnering Trust in Supplier	Plasma-Therm	Recommend Supplier Support After Sales
SPTS An Orbotech Company	Recommend Supplier Field Engineering Support	TECHNOPROBE Wafer Probing Technologies	Commitment Partnering and Recommend Supplier
TERADYNE	Recommend Supplier Technical Leadership	TEL TOKYO ELECTRON	Technical Leadership Uptime

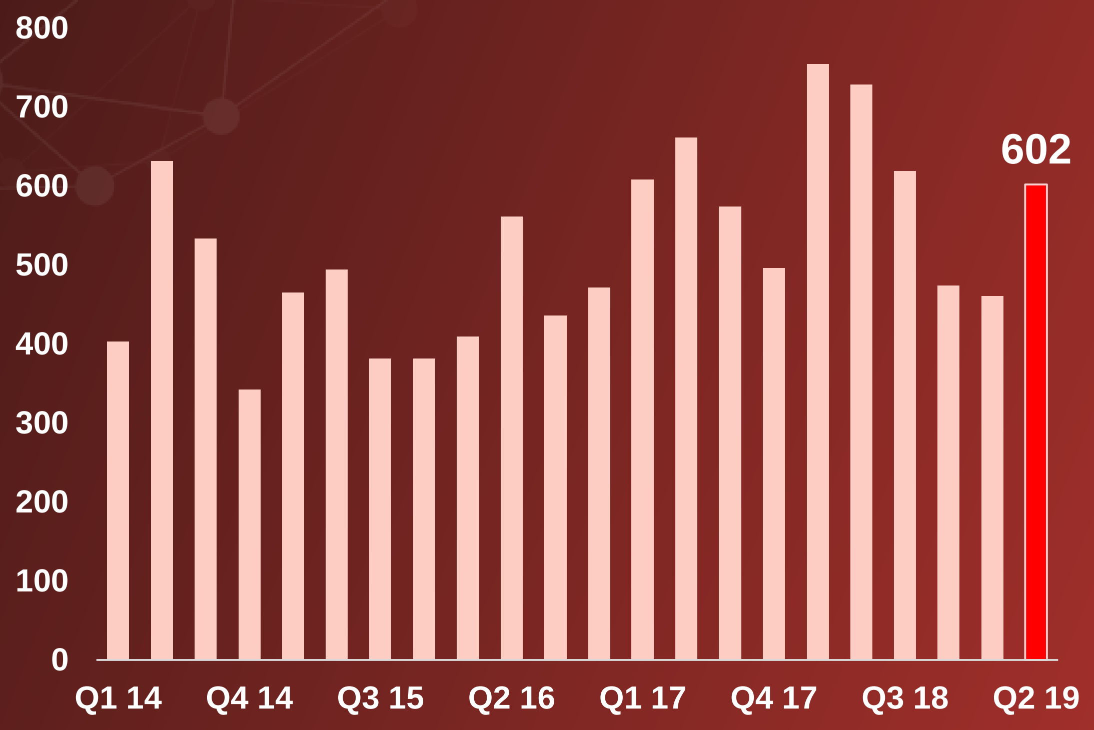
Source: VLSIresearch Doc: css_THEBEST_v19.05

2019 Q2/1H
Financial Highlights

ASM Pacific Technology

Q2/1H Group Bookings

QoQ Growth:
+30.8%



Quarterly Group Bookings
(US$ m)

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	USD	**YoY**	**QoQ**	**USD**	**YoY**	**HoH**
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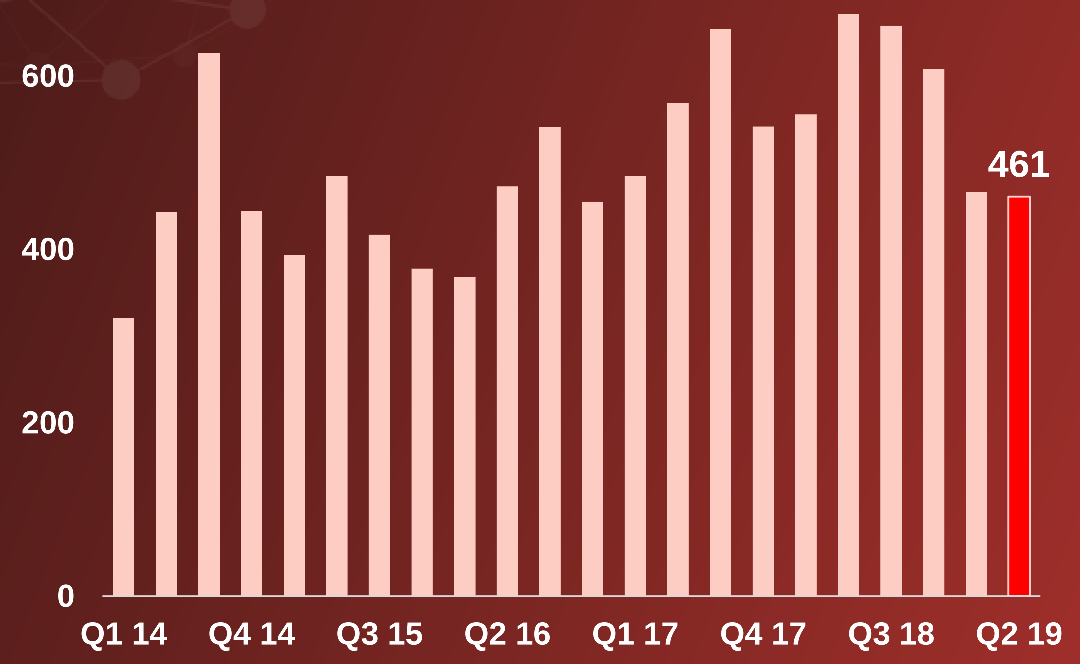
Back-end Equipment Segment	247m	-30.3%	+10.9%	470m	-38.3%	-5.4%
Materials Segment	59m	-23.7%	+28.5%	105m	-30.4%	+12.0%
SMT Solutions Segment	296m	-0.1%	+54.4%	487m	-14.5%	-3.0%

Q2/1H Group Billings

QoQ Growth:
-1.2%



Quarterly Group Billings (US$ m)

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	USD	**YoY**	**QoQ**	**USD**	**YoY**	**HoH**
Group	461m	-31.4%	-1.2%	927m	-24.4%	-26.8%
Back-end Equipment Segment	206m	-43.2%	+5.2%	402m	-37.6%	-25.0%
Materials Segment	57m	-25.0%	+13.2%	108m	-28.6%	-21.3%
SMT Solutions Segment	198m	-15.1%	-10.3%	418m	-3.0%	-29.7%

Q2/1H Group Financial Highlights

	Q2 2019	*Q2 2019*		*1H 2019*	*1H 2019*	
		YoY	**QoQ**		**YoY**	**HoH**
Bookings (USD)	602m	-17.3%	+30.8%	1,062m	-28.3%	-2.8%
Revenue (USD)	461m	-31.4%	-1.2%	927m	-24.4%	-26.8%
Gross Margin	35.7%	-751 bps	+185 bps	34.8%	-588 bps	-67 bps
EBIT (HKD)	221m	-81.0%	-16.3%	484m	-74.5%	-60.4%
Net Profit (HKD)	70m	-91.0%	-35.3%	178m	-87.2%	-78.1%
Net Profit Margin	1.9%	-1,290 bps	-102 bps	2.5%	-1,208 bps	-575 bps

Q2/1H Segment Results – Back-End Equipment Business

	Q2 2019			*1H 2019*		
	Amount	**YoY**	**QoQ**	**Amount**	**YoY**	**HoH**
Bookings (USD)	247m	-30.3%	+10.9%	470m	-38.3%	-5.4%
Billings (USD)	206m	-43.2%	+5.2%	402m	-37.6%	-25.0%
Gross Margin	40.8%	-1,003 bps	+153 bps	40.0%	-794 bps	-331 bps
Segment Profit (HKD)	67m	-92.3%	+25.9%	119m	-91.2%	-81.5%
Segment Profit Margin	4.1%	-2,616 bps	+68 bps	3.8%	-2,319 bps	-1,160 bps

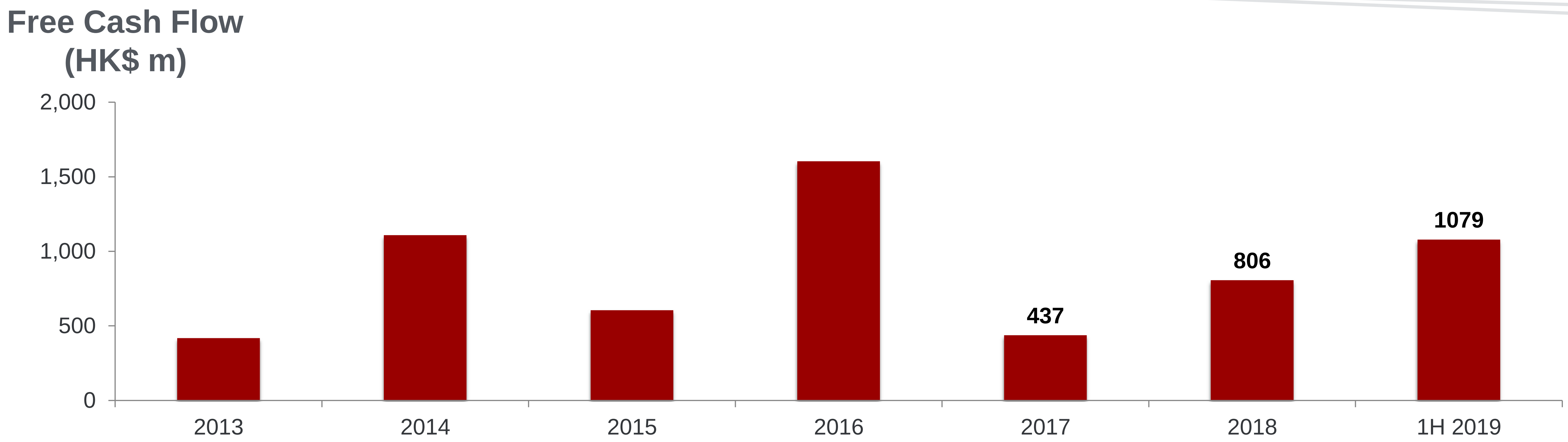
Q2/1H Segment Results – Materials Business

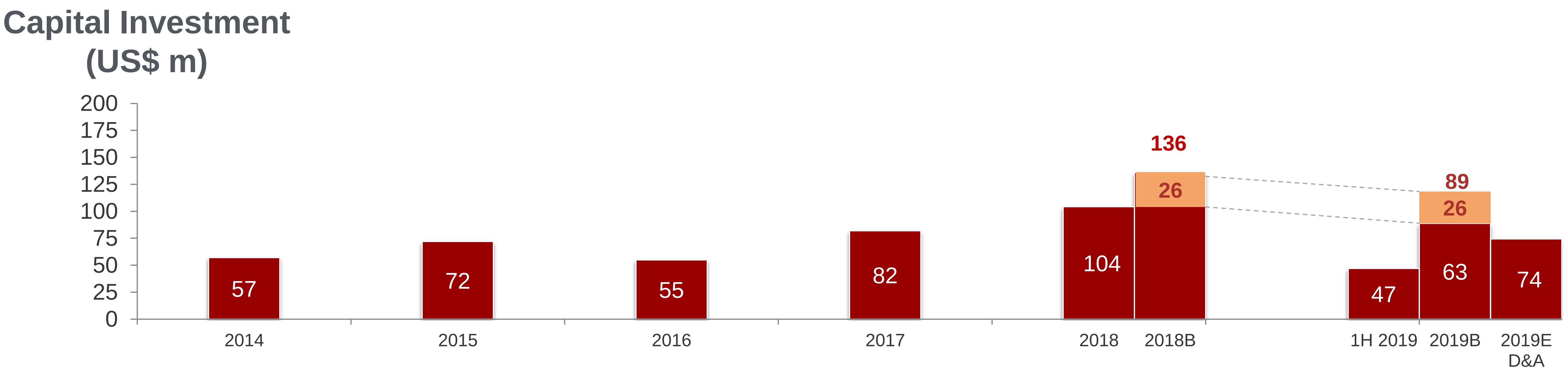
	Q2 2019			*1H 2019*		
	Amount	**YoY**	**QoQ**	**Amount**	**YoY**	**HoH**
Bookings (USD)	59m	-23.7%	+28.5%	105m	-30.4%	+12.0%
Billings (USD)	57m	-25.0%	+13.2%	108m	-28.6%	-21.3%
Gross Margin	11.4%	-182 bps	+103 bps	11.0%	-224 bps	+144 bps
Segment Profit (HKD)	20m	-55.9%	+88.9%	30m	-64.0%	+2.1%
Segment Profit Margin	4.4%	-310 bps	+177 bps	3.6%	-353 bps	+82 bps

Q2/1H Segment Results – SMT Solutions Business

	Q2 2019			*1H 2019*		
	Amount	**YoY**	**QoQ**	**Amount**	**YoY**	**HoH**
Bookings (USD)	296m	-0.1%	+54.4%	487m	-14.5%	-3.0%
Billings (USD)	198m	-15.1%	-10.3%	418m	-3.0%	-29.7%
Gross Margin	37.5%	-376 bps	+301 bps	35.9%	-347 bps	+156 bps
Segment Profit (HKD)	209m	-38.5%	-2.1%	422m	-21.8%	-42.5%
Segment Profit Margin	13.5%	-512 bps	+112 bps	12.9%	-311 bps	-288 bps

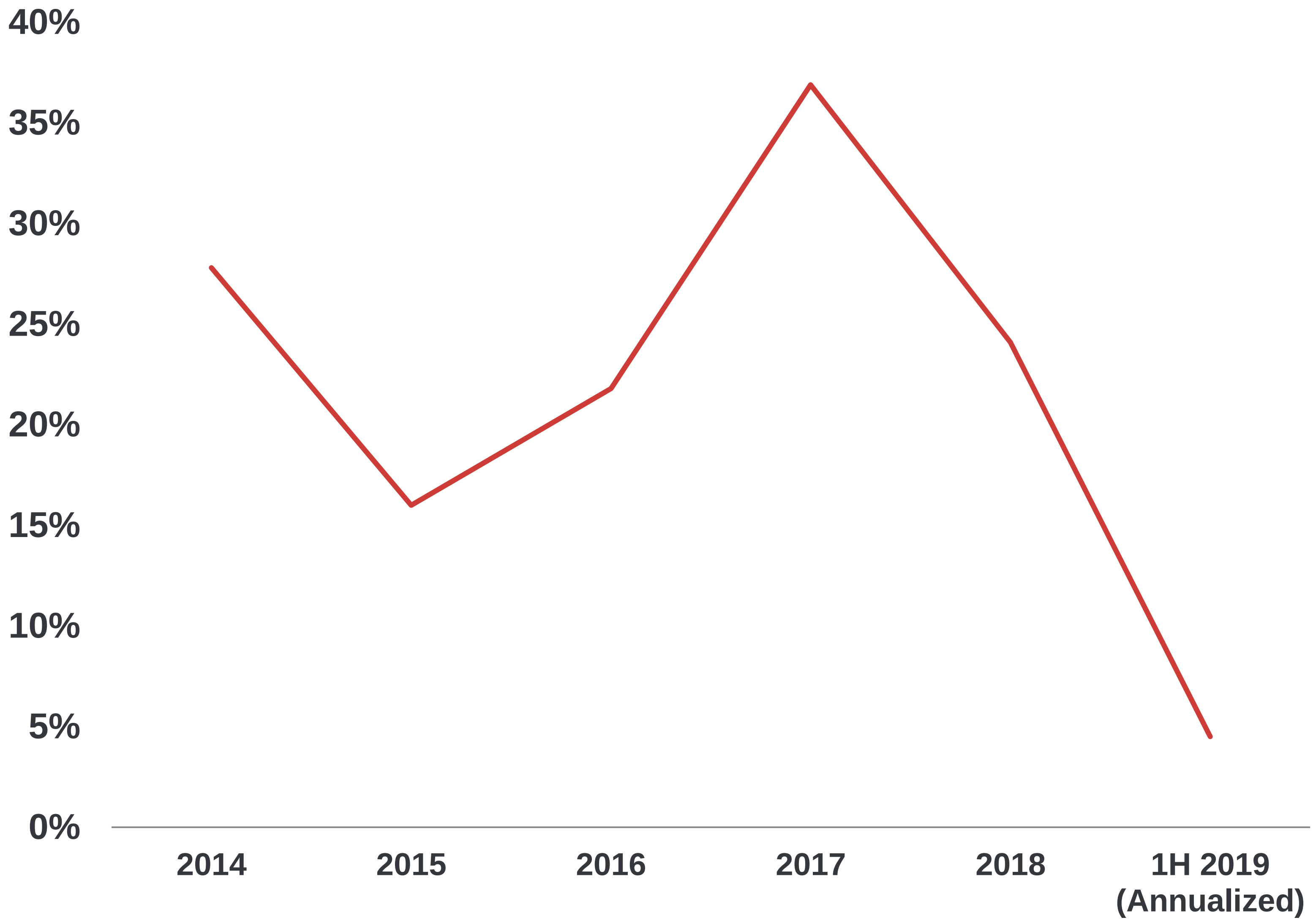
Free Cash Flow and Capital Investment



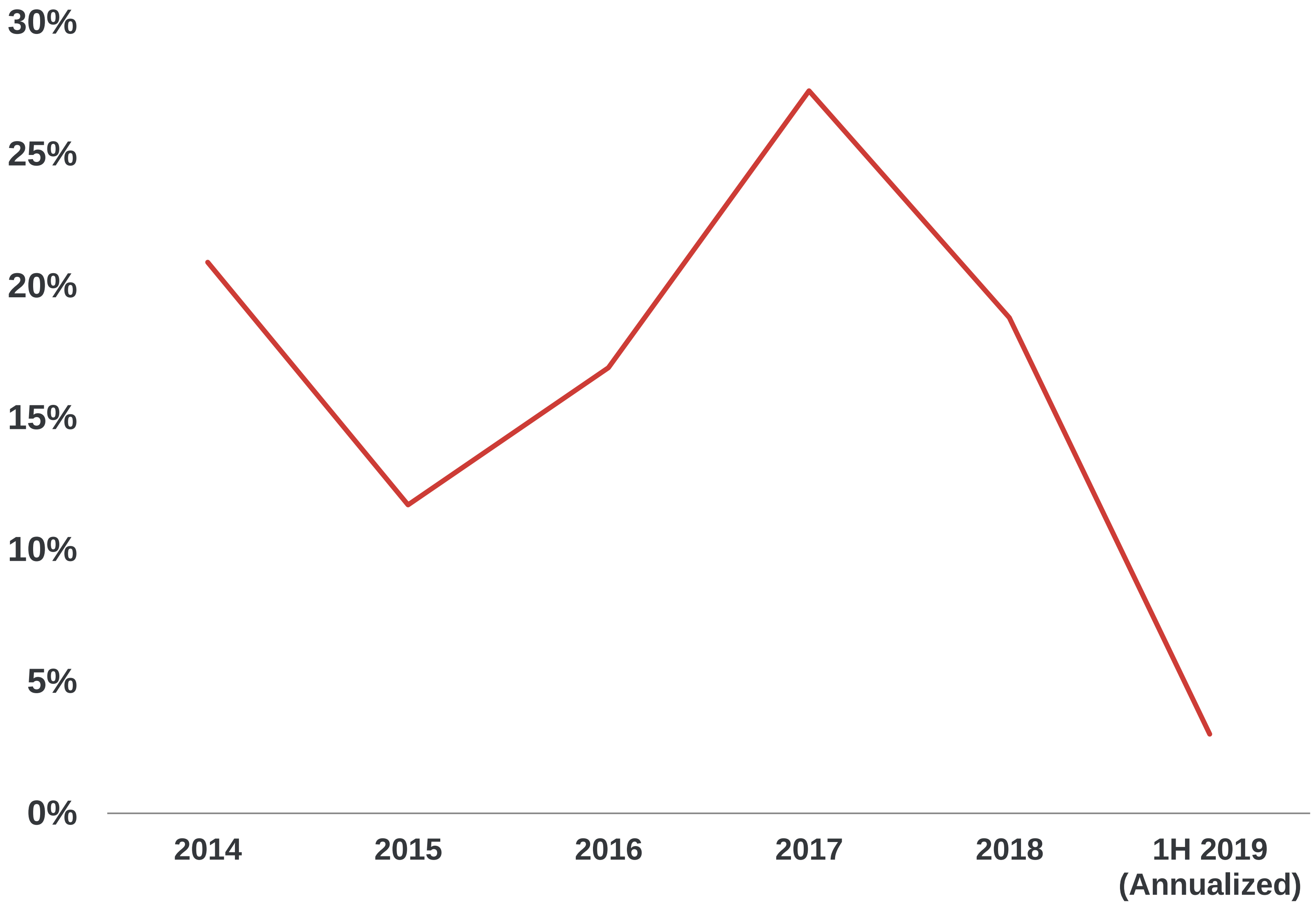


Financial Metrics

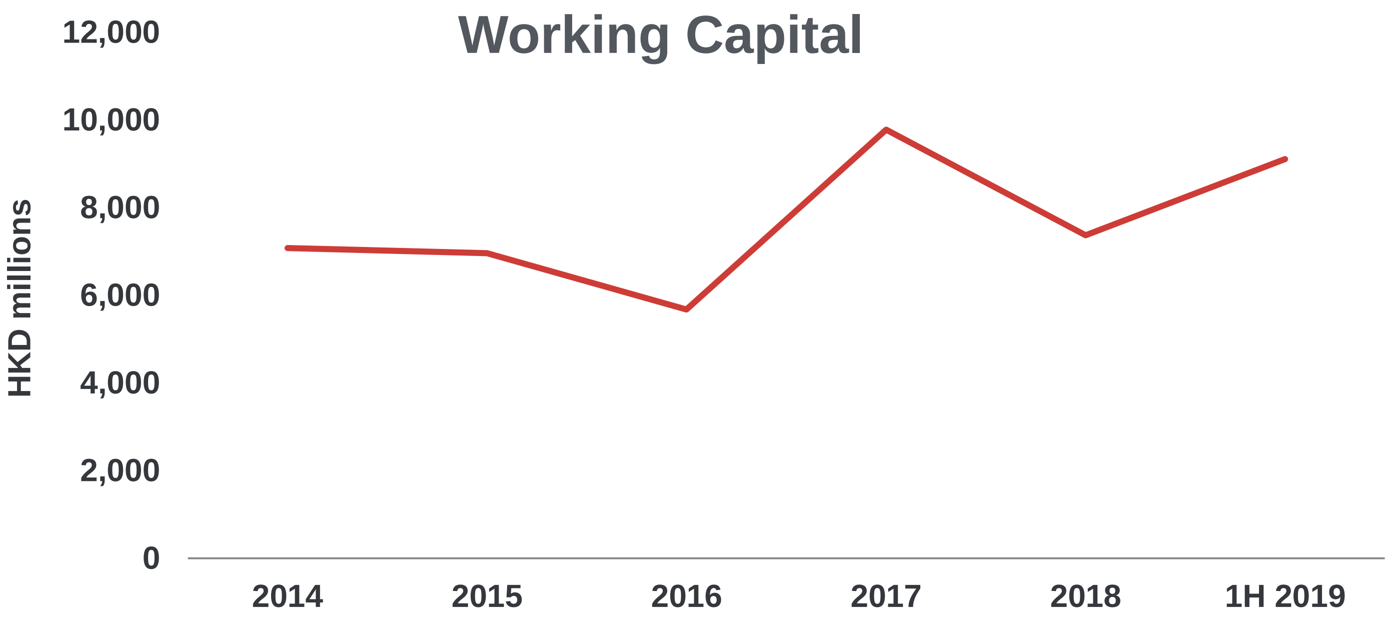
Return on Invested Capital (ROIC)

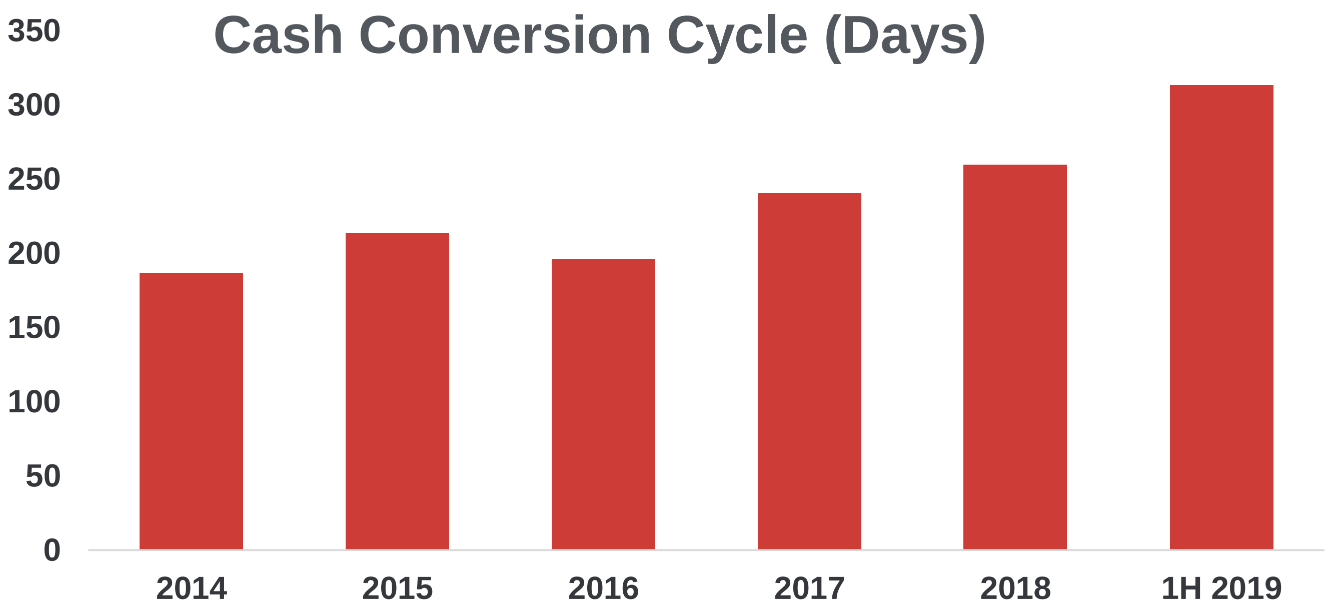


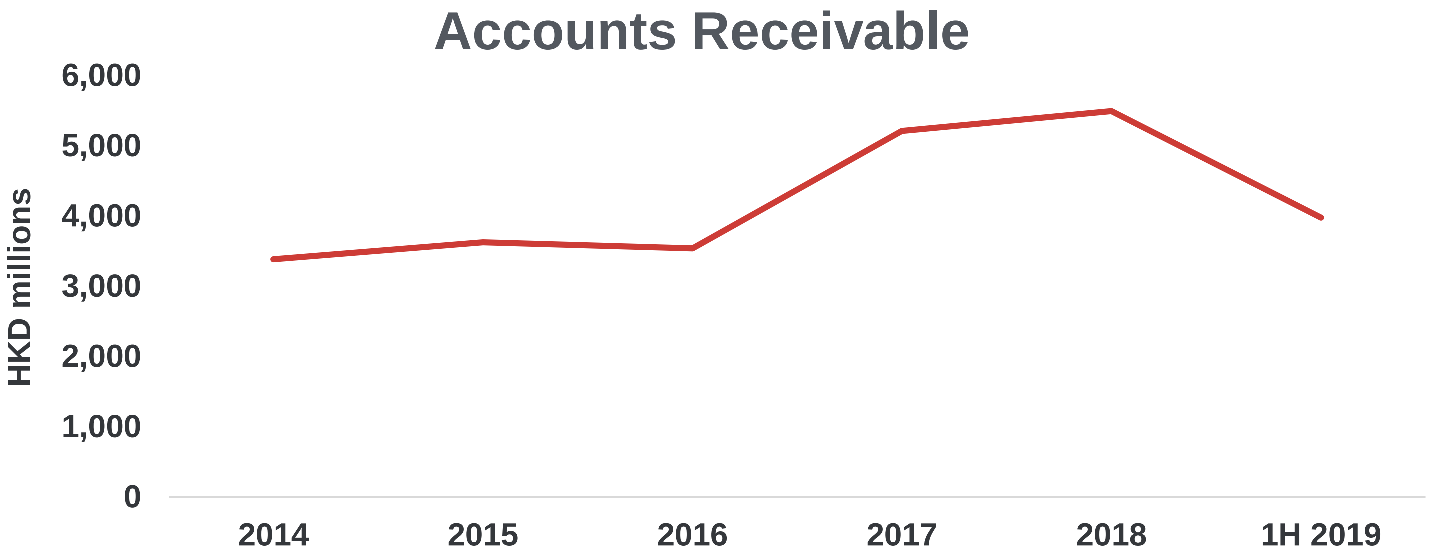
Return on Equity (ROE)

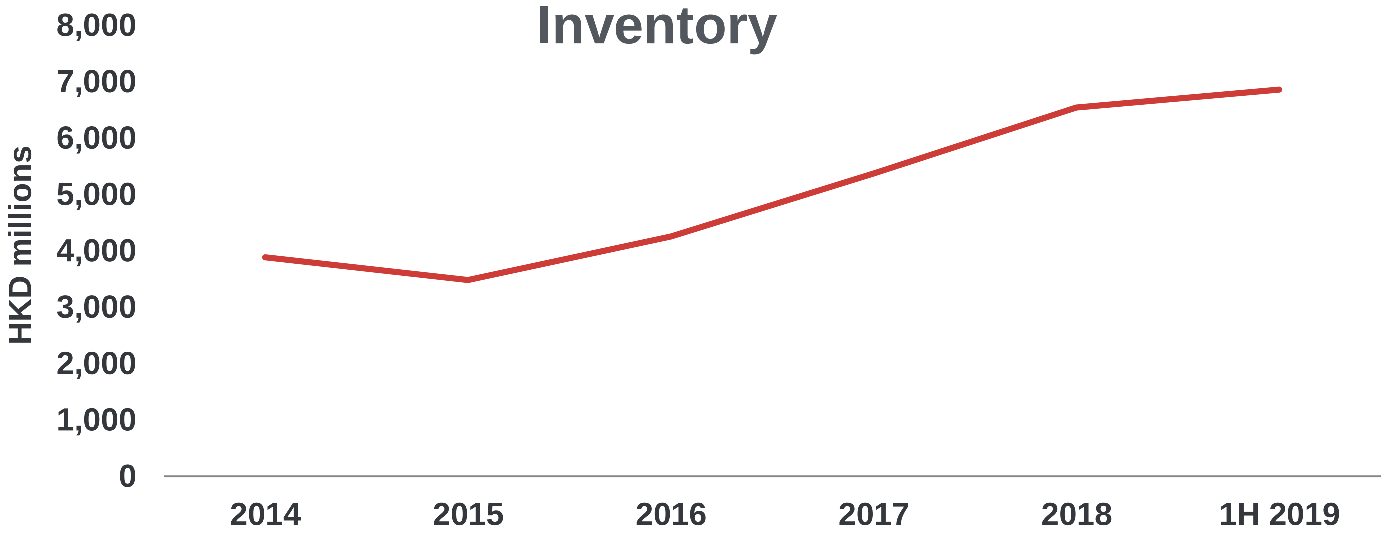


Working Capital Management









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