Innodisk Corporation (Symbol: 5289)
2019 Institutional Investors Conference

Randy Chien, Chairman
April 16, 2019

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Disclaimer

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This file and the financial information and forecast information are based on information obtained by the company from internal and external sources. The actual operating results and financial conditions of the company may differ from these predictive sets of information due to various uncontrollable factors.

The viewpoints in this file reflects the company's opinion on the future by the current date. If there are any changes or adjustment in the future, the company is not responsible for notifying the reader or updating the content.

About Innodisk

Innodisk is a service-driven provider of industrial embedded flash and DRAM modules, embedded peripherals products and technologies, with a focus on the enterprise, industrial, networking and aerospace applications.

Agenda

- Company Profile and Overview

- Product and Technology

- Market trends and strategies

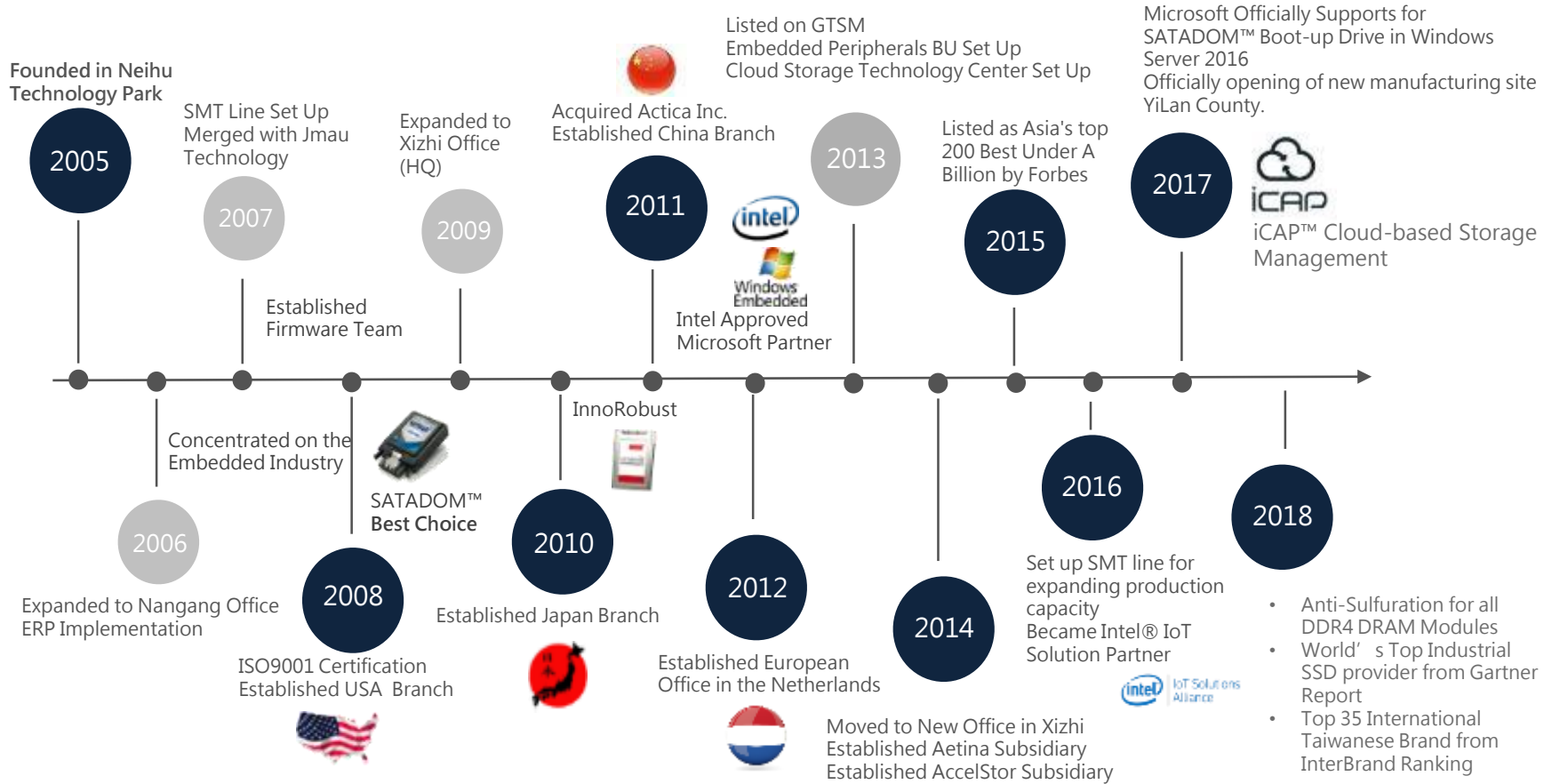- Financial information

- Q & A

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Company Profile and Overview

Established 2005

Capital NTD $782M (2018)

Revenue NTD $7,866M (2018)

Patents 80

Capacity 1,200K/M (2018)

Main products:

- Industrial SSD
- Industrial DRAM
- Embedded peripheral

Milestones

Founded in Neihu Technology Park

2005

SMT Line Set Up
Merged with Jmau Technology

2007

Expanded to Xizhi Office (HQ)

2009

Acquired Actica Inc.
Established China Branch

2011

Listed on GTSM
Embedded Peripherals BU Set Up
Cloud Storage Technology Center Set Up

2013

Listed as Asia's top 200 Best Under A Billion by Forbes

2015

Microsoft Officially Supports for SATADOM™ Boot-up Drive in Windows Server 2016
Officially opening of new manufacturing site YiLan County.

2017

iCAP™ Cloud-based Storage Management

Established Firmware Team

Intel Approved
Microsoft Partner

InnoRobust

Concentrated on the Embedded Industry

SATADOM™
Best Choice

2016

Set up SMT line for expanding production capacity
Became Intel® IoT Solution Partner

2018

2006

2010

Expanded to Nangang Office
ERP Implementation

2008

Established Japan Branch

2012

2014

ISO9001 Certification
Established USA Branch

Established European Office in the Netherlands

Moved to New Office in Xizhi
Established Aetina Subsidiary
Established AccelStor Subsidiary

- Anti-Sulfuration for all DDR4 DRAM Modules
- World's Top Industrial SSD provider from Gartner Report
- Top 35 International Taiwanese Brand from InterBrand Ranking

Worldwide Presence

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Eindhoven

Beijing

Tokyo

Fremont

New Jersey

Chengdu

Shanghai

Austin, TX

Shenzhen

Headquarter, Taipei

F/W Center, Hsinchu

RD & Production center, Yilan

9 Branch offices

644 Employees
(Taiwan 548, Overseas 96)

R&D and Production center, Yi-lan

Lot size	Floor area	2018 Capacity	Maximum capacity
10,000 m^2	**12,000** m^2	**450K** SMT x 3	**1,800K** SMT x 12

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Landscape

Overview of Intelligent Solution for Manufacturing

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智能化

資訊化

自動化

Dara Analysis Platform

i-發單系統

i-Cap

智慧排程系統

智能測試管理系統

War room
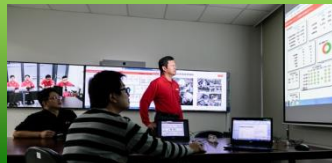
Monitoring on Mobile devices

Manufacturing Operation Management
製造營運管理

生產管理	警報管理	品質管理	物料系統	目標達成率
生產週期	生產不良	良率平台	FIFO	出貨量
量產統計	RMA統計	RMA系統	物料管理	即時監控
生產排程	溫溼度管理	CAR矯正		

自動化系統整合

通訊協定整合

機台數據採集

辨識系統

物流系統　　　　　　自動化生產線　　　　　　空調系統　　　空壓系統

Image Recognition

Face Recogition

Aouo plate recognition

Disaster Recovery

Hyper-Convergence Solution
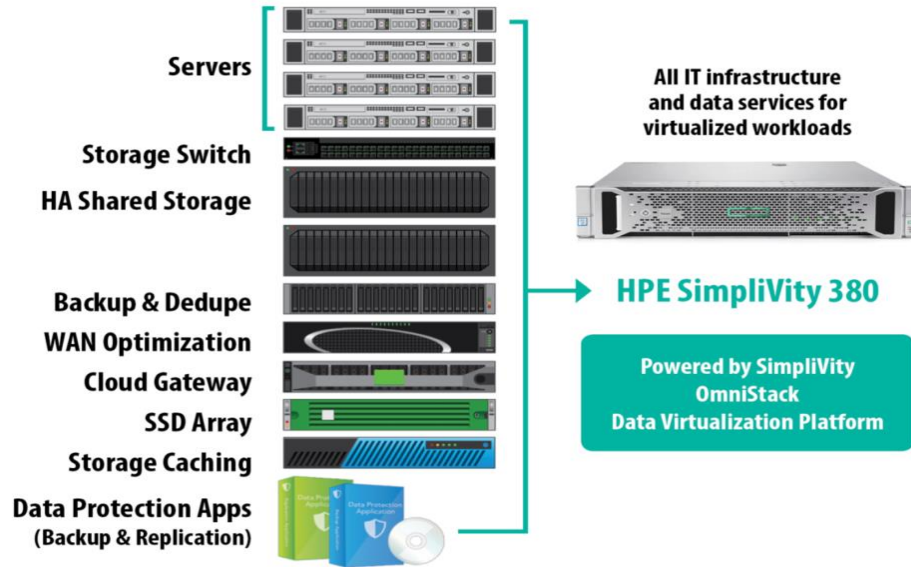
Disaster Recovery (DR)
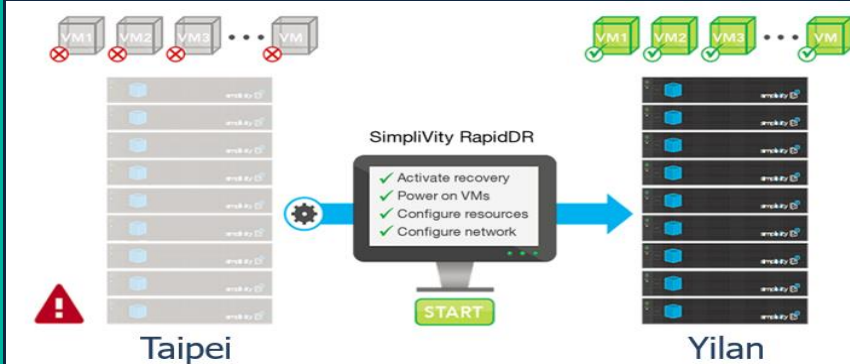
Target :
1. **Disaster Recovery and Backup Site**
2. **Double Center and Double Active**

RTO (災難復原時間) < 15－30 mins
RPO (備份的頻率) < 1 － 2 hours

Product and Technology

Corporate advantages

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Technical Aptitude by Design

Our advantage lies in our portfolio of hardware, software and firmware technology and how we arrange these basic building blocks into new works of innovation.

Deeply Rooted in the Market

The awareness of the pit falls and opportunities of vertical markets allow us to view the full picture when crafting the optimal solution.
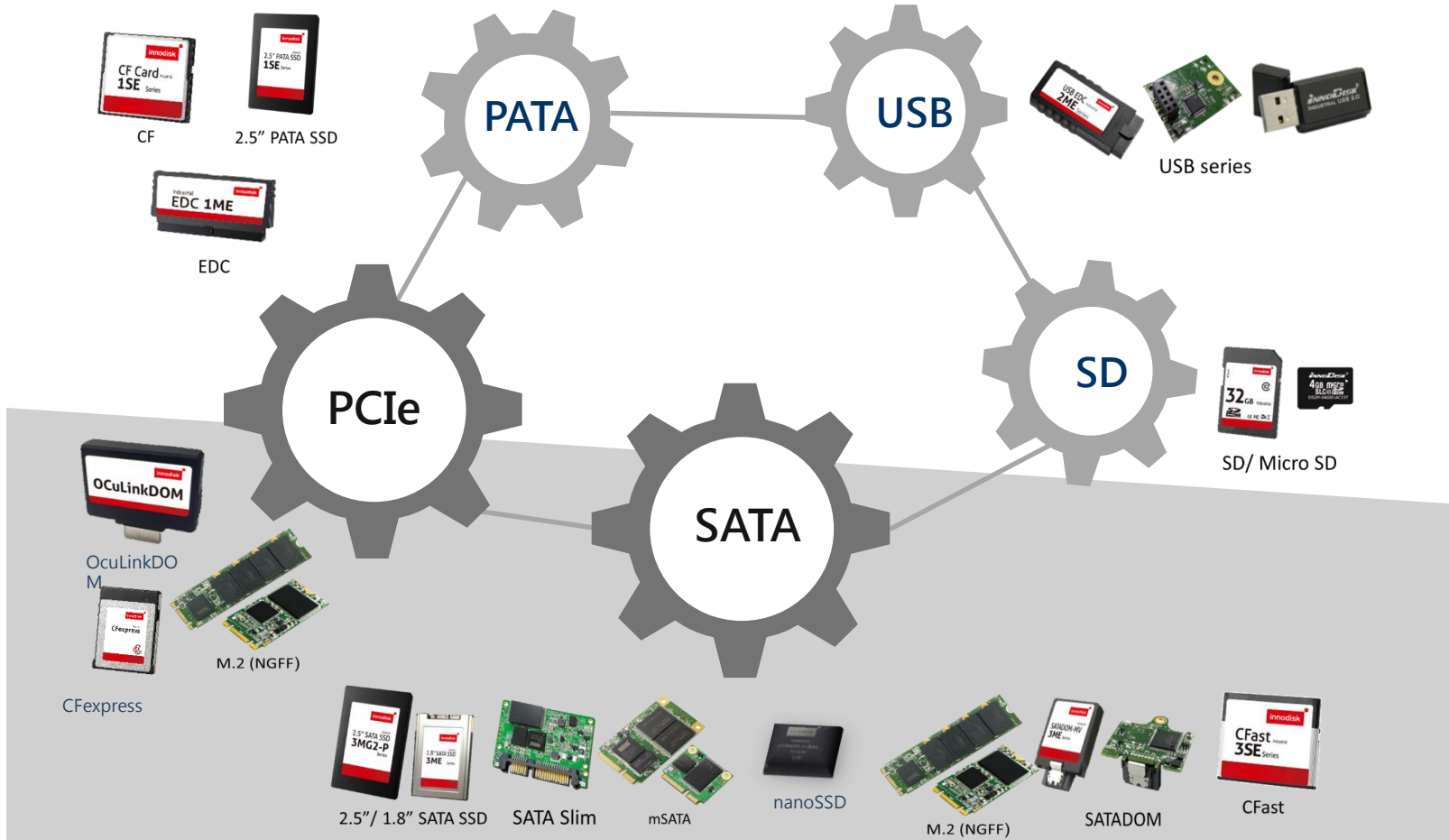
We Are in It Together

To reach the optimal solution, working together with our partner from day one is paramount. The best possible outcome can be managed by developing solutions jointly.

Applications and Technologies

Cloud Platforms

HPC · Server · Surveillance

Vertical Markets

Gaming · Medical · Networking

Mission-Critical

Aerospace and Defense

Embedded

IPC · Automation

Semi-Industrial

POS · Digital Signage · Kiosk

80 Patents

Feature Sets:
Focused on the challenges of specific vertical markets

Security:
Ensuring total security for mission critical applications

Expansion:
Flexible integration of various expansion cards

Rugged:
A wide set of technologies that enhances durability

Longevity:
Technologies that expand the lifespan of your device

Stability:
Keeping your system running in unstable surroundings

Flash – Complete Storage Solutions

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PATA — CF, 2.5" PATA SSD, EDC

USB — USB series

PCIe — OcuLinkDOM, CFexpress, M.2 (NGFF)

SD — SD/ Micro SD

SATA — 2.5"/ 1.8" SATA SSD, SATA Slim, mSATA, nanoSSD, M.2 (NGFF), SATADOM, CFast

Industrial Flash – Era of 3D NAND

Complete product line

Multi-mechanism on data protection

Leading wide temp. products

Industrial-grade solution

Unique FW technology

Support iCAP – remote management
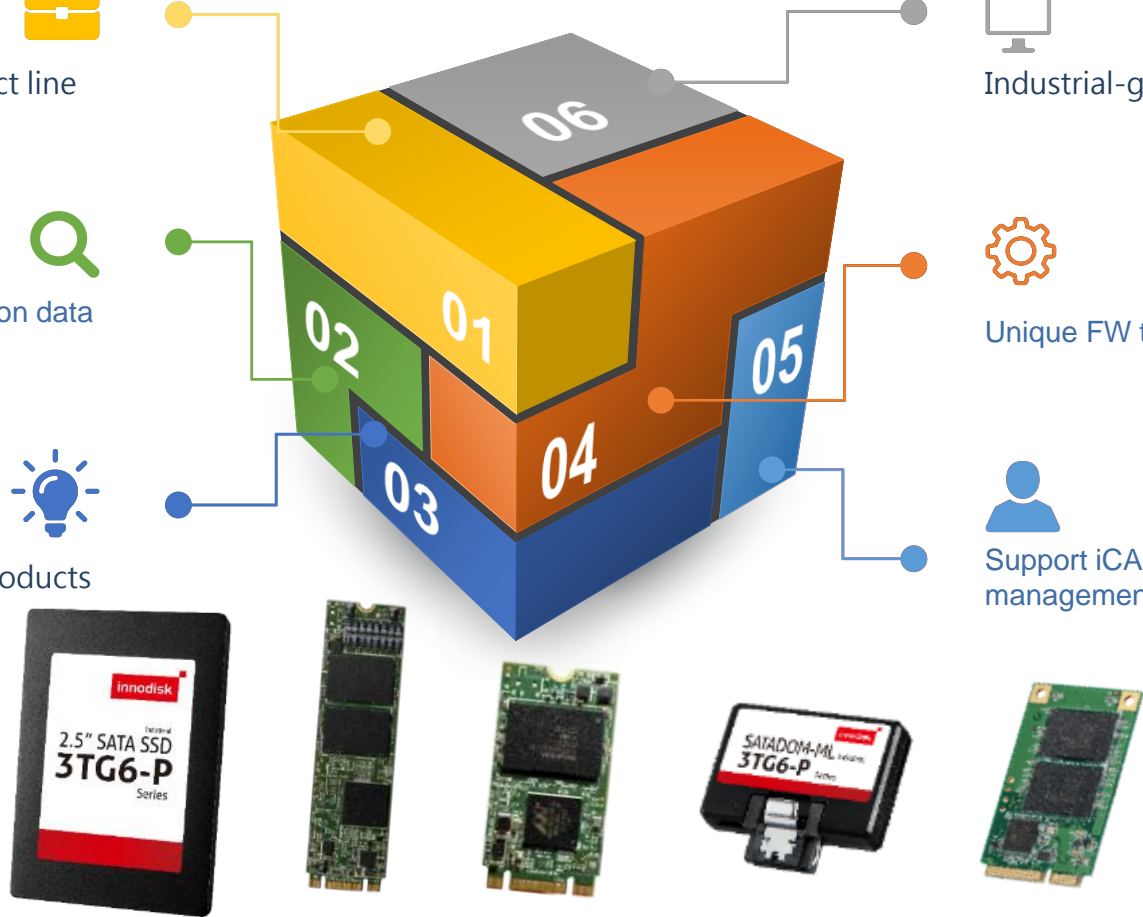
Industrial Flash – NVMe product line

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M.2
A rapidly growing form factor. Follow by SATA I/F, offering NVMe solution to the industrial and embedded market

03

CFexpress
Promoted by industry leaders as an excellent contender to fulfill the requirements of automation and gaming applications

02

OCuLinkDOM™
Industry first OCuLink interface drive – the next generation of server boot drives

01

Industrial DRAM – Purpose-built Memory Modules

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More Reliable
- Unbuffered UDIMM /SODIMM/VLP

EMBEDDED

Rugged

SERVER DRAM

WIDE TEMPERATURE

More Tailored
- XR-DIMM.

More Robust
- WT UDIMM/SODIMM/VLP
- WT Registered/ECC DIMM

More Stringent
- ECC UDIMM/SODIMM/VLP
- Registered DIMM
- Mini DIMM
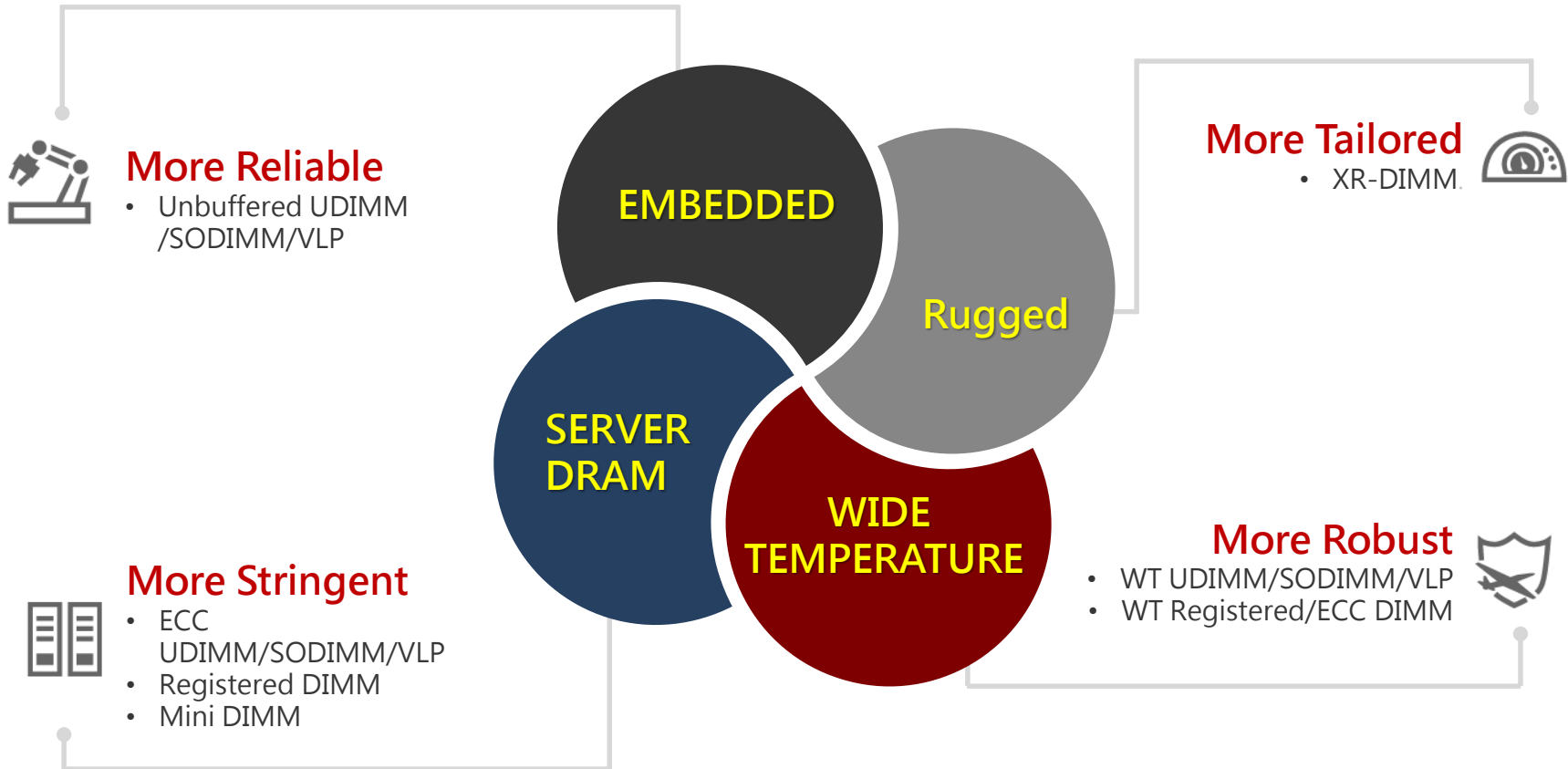
2019 DRAM Highlight

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AIoT DRAM

Diversified Product Portfolio
For Data Computing Needs

DDR4 32GB

Large Capacity
Embrace Big Data Era

DDR4 3200

Low Latency
High Capacity
Connect Emerging AI Market

2019 DRAM Highlight- AIoT DRAM

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Complete Product Line
For Fully Integration

5G, Server,
Edge Application
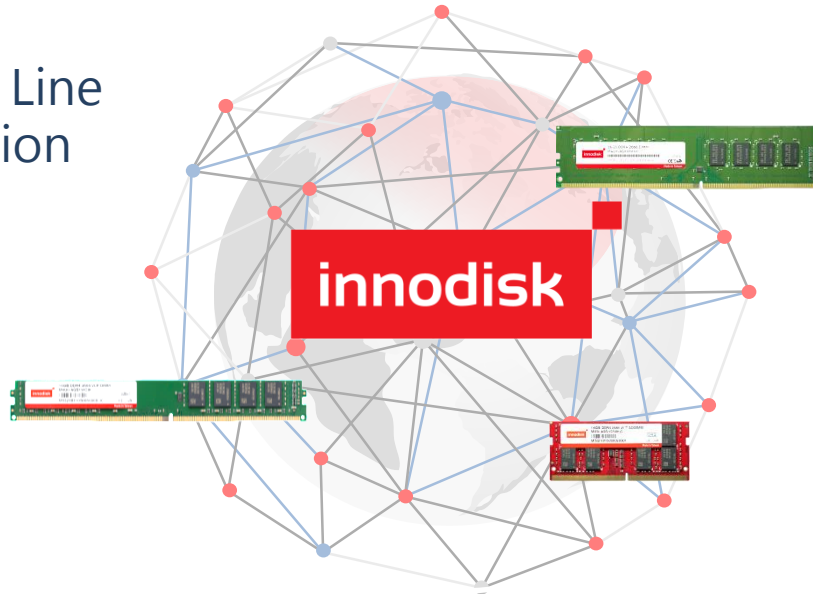
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Anti-sulfuration to ensure
harsh environment operation

Low Latency, High Capacity
For New Era

Communication

Display

Disk Array

Storage

RAID
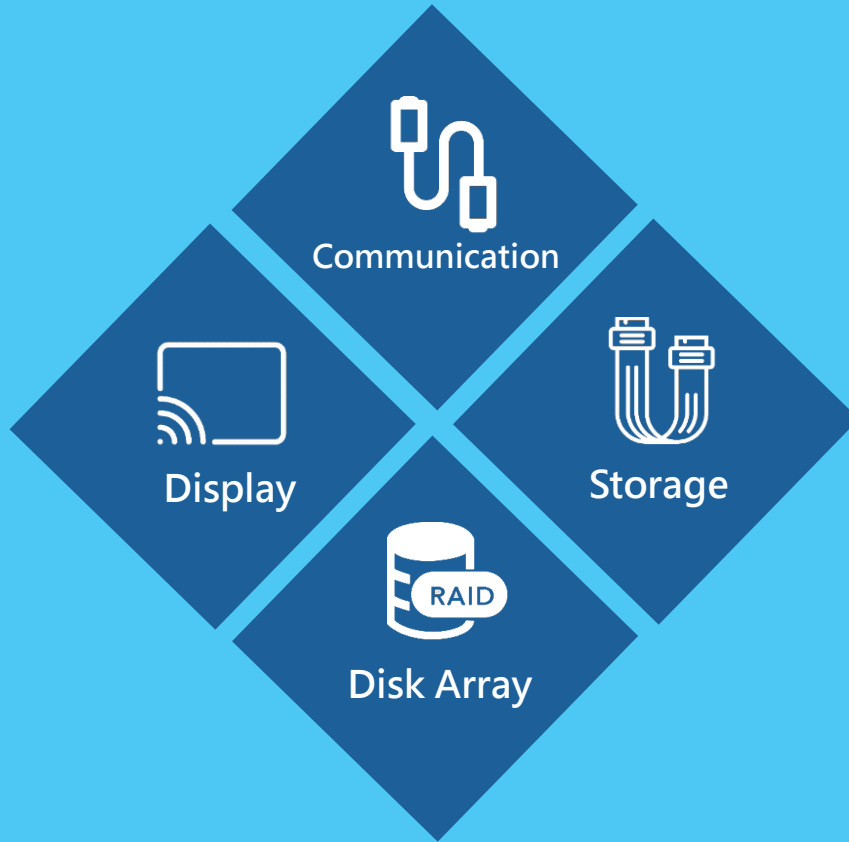
Industrial I/O Expansion Card

Compatibility | Scalable | Customize

Innodisk provide the most complete expansion card to fulfill customer need, we offer various standard PCIe、M.2 and mPCIe.

Complete Expansion Card Solution

Communication
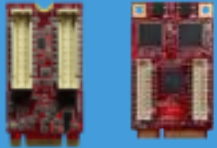
CANBus \ PoE \ LAN \ Serial \ DI/DO

Storage

SATA \ USB

Display
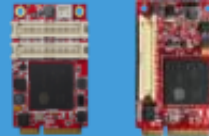
VGA \ HDMI DVI \ LVDS

Disk Array

RAID 1 RAID 0

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Design Principles

In the industrial application environment. Innodisk use the most stringent test condition and industrial grade component to design our product, and also integration software with expansion card. so that can achieve 100% compatible stability in use.

Industrial Component

Safety Certification

Wide temperature

Integration Embedded OS

Support various driver

Complete API support

Building the AIoT Platform – Data Matters!

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Data Collection

Data Optimization

Data Delivery

Data Analysis

Data Recover

Business Decision

In the future, all device have to collect, transmit, analysis and make a decision from data. Data is the most important issue while building AIoT Platform
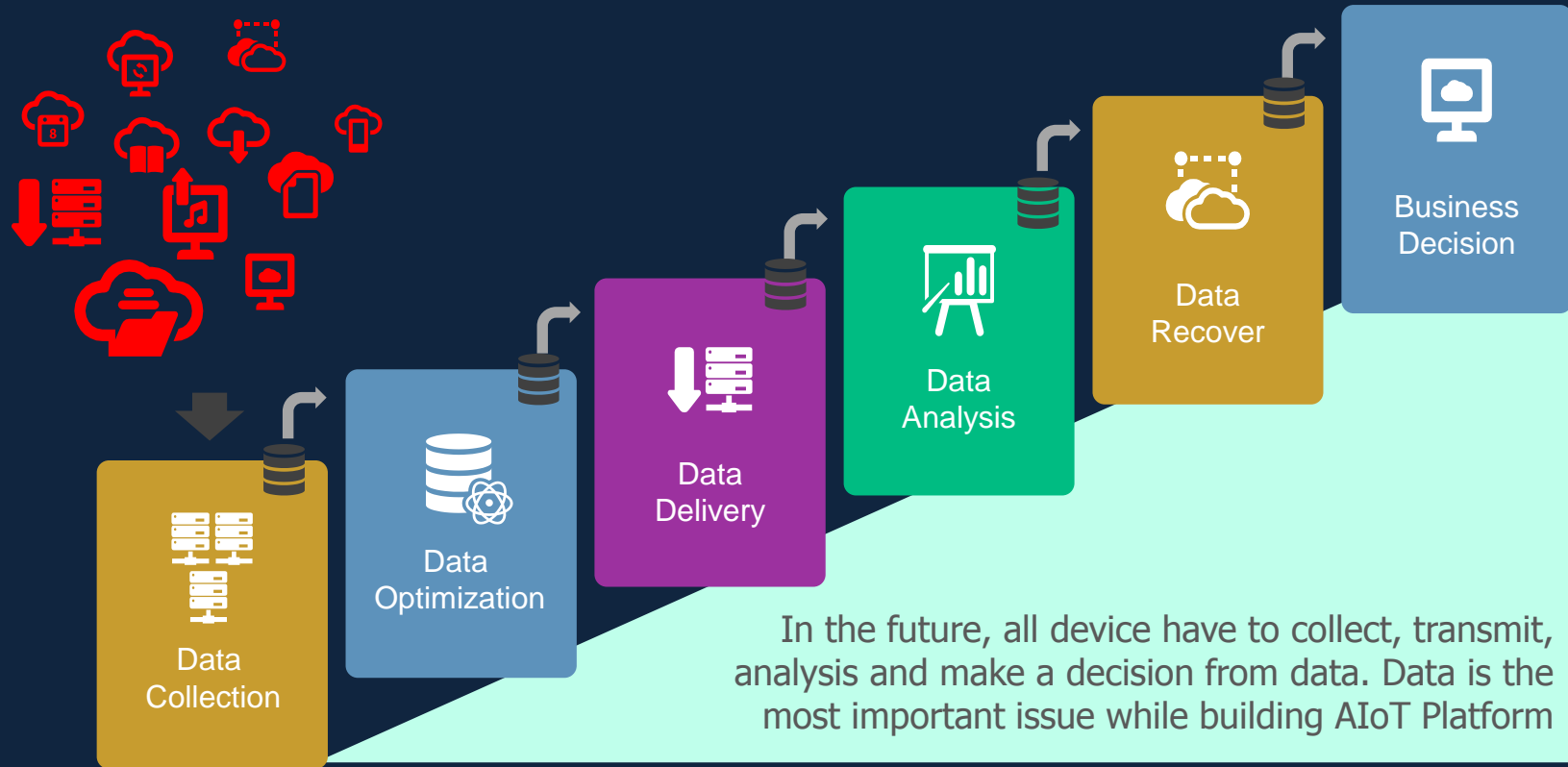
Software Core Technology in Edge

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Data Security

The TCG Opal thought the hardware encryption to enhanced data security, avoid the loss of data cause by storage loss.

iOpal

Real Time Monitor

Instantly monitors the lifespan and durability of storage components with alerts

iSmart

Disaster Recover

When the edge device is unstable, quickly restore to the factory mode.

iCover

Cloud Management Platform

⌂iCAP

Data Collection
Collect data through management platforms and generate heterogeneous data from various Edge devices

Integration external I/O
In order to fulfill all of AIOT application, edge device require connection variety of external I/O sensor, which can be quickly integrated through the management platform

Dynamic Dashboard
Provides instrument panel intuitive design and dynamic adjustment of user interface to improve user experience

Ensuring Safety through Customization
Tailor-made mSATA SSD for MRI and NMR Devices

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OVERVIEW

Non-magnetic components are required if system or devices are placed directly into the magnetic field of MRI or NMR systems. Safety becomes a major concern because where extreme magnetism is present, even a small amount of magnetic response can cause catastrophic failures and injuries within this application.
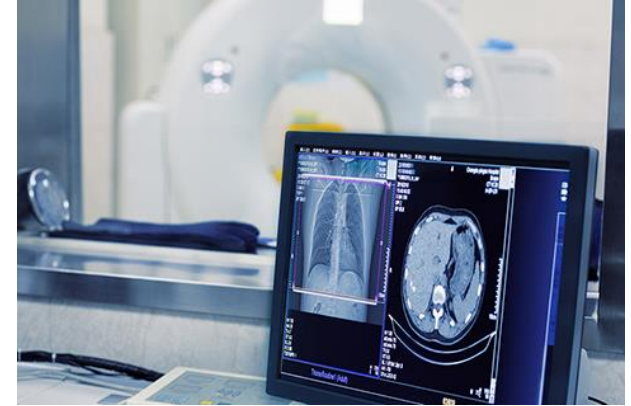
CHALLENGES

- Non-magnetic components in PCBA design
- Maintaining device stability while using alternative parts
- Monitoring of asset condition and predictive maintenance

SOLUTIONS

- Redesign SSD schematic and removal of magnetic components
- Manufactured under strict quality process
- iSMART feature to monitor device health

RESULTS

Even with the difficult conditions laid out by this application, the customer achieved their design goals with a tailor-made SSD design that ensured smooth device operation and an efficient monitoring scheme.

A More Reliable Commute
Monitoring and Wi-Fi Systems for Railroad Application

OVERVIEW

A European rail operator was looking to integrate a new monitoring and Wi-Fi system onboard, with the goal of enhancing customer experience and safety, as well as strengthening connectivity.

EUROPE

CHALLENGES

- Limited and constricted space
- Large capacity requirements
- High number of communication nodes
- Wide temperature variations and electromagnetic interference

SOLUTIONS

- RAID with dual SSD for high storage capacities and increased fault tolerance
- Tested and certified to withstand surge and HiPOT occurrences
- Customized Linux software and data recovery system

RESULTS

With the implementation of this monitoring and Wi-Fi system, the operator can ensure customer satisfaction as well as a stable and reliable connectivity. The operator is fully equipped to handle unforeseen situations and can ensure the highest degree of onboard safety.

Clearing the Way for a Safe Delivery
Transportation of Hazardous Materials and Fleet Management

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OVERVIEW

A Chinese truck manufacturer approached Innodisk for a data recording solution for vehicles transporting hazardous materials. They were in need of a way to reliably store data as well as a way to connect to the onboard CANbus system to gather data from operations. This data would then be sent real-time to a centralized location for fleet management.

CHALLENGES

- The customer needed to monitor and handle issues in a timely manner
- Secure data recording of the whole journey from start to destination
- The system had to be able to handle route planning and management
- Harsh operating conditions

SOLUTIONS

- Modules providing fast and rugged network performance
- Secure and fast data writing speeds
- Modules designed and tested for extreme thermal conditions
- All modules designed to withstand tough mechanical stress

RESULTS

Innodisk's solution allowed for effective planning, and ensured correct driver behavior. The solution helped streamline the transport process and increase productivity, saving costs for the operator, and more importantly, lowering the associated risks of transporting hazardous materials, creating an overall safer environment for the handling of hazardous materials.

Facilitating Rapid Data Exchange
High-Performance Memory for Network Probe

OVERVIEW

Innodisk's 2666MT/s Very Low-profile (VLP) DRAM provided a perfect solution for a Chinese manufacturer of network probes. These network probes handle large amount of data, so reliable memory speed and capacity are imperative.

CHINA
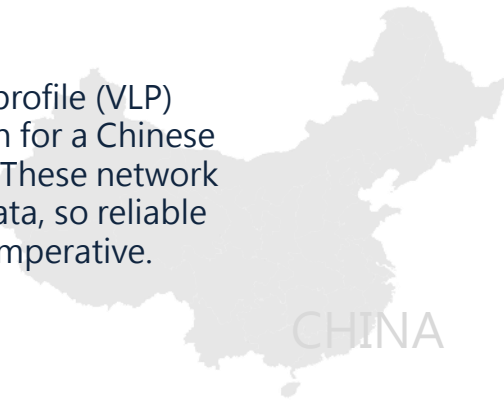
CHALLENGES

- Network probes require both high-speed and high-capacity memory
- Low error tolerance
- Heat dispersal issues due to the small-sized 1U cabinet

SOLUTIONS

- 16GB 2666MT/s DDR4 provides both the needed speed and capacity
- Implemented Error Correcting Code (ECC) ensures minimal errors
- The low profile of the UDIMM VLP ensures optimized airflow and efficient heat dispersal

RESULTS

With Innodisk 16GB 2666MT/s UDIMM VLP DIMM installed, the customer found that all requirements had been fully met. This solution ensured that that the network probe could efficiently handle large data streams with no performance issues and efficient heat dispersal.

Eliminating Frame Loss
Tailor-made Storage for High-level Surveillance Systems

OVERVIEW

Modern surveillance systems handle a lot more than just recording. As computational power grows, smart solutions such as facial recognition and data analytics require fast speeds and optimized firmware. An American partner of Innodisk was struggling with frame loss during data recording, and turned to Innodisk for help. After some deliberation, Innodisk could identify the problem and propose a viable solution.

USA

CHALLENGES

- The old surveillance setup exhibited regular frame loss during recording
- The customer needed assistance in locating the source of the frame loss
- A new customized solution was needed to secure stable video recording

SOLUTIONS

- Innodisk identified the problem to be interruptions from firmware operations
- The firmware was optimized and altered according to the requirements, effectively solving the frame loss issues

RESULTS

Innodisk helped the customer identify and rectify the original problem. Through innovative firmware optimization, the customer could deliver a reliable, high-level surveillance solution without worrying about loss of recording quality.
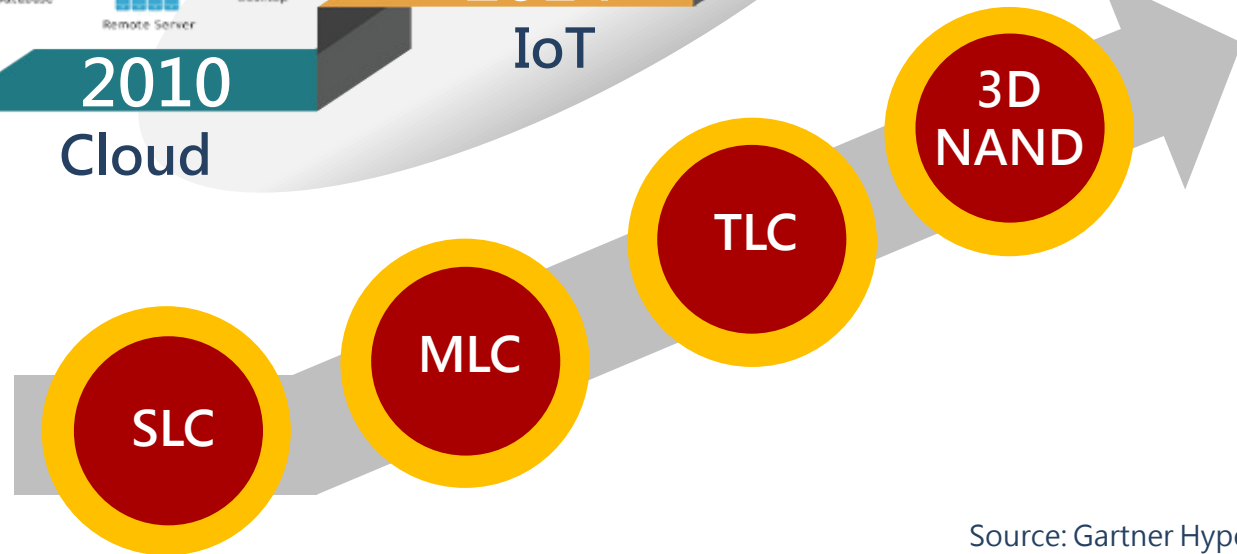
Market trends and strategies

Market Trends and Strategies

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Application Technology
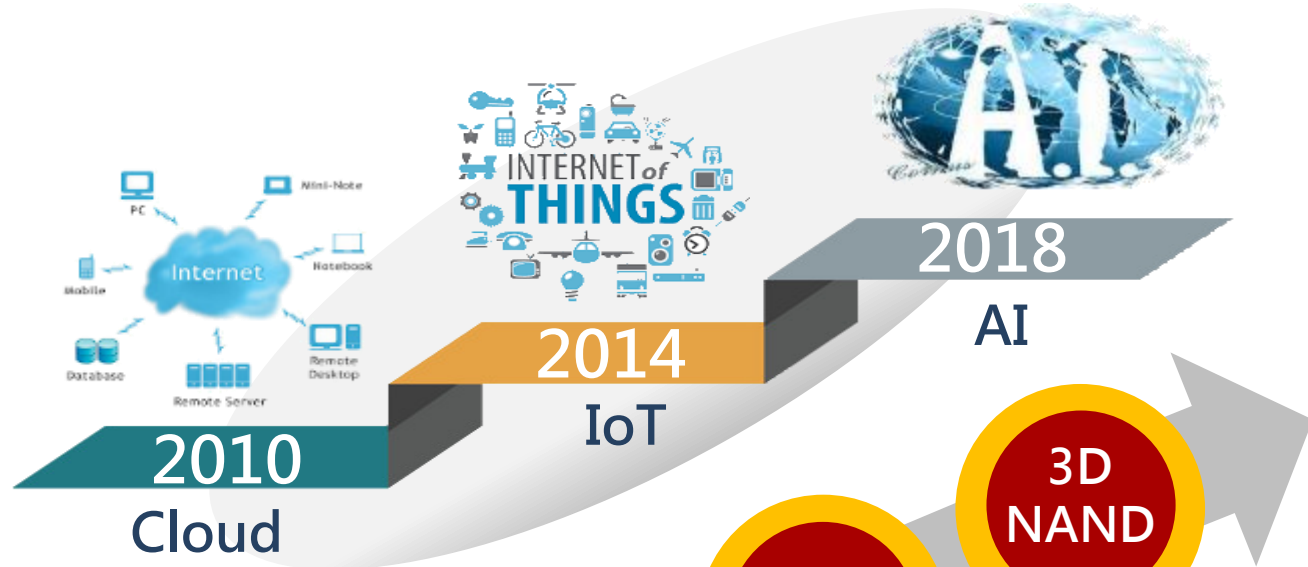
2010 Cloud

2014 IoT

2018 AI

Storage Technology

SLC

MLC

TLC

3D NAND

Source: Gartner Hype Cycle
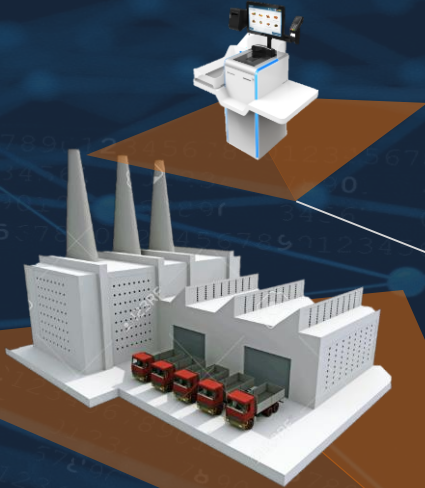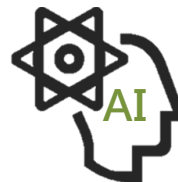
Smart City

Vertical Market+AIoT = Smart Application

Smart Medical :

Smart Surveillance :

Smart Factory :

Smart Retail :

Smart Transportation :

Value up Customers

Absolute Service

Integration: HW, SW, FW, iCAP
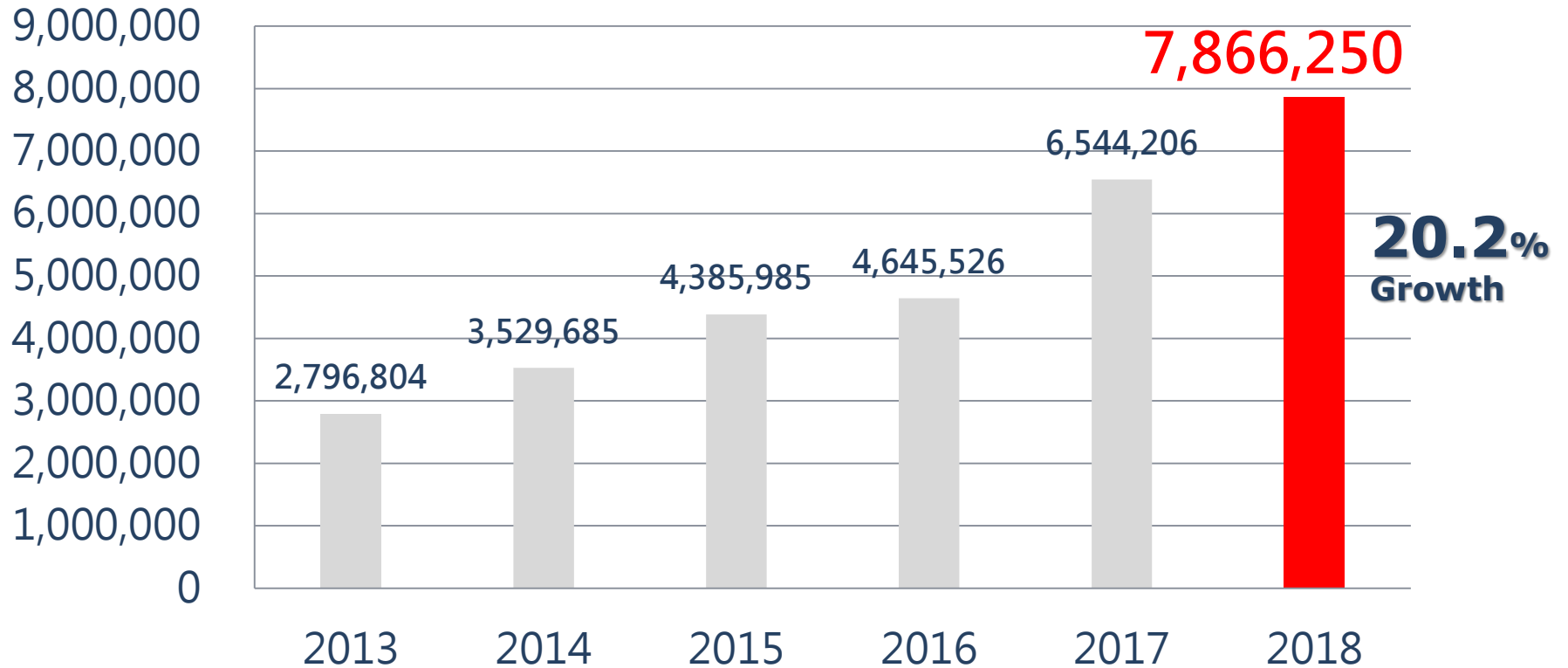
AIot Solutions: Surveillance, Transportation, Medical, Production, Retail
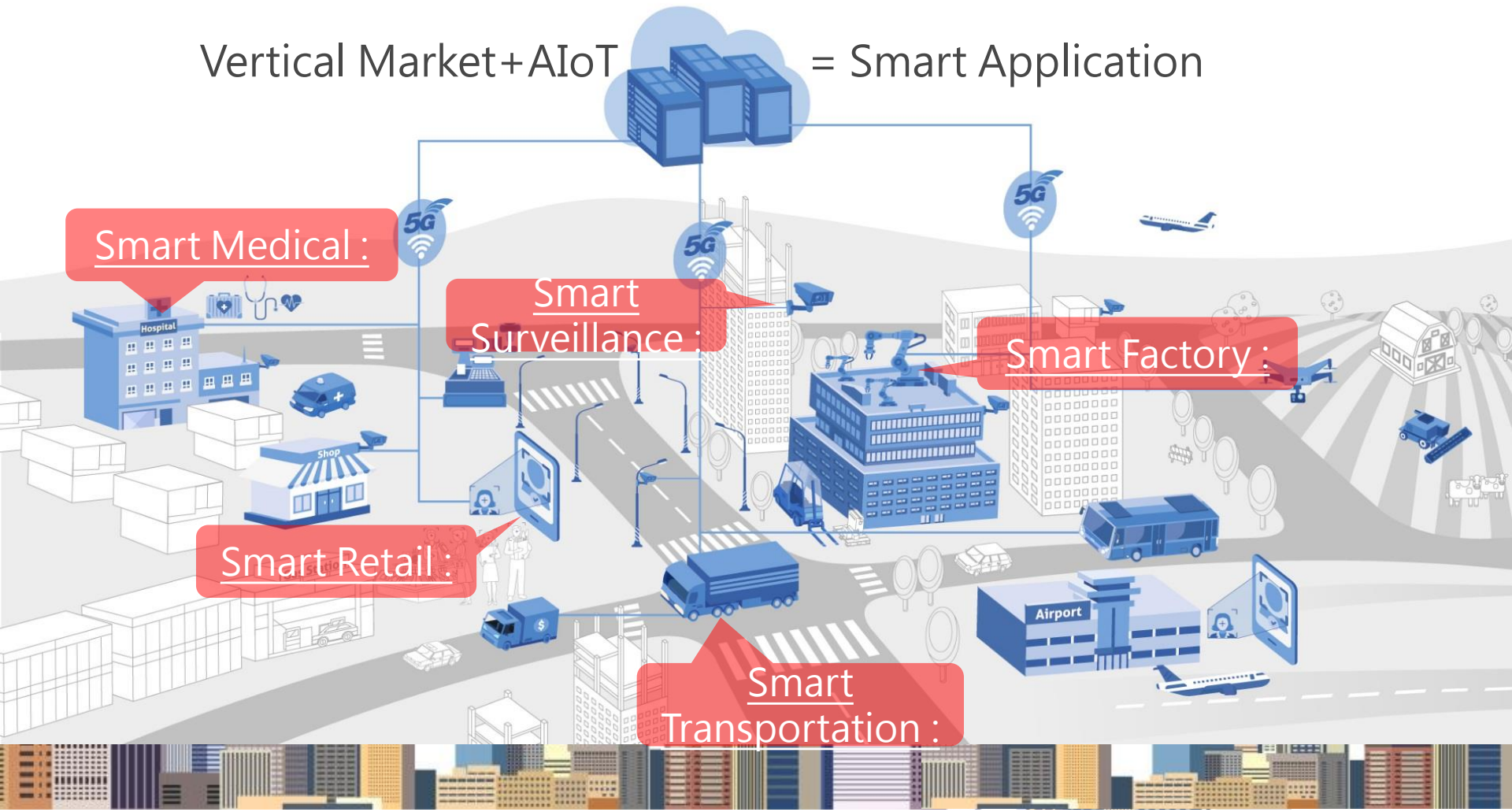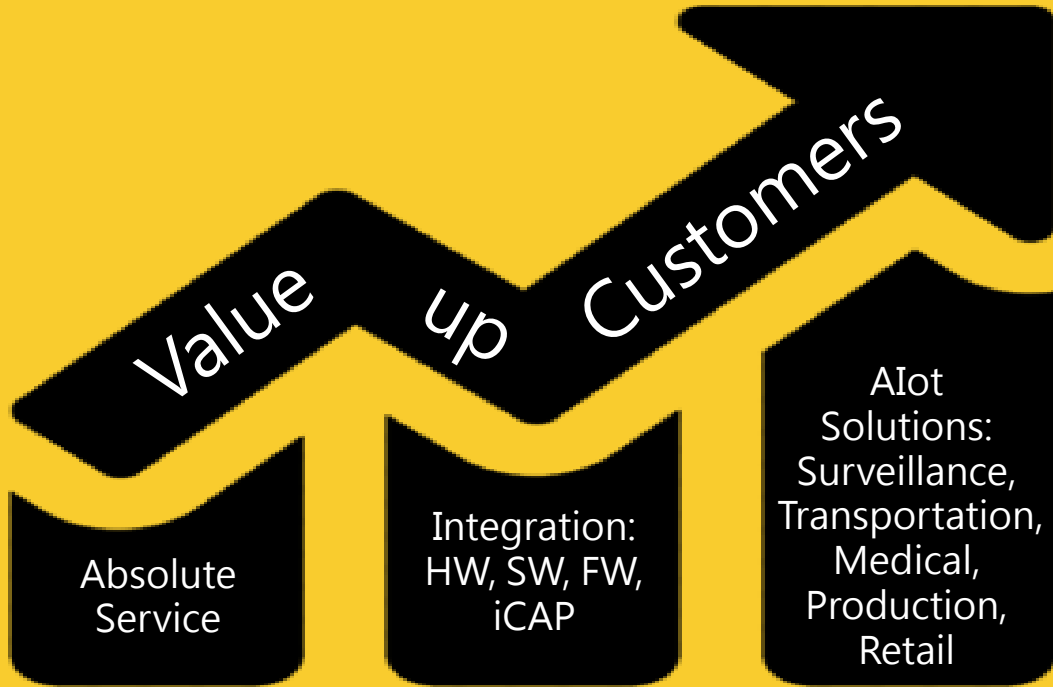
Financial information

Revenues over last 5 years

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NT$:K

Year	Revenue
2013	2,796,804
2014	3,529,685
2015	4,385,985
2016	4,645,526
2017	6,544,206
2018	7,866,250

20.2% Growth

Net profit and EPS over last 5 years

EPS: NT$

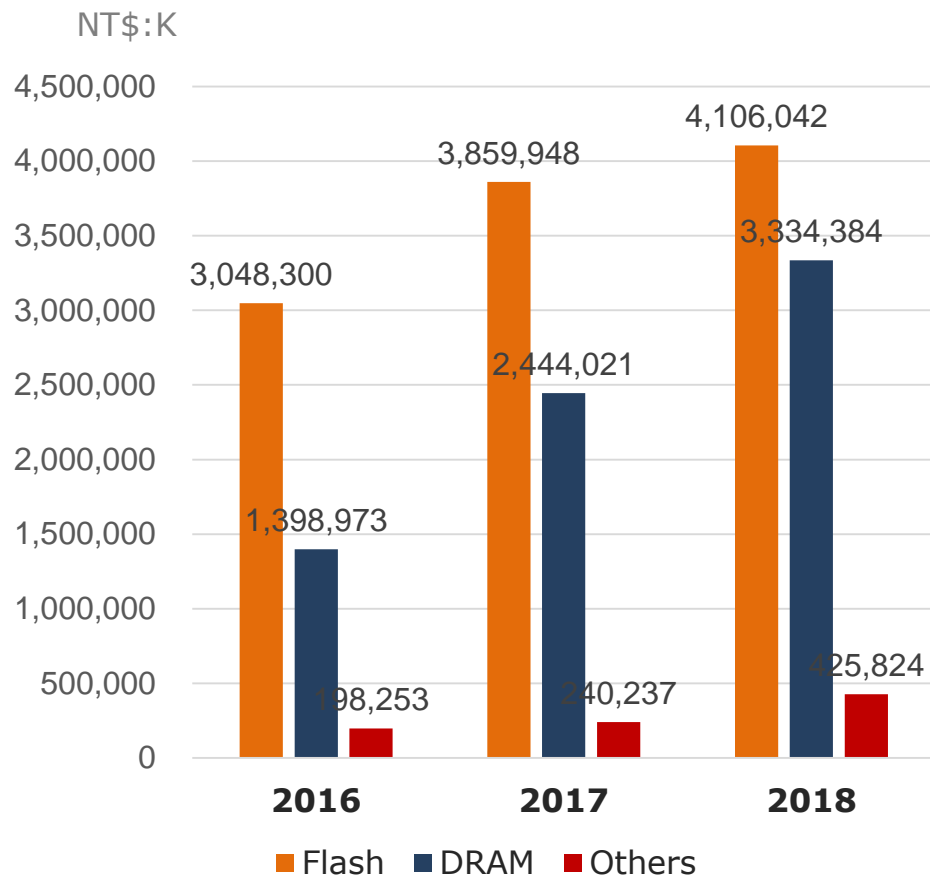| Year	Net Profit (NT$: K)	EPS
2014	507310	8.57
2015	560522	9.02
2016	463582	7.06
2017	767880	10.86
2018	843084	10.87

Net Profit (NT$: K)
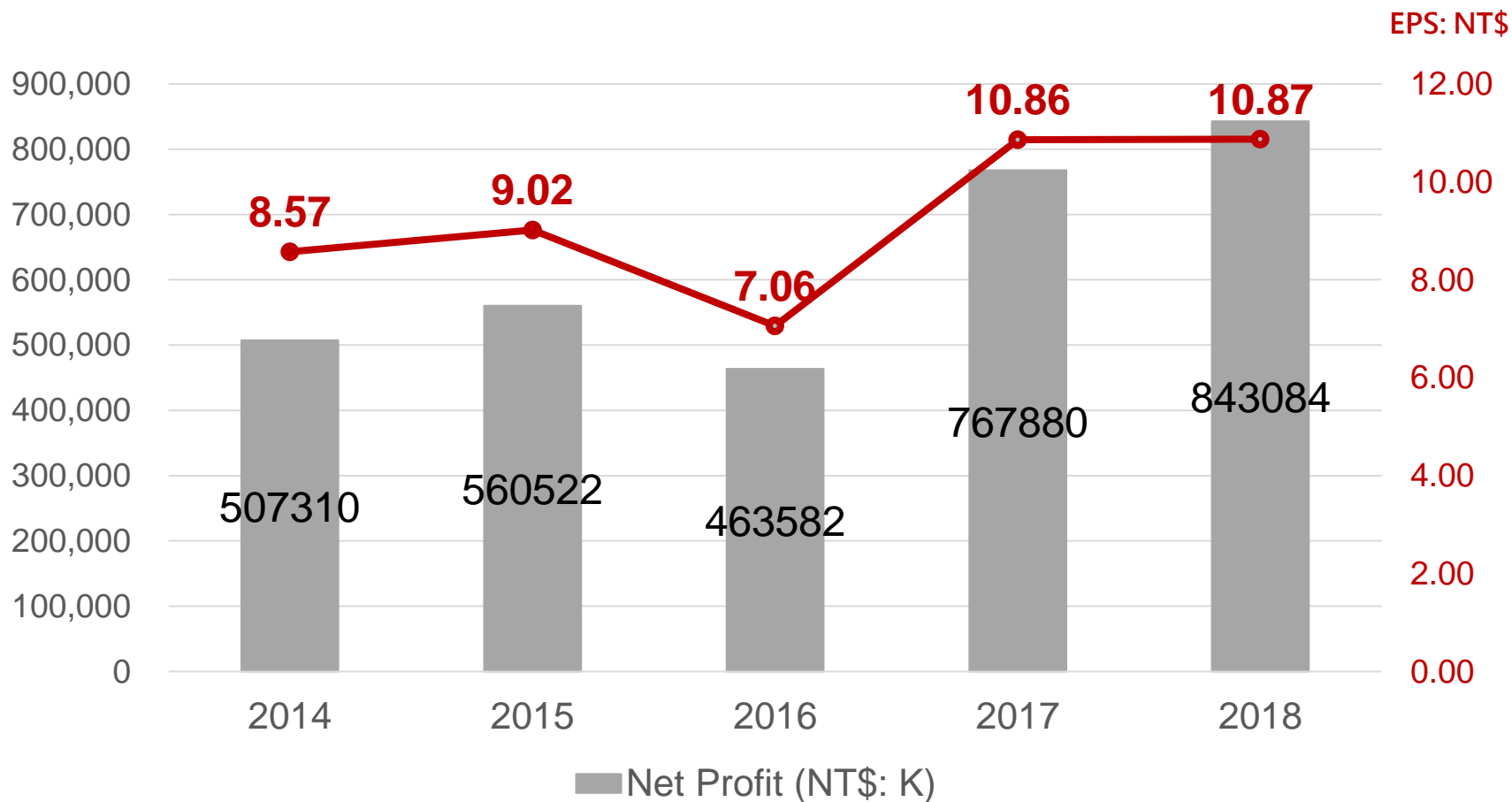
Revenue by product lines
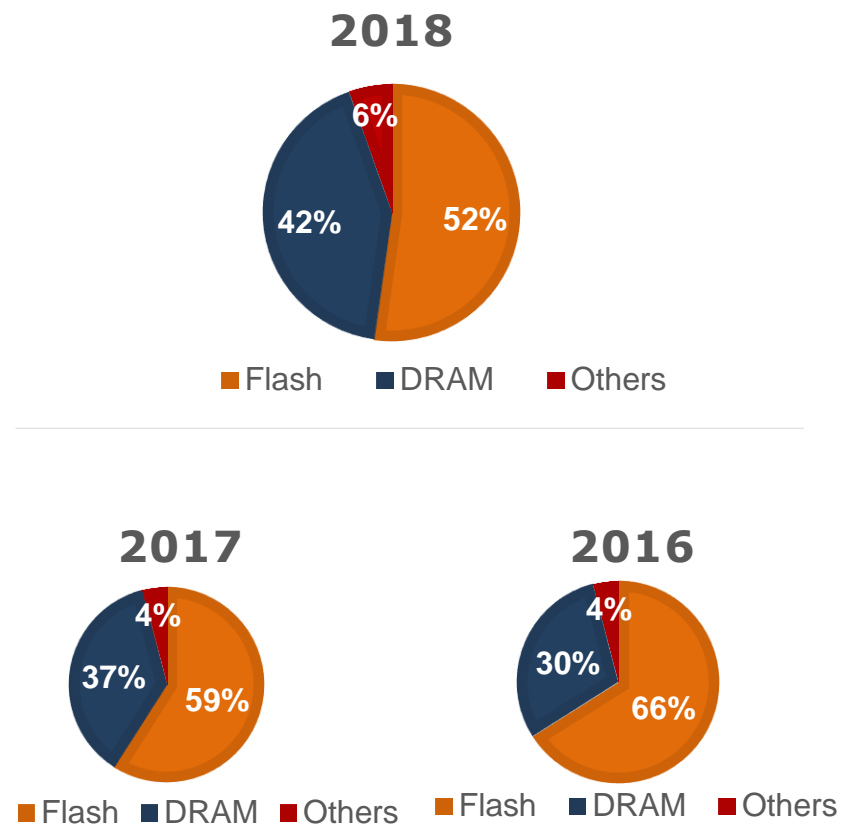
Revenue by regions

45
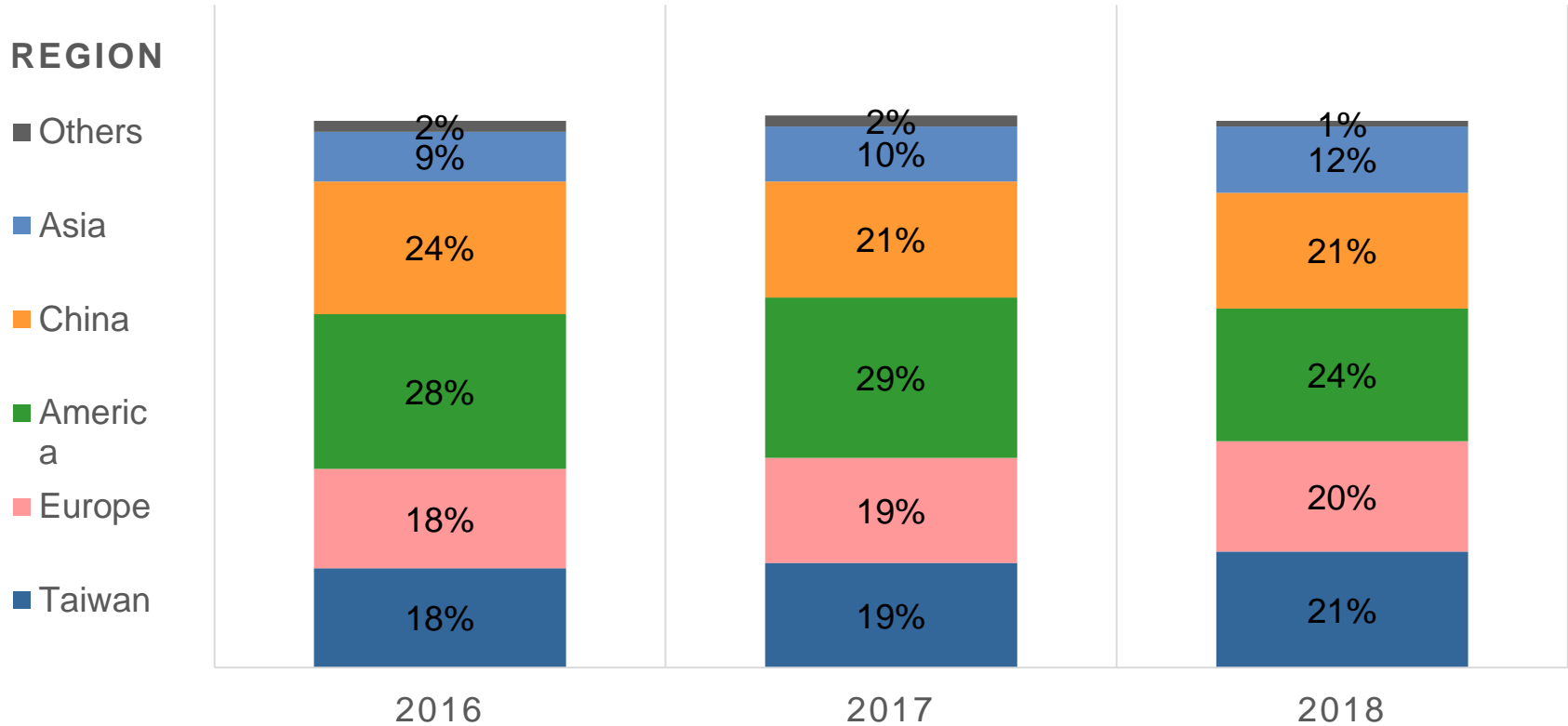
Annual income statement

	2016	2017	2018	YoY
Revenues	**4,645,526**	**6,544,206**	**7,866,250**	**20.2%**
Cost of good sold	3,381,202	4,770,505	5,925,784	24.2%
Gross profit	**1,264,324**	**1,773,701**	**1, 940,466**	**9.4%**
Operation expenses	713,676	777,465	831,211	6.9%
Operation profits	**550,648**	**996,236**	**1,109,225**	**11.3%**
Non-operating income and expenses	(19,002)	(78,308)	(10,733)	-
Profit before tax	**531,646**	**917,928**	**1,098,522**	**19.7%**
Income tax expense	125,762	187,067	248,072	32.6%
Net profits	**405,884**	**730,861**	**850,450**	**16.4%**
Non-controlling interests	(57,698)	(37,019)	7,366	-
Net profit attributable to parent company	**463,582**	**767,880**	**843,084**	**9.8%**
EPS	7.06	10.86	10.87	
Gross margin	27.2%	27.1%	24.7%	
Operating margin	11.9%	15.2%	14.1%	
Net profit rate	8.7%	11.2%	10.8%	

Q & A

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