FY March 2016
Business Strategy Meeting

December 4, 2015
TDK Corporation

Attendees

President and CEO
Takehiro Kamigama
General Manager of Humidifier Countermeasures HQ, and General Manager of Technology HQ

Director
Executive Vice President
Hiroyuki Uemura
Electronic Components Business Company CEO
General Manager of Ceramic Capacitors business Group

Senior Vice President
Seiji Osaka
General Manager of Electronic Components Sales & Marketing Group

Senior Vice President
Shinya Yoshihara
In charge of Flash Memory Applied Devices Business Division, EMC & RF Engineering Business Division
General Manager of Manufacturing HQ

Senior Vice President
Noboru Saito
General Manager of Corporate Strategy HQ

Senior Vice President
Shigenao Ishiguro
Magnetic Heads and Sensors Business Company CEO

Corporate Officer
Christian Block
General Manager of Systems, Acoustics, Waves Business Group, and General Manager of ICT Devices Development Center of Technology HQ

Corporate Officer
Tetsuji Yamanishi
General Manager of Finance & Accounting Group

Schedule

◆Presentation (10:00 -11:30)

1. Strategy for Automotive market

Senior Vice President　Seiji Osaka

2. Strategy of High Frequency Components Business

Corporate Officer　Christian Block

3. Strategy of HDD Heads Business and Magnetic Sensors Business

Senior Vice President　Shigenao Ishiguro

4. “Monozukuri” Innovation

Executive Vice President　Hiroyuki Uemura

Senior Vice President　Shinya Yoshihara

Schedule

5. Summary

President and CEO　Takehiro Kamigama

◆Q&A (11:30 - 11:50)

Strategy for Automotive Market

Seiji Osaka
Senior Vice President

Key Applications - Automotive Market

3 Megatrends: Demand Outlook

Demand for TDK products (exclude batteries)
[*TDK estimates*]

Applications

Fuel Efficiency

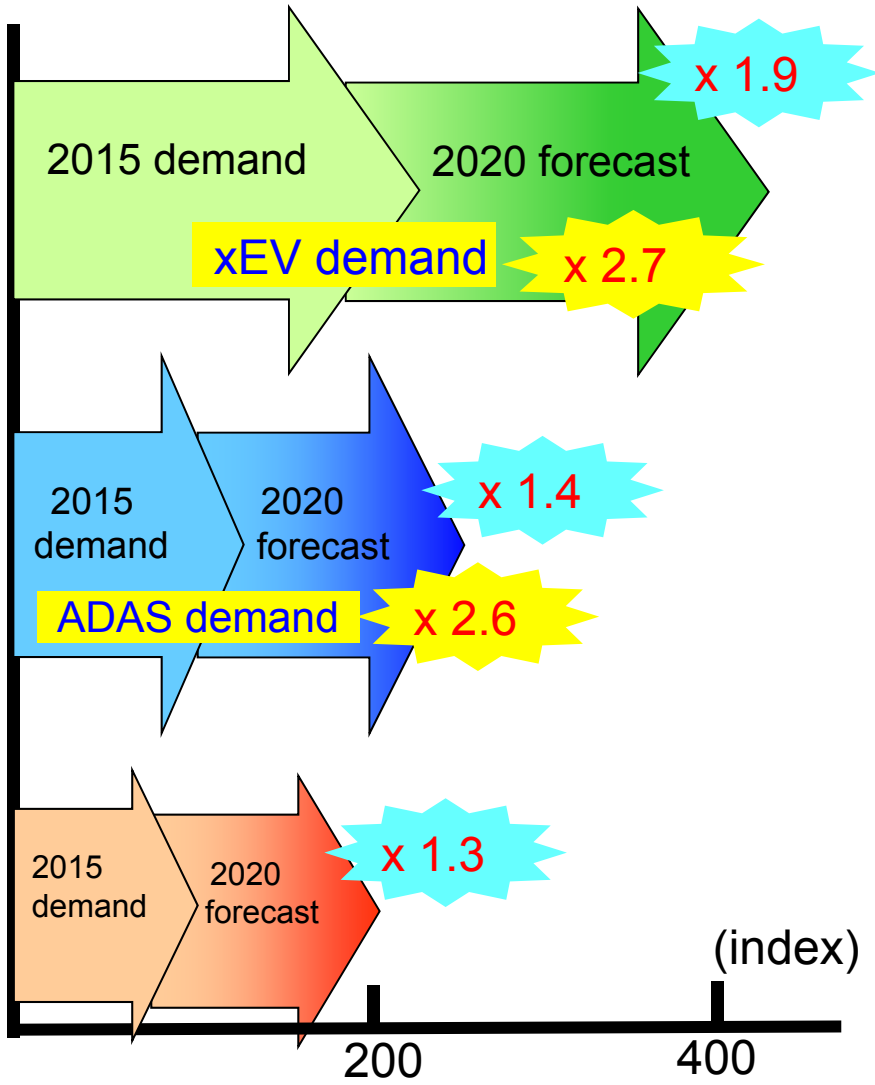
xEV
(electrics, hybrids, fuel cells)
48V System
Engine Control Unit
Idling Stop
Transmission

Safety

ADAS
(Advanced Driver Assistance Systems)
Brake systems (ABS, etc.)
Airbags
TPMS

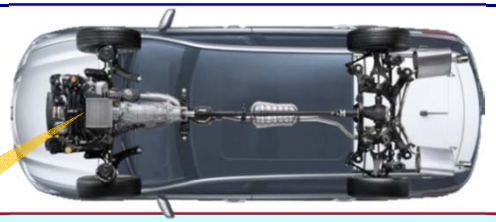
Comfort & Connectivity

V2X
In-Vehicle Infotainment
Emergency communication (e-Call)
Keyless Entry
LED headlamps
Electric Park Brake (EPB)



Strategic TDK Products for Automotive Applications

Fuel Efficiency

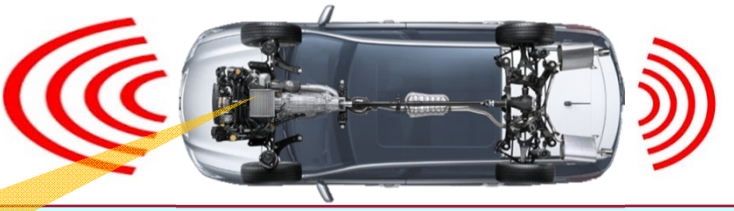


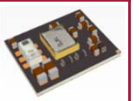
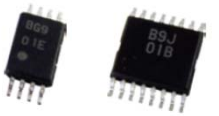
Strategic Products	Features
DC/DC converters & key components   	* Miniaturized to provide space-saving advantage to auto makers. * Further reduction in size and higher efficiency achieved through new materials (e.g. GaN, new magnetic materials).
On-board chargers 	* Demand surging with the increase of EV/PHEV DC/DC converter technologies are utilized to make the chargers smaller, lighter and more efficient.
Magnets 	* Neodymium magnets: saves energy/electricity when used in EV drive motor. Dy (dysprosium)-free, and rare earth-free magnets are being developed. * Ferrite magnets: Allows DC motors to be highly efficient yet smaller in size. We now have La (lanthanum)-free and Co (cobalt)-free types.
TMR sensors  	* TMR enhances high-precision control in EPS, thus answering the need for improved fuel efficiency. * TMR allows for higher sensitivity and stable accuracy operation in a wider range of temperature (sensitivity vs. AMR = x30; vs. GMR= x8).
Wireless charging system 	* By 2022, 10% of EV/PHEV will be equipped with wireless charging system (TDK estimate: 300-500 thousand vehicles). * Magnetic resonance coupling and magnetic technologies will assure highly efficient wireless power transfer. 

Strategic TDK Products for Automotive Applications

Safety

Comfort & Connectivity



Strategic Products	Features
Common mode filters for CAN-BUS / FlexRay, Ethernet 	* High reliability design for automotive use; wide frequency range common mode impedance effective for extended output characteristics that differ with each IC model.
MLCCs 	* High-rel. auto grade series, guaranteed for high temp. (150℃): high capacitance, mid-voltage, mega-caps, and soft termination capacitors.
・Inductors High temp. (150℃) power inductors antenna coils 	* High-efficiency/high-reliability power inductors designed for performance in the grueling conditions of the engine compartment (-55℃ ~ +150℃). * Antenna coils for use in wireless devices - smart keys, TPMS (tire pressure monitoring system), etc. - are now being mass produced.
・SAW devices / thin film high freq. filters ・Bluetooth® modules 	・ Communication products have been further developed for automotive applications such as keyless entry and telematics. 
・Sensors Magnetic, pressure, current, temperature, light, etc. 	Sensors are adapted for automotive use: TMR sensors are used for angle, position, rotation and current sensing applications. 

Get products on automotive IC reference designs through close collaboration with IC makers.

TDK Sales Growth in the Automotive Market

Motor magnets (since 1977)

Sales expansion of passive components for ECUs (from 1980s)

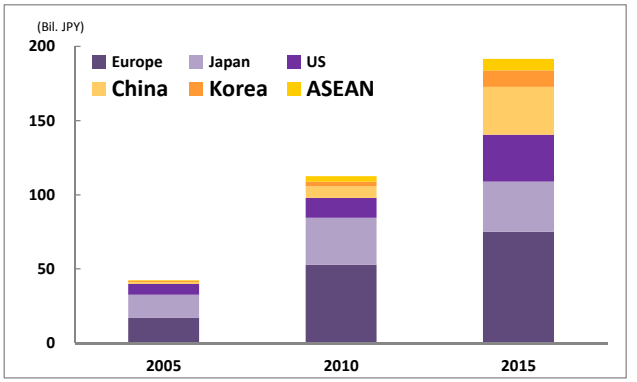
CAN bus filters (since 1994)

DC-DC converters for xEVs (since1997)

Passives for ADAS

Sensor business increases;
xEV power systems' grow

New customer base expansion centered on economically emerging countries



Acquired EPCOS (2008)
→bolstered product range

Electronic contents rise
HEVs start to spread

(Bil. JPY)
400
300
200
100
0
1970
1980
1990
2000
2010
2015
2018

Various Automotive Electronics Solutions

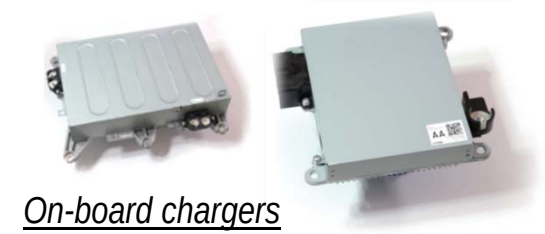
TDK

Design and build in automotive –level quality and reliability

Fuel Efficiency

Magnet (Dy-free)

NTC thermistor

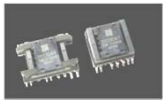


On-board chargers

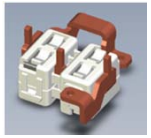
DC-DC Converter

CeraLink

Wireless Charging System



Transformer



Power EMC Filter

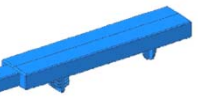
PTC element

PZT

Safety

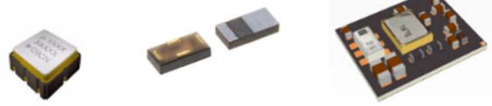
TMR angle sensor

Position sensor
Gear-tooth sensor



Antenna Coil
LF Antenna

3D Antenna Coil



SAW/ thin film devices / modules

Contactless feed

Buzzer

Common mode filter

Inductor

Film Capacitor

ALU Capacitor

MLCC

Chip-varistor

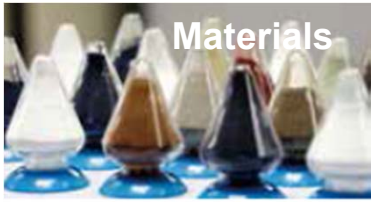
Pressure sensor

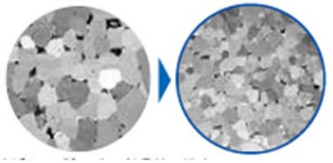
Comfort & Connectivity

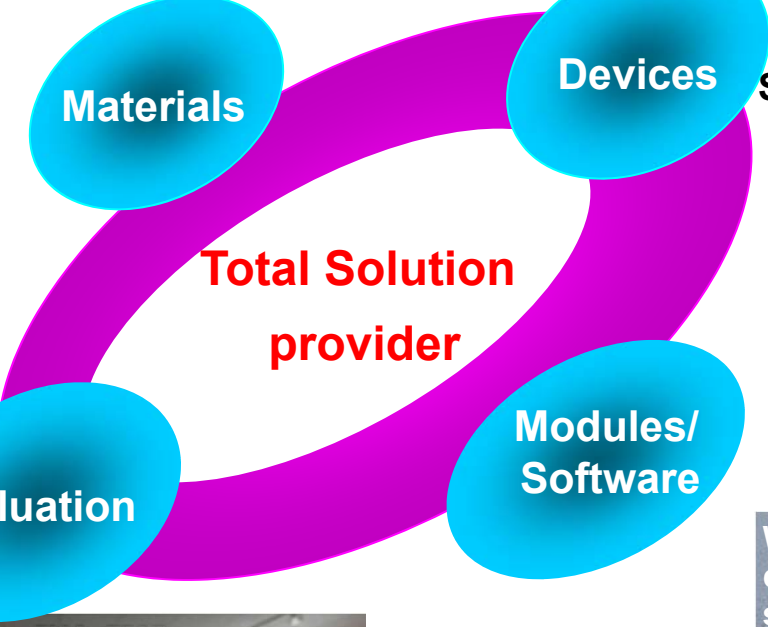
Total Solution Provider to the Automotive Market

As a Total Solution Provider, TDK meets and exceeds customers' needs – from materials technology to electronic components, modules and testing services.

Ferrite Core
Magnets



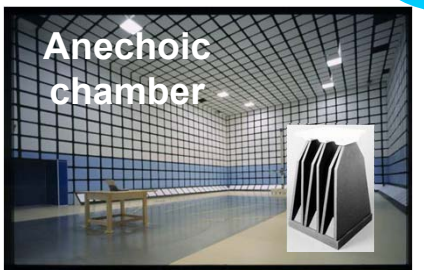


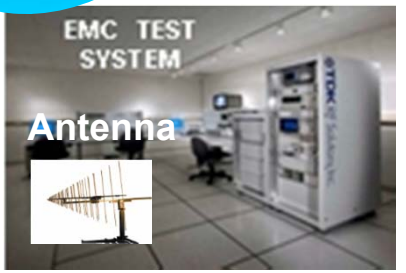


SAW/ thin film devices / modules

Sensors

DC-DC Converter /
On-board chargers



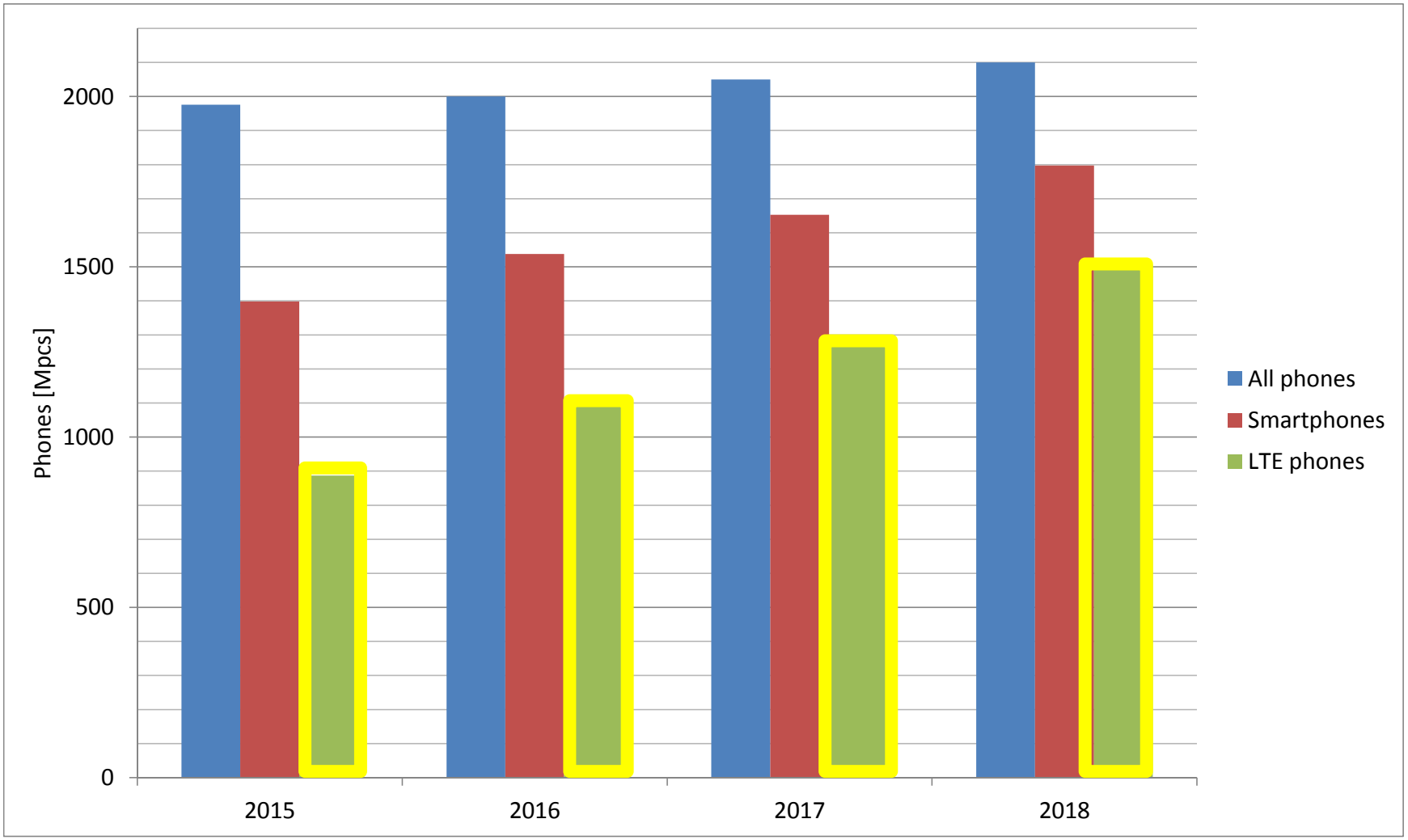


Support to meet Automotive EMC Standard "CISPR"

Strategy of High Frequency Components Business

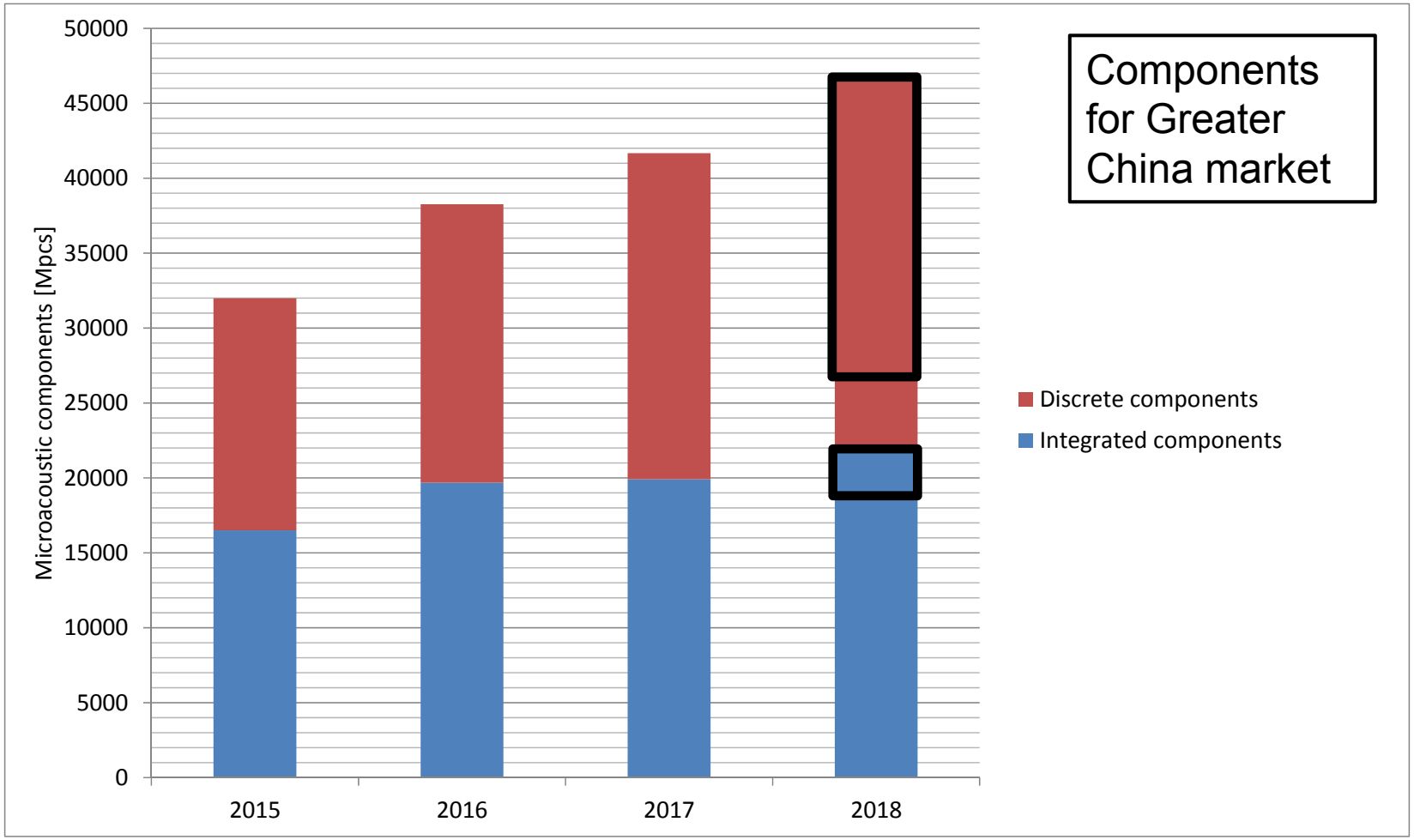
Corporate Officer
Christian Block

Predicted Phone Volumes



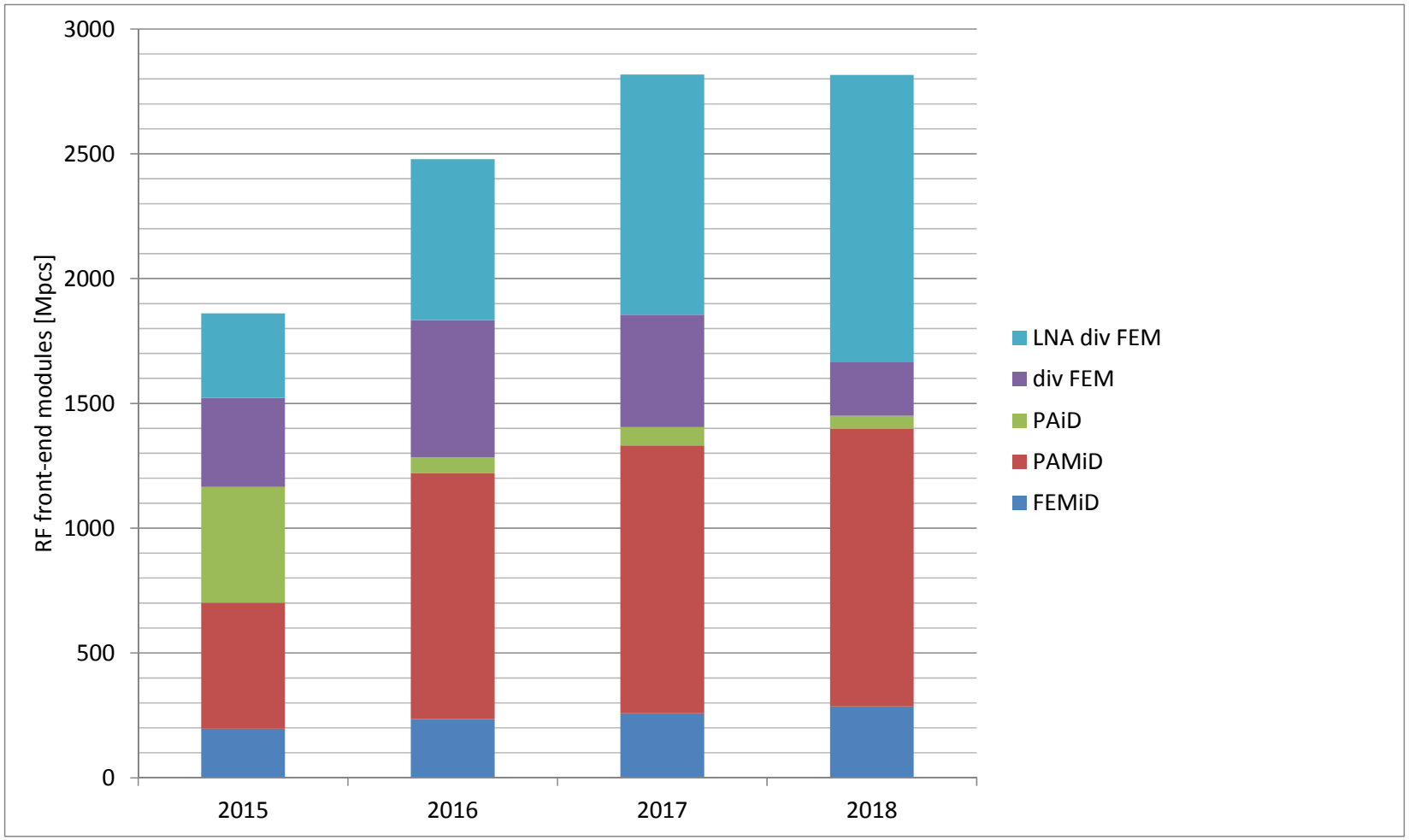
TDK's estimation

Microacoustic Component Market [Mpcs]



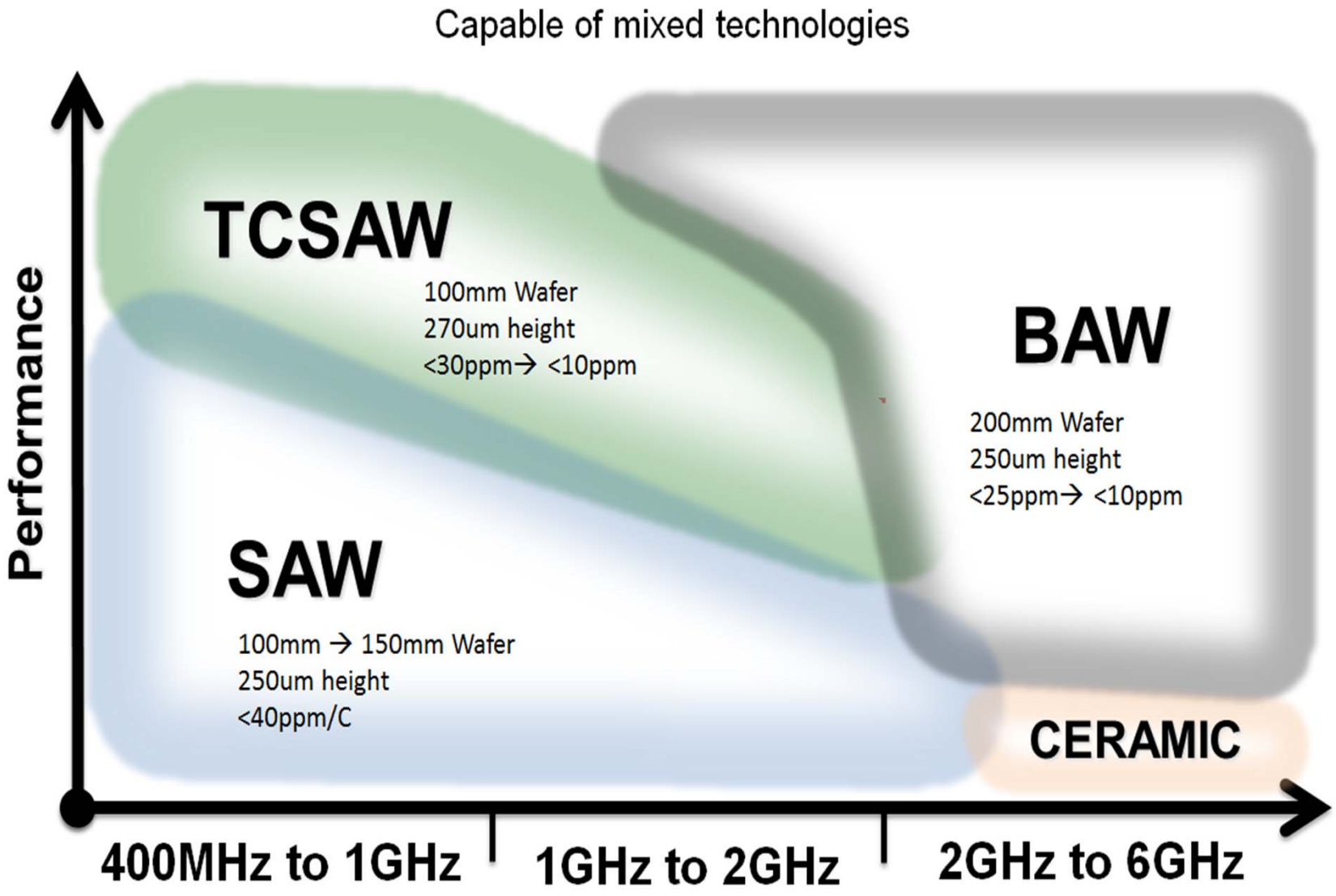
TDK's estimation

RF Front-end Module Market [Mpcs]



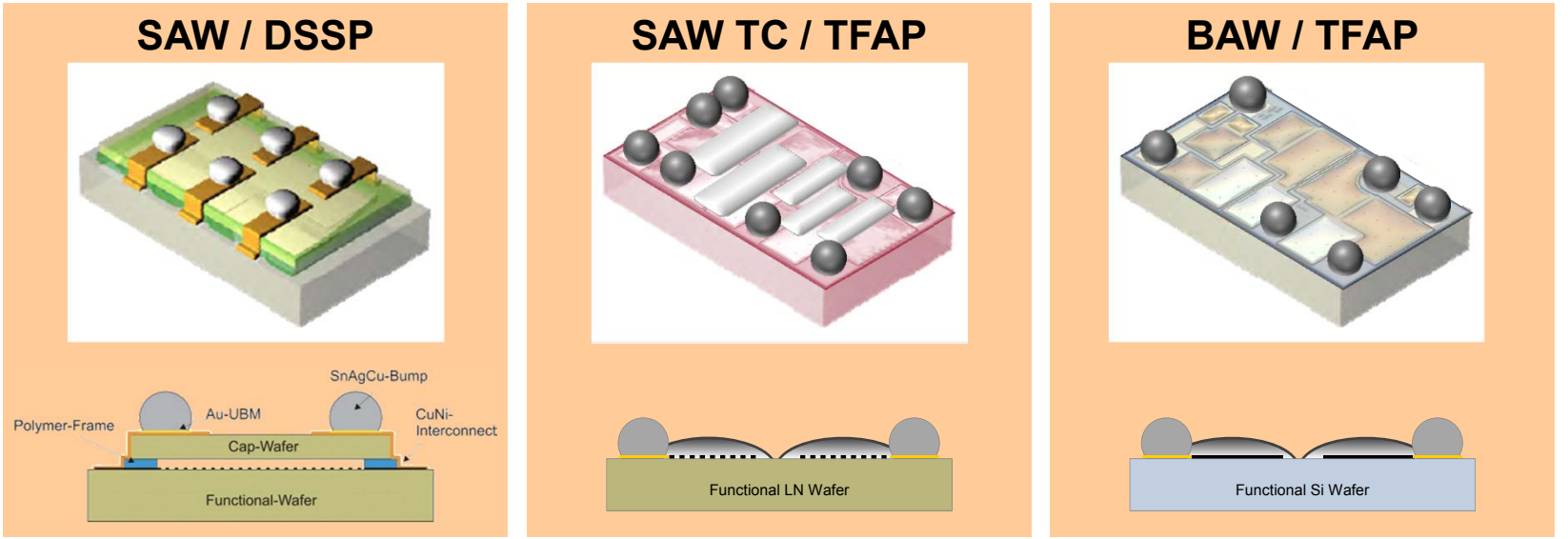
TDK's estimation

Filter Technologies / Applications



TDK Wafer Level Package Technology Platforms

- Wafer Level Packages for SAW, TC SAW (HQTCF) and BAW components
- Die Size Saw Package DSSP and Thin Film Acoustic Package TFAP
- All WLP platforms running in mass production
- Package height 0.25 mm max. for DSSP and 0.17 mm max. for TFAP
- Overmold capability



Duplexers for Module Integration

Minus 60% height reduction

2.0 x 1.6 x 0.45 mm³

~55%

***e.g. 1.8 x 1.4 x 0.21 mm³** (w/o bumps)
(with bumps : 0.28mm)

~34%

***e.g.1.5 x 1.1 x 0.21 mm³** (w/o bumps)
(with bumps : 0.28mm)

~tbd

***e.g.1.6 x 1.2 x 0.13 mm³** (w/o bumps)
(with bumps : 0.20mm)

*CSSPlus : 2.5 x 2.0 x 0.68 mm³
*CSSP3 Cu : 2.0 x 1.6 x 0.45 mm³

CSSP3 **DSSP1** **DSSP1** **TFAP BAW/LN**

*) package size depends on product

Technology Toolbox and Link to Strategies

	Power Amplifier	Switch	Module assembly	WLP	SAW	TC-SAW	BAW
TDK			✓	✓	✓	✓	✓

- Exploring ways how to serve the PA module market to full extent

- WLP component sales to module vendor partners

- Supply leading div FEM, LNA div FEM and FEMiD solutions

- Discrete component sales to serve the growing Chinese market
- Continuously improving presence in reference designs of leading chipset vendors

Strategy of HDD Heads Business and Magnetic Sensors Business

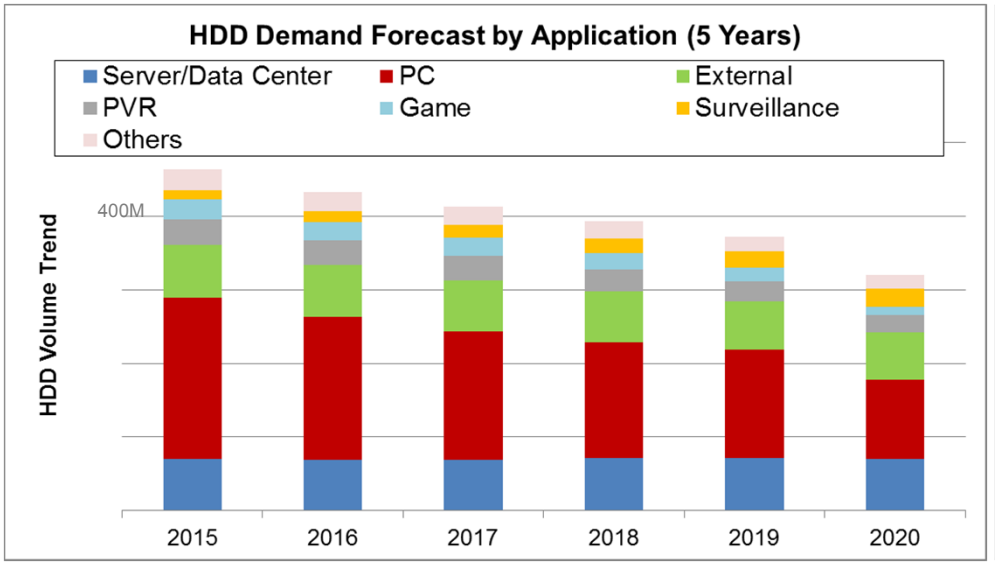
Senior Vice President
Shigenao Ishiguro

❑ HDD: Maturity stage to declining stage

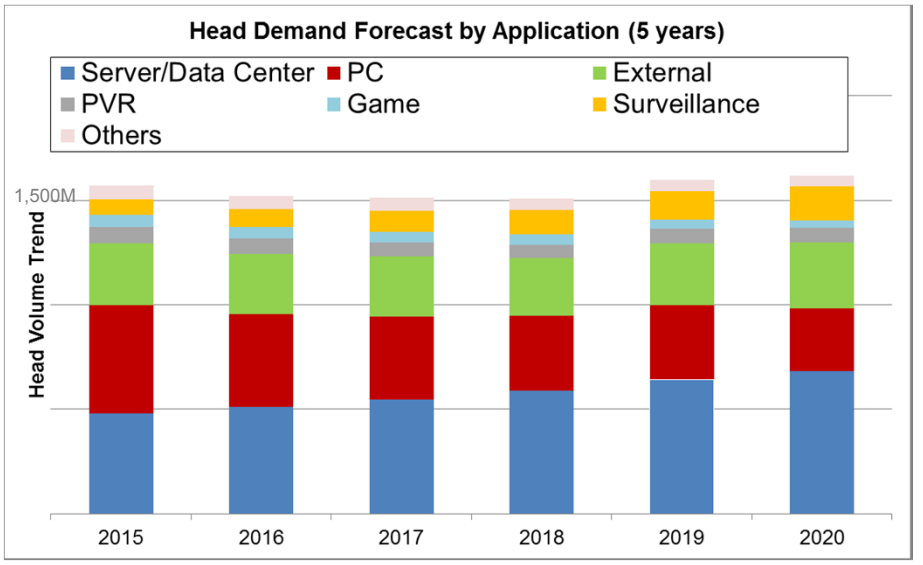
1) PC market will be decline and HDD for PC will be decline.

2) HDD will shift to High capacity market.

➔HDD volume will decrease. **Head volume will be flat.**



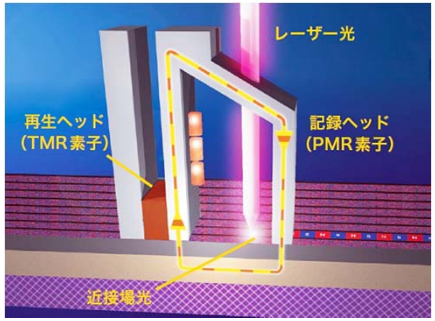
TDK's estimation



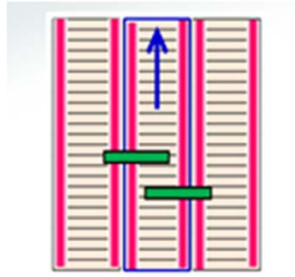
TDK's estimation

❑ Change and technology innovation of HDD industry

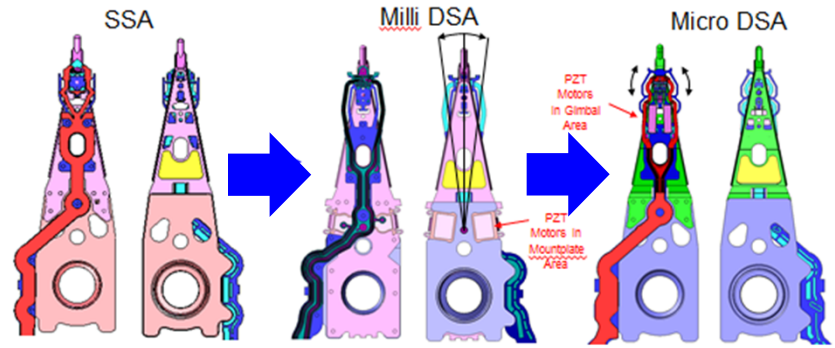
- ➢ Marge business unit and efficiency up
- ➢ It still needs R&D activities / R&D investment in HDD and HDD Head.
  - Needs multi disk technology and becomes longer testing time for reliability for high capacity HDD
  - Thermal assist Head (TAMR)
  - Two dimension MR (TDMR)
  - Micro dual stage actuator (Micro DSA)
- ➢ HDD maker did big investment into NAND industry



TAMR



TDMR



Innovation for micro DSA

Business Strategy of Magnetic Head & Sensor

TDK

・Taking strategy to develop HDD technology continuously with keeping enough profitability.
・Together with another clear strategy for growing market.

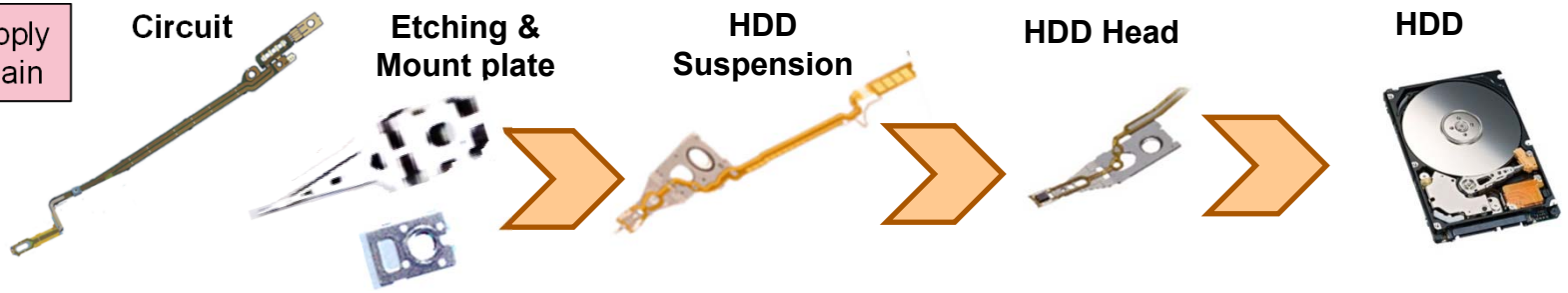
- **Strategy for HDD Head**
  - **Recent breakthroughs will enable TAMR products.**
  - **Precedence of micro DSA for narrow track technology**
  - **Efficiency up for supply chain in HDD industry and supporting backend process**

  ➔<u>Advanced technology, High productivity & Low cost will contribute HDD industry.</u>
- **Strategy for Magnetic sensor**
  - **Applying magnetic technology and process to Magnetic Sensor business.**

HDD Suspension Business

◆ Background of acquiring HTI & Supply chain of HDD ～ Suspension

Supply Chain



Technology Innovation

- TAMR needs more narrow pitch for Circuit
- DSA technology needs Innovation for TPI up
- Technology break through for TAMR & Multi disks technology

Vertical Integration for Suspension

	Components (● Internal Components)			Suspension Assemble	HDD Head	HDD
	Circuit	Etching	Mount Plate			
TDK/MPT	From Outside	○	From Outside	TDK/MPT	TDK/SAE	Company D
HTI	○	○	○	HTI	Company B	Company B
Company A	From Outside	From Outside	○/Outside	Company A	Company C	Company C

Synergy for All TDK

- **Making suspension components internally & efficiency up for SG&A,R&D.**
- **More automation for Suspension assemble**
- **Getting circuit technology for TAMR generation**

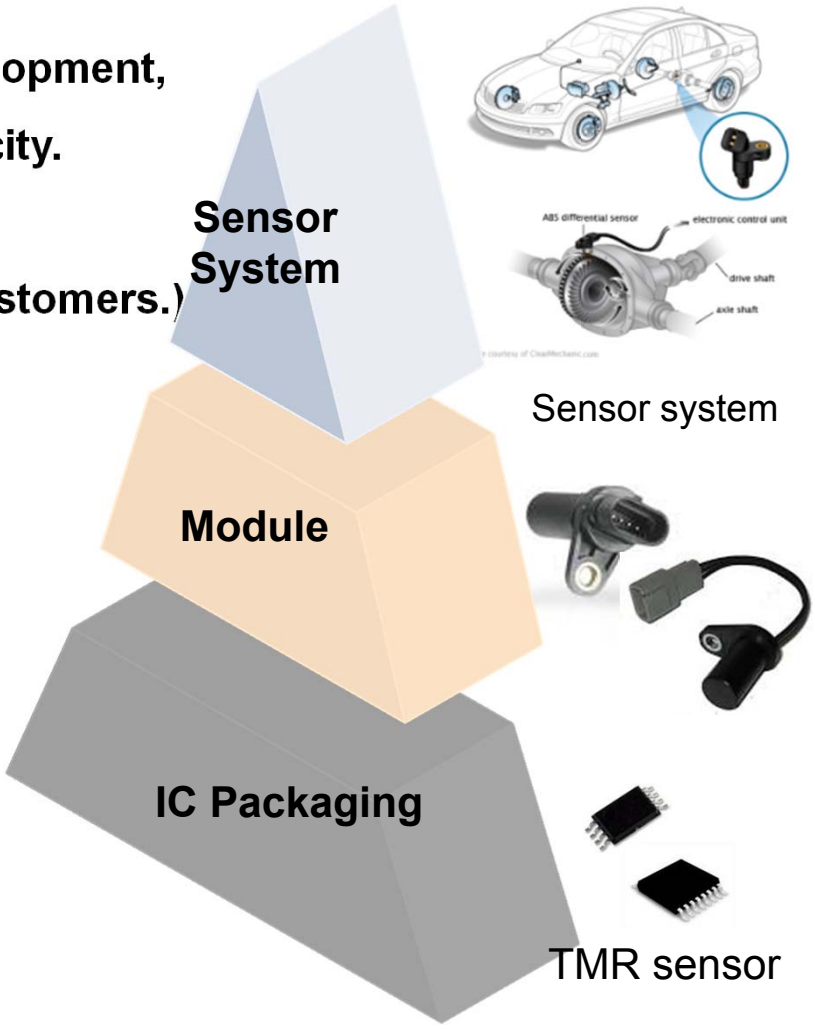
Advanced technology & Low cost solution by Vertical integration in HDD suspension components will enable us to contribute to the HDD industry.

Business Strategy of Magnetic Head & Sensor

❑ As for "Magnetic sensor company" TDK becomes.

1) **Establish business basis first.**
   - ✓ **More capability for products design, development, ASIC design and getting production capacity.**
   - ✓ **Expand products line up.**
   - ✓ **Expand customer basis. (More than 40 Customers.)**
2) **Becoming general magnetic sensor company.**
   - ✓ **Add many type of sensor on MR.**
   - ✓ **More downstream, like module / system.**
   - ✓ **Combination with other TDK products, like magnet and electric components.**

➔**Expansion for magnetic sensor for automobile / industrials / consumer market.**

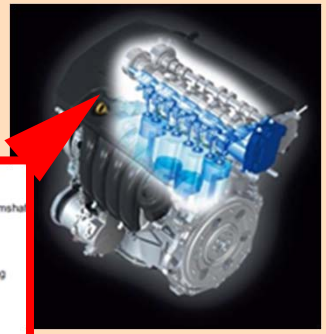


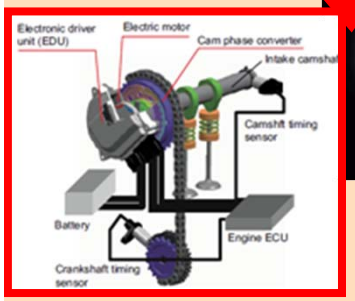
Magnetic Sensor in Automobile market

Accelerating

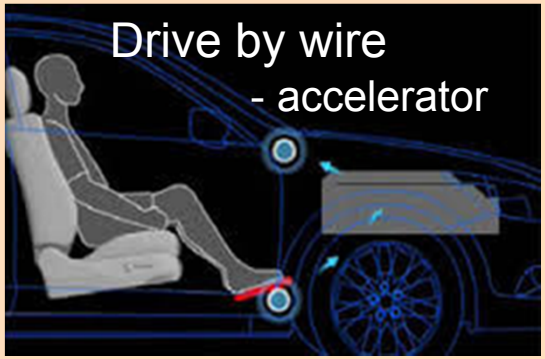
Electric throttle valve system

Engine Management:





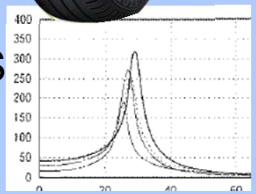
-Cam timing
-Crank timing



Braking

Wheel Speed Measurement:
-ABS

Indirect TPMS with ABS



Brake by wire

Steering

Hydraulic

Electric(EPS)

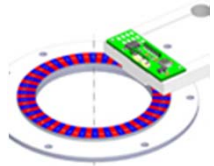
- Torque sensor
- Angle sensor

Steer by wire

- EPS

Magnetic Sensor for Industrials / Consumer Market

1) TMR sensor and adding various types of sensor
2) Growing toward to overall magnetic sensor company
   - ➔ Appling High Accuracy & High Output for Liner scale in industrial market
   - ➔ Encoder for Single-lens reflex camera
   - ➔ Focusing for Smartphone application



Magnetic sensor for industrial market

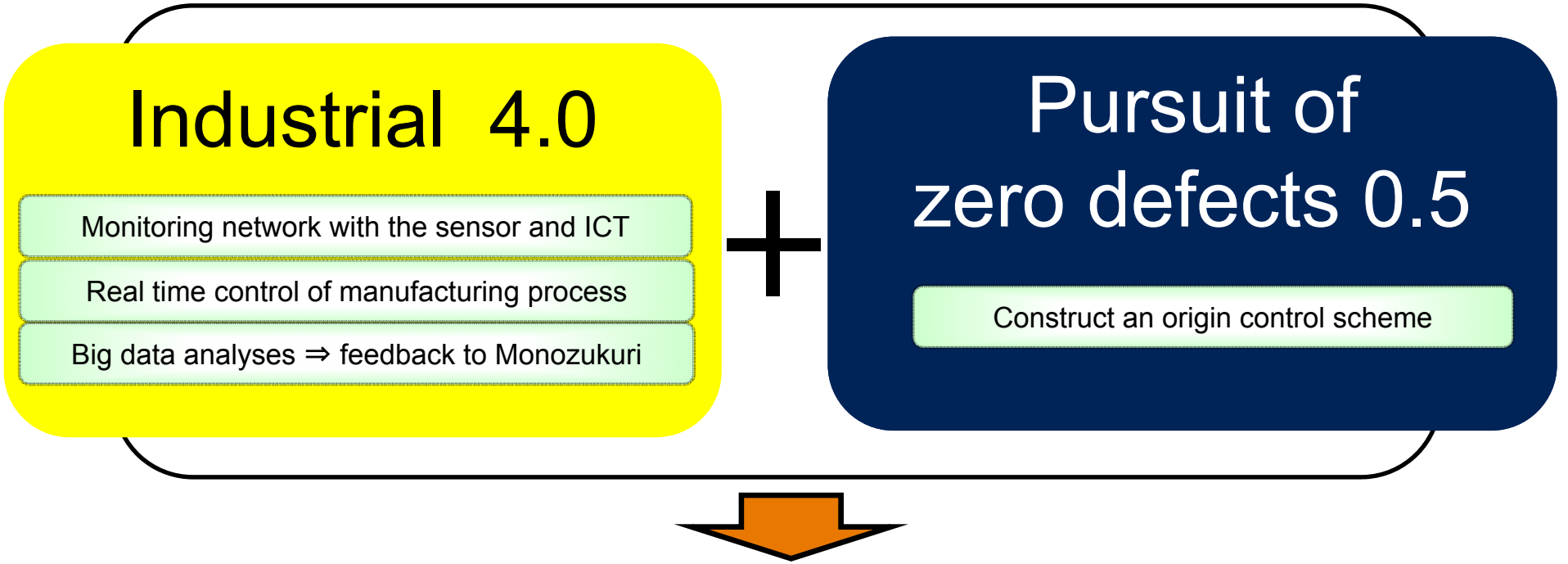
Magnetic sensor for consumer market

“Monozukuri” Innovation

Executive Vice President
Hiroyuki Uemura

Senior Vice President
Shinya Yoshihara

Monozukuri innovation



TDK Industry 4.5

Implement this innovation to Akita new factory
⇒Roll out to other factories

Executing Monozukuri Innovation

TDK

Monozukuri innovation

1) Zeroize defect / 欠陥ゼロ化

- **Process designing, how the process should be.**
  工程設計のあるべき姿

2) Location Free / ロケーションフリー

- **DSS (Direct sintering system),**
  Material and finishing process integrated.
  素材 / 製品の統合ライン化
- **Advanced Cell line (Man and Robot fusion process)**
  進化したセルライン（人とロボットの融合ライン）

3) モノづくりセンターの新設 (Newly Established Monozukuri Center)

Executing Monozukuri Innovation

Monozukuri Innovation: Tackling toward zeroizing quality defect
モノづくり改革：　品質欠陥ゼロ化への取組み

Zeroize Defect of Design Quality
設計品質欠陥ゼロ化

- **Clarify evidence of product specification.**
  仕様の根拠を明確にする
- **Proceed optimized designing, considered how the way of customer’ s set is used.**
  顧客セットの使われ方を反映した最適設計を行う。

Zeroize Defect of Raw Material Quality
材料品質欠陥ゼロ化

- **Develop and adopt raw material which maximi -ze Quality (performance and reliability) as fin -ish goods.**
  完成品の品質（信頼性・性能）を最大化する材料の開発、採用

Zeroize Defect of Process Quality
プロセス品質欠陥ゼロ化

- **Clarify condition of goods by processes**
  プロセス毎の良品条件の明確化

Zeroize Defect of Management Quality
管理品質欠陥ゼロ化

- **Design process, how it should be.**
  ➡ “Purpose” , “Procedure” , “Performance”
  あるべき工程設計　➡　目的、手順、出来映え
- **Reinforce foundation of management Quality.**
  品質基盤の強化
  - **QC Activity (*Quality bottom up※)**
    QC 活動（小集団活動による品質のボトムアップ※）
- **Analyze risk on frequent and infrequent producti -on operation.**
  定常作業と非定常作業におけるリスク分析

*Establish process , operator is able to explain about “Purpose of own process” , ” Operation procedure” and “Performance criteria of products” with workshop environment that security and quality are capable to secure.

※安全と品質を確保できる職場環境のなかでオペレータの方が、自工程の 目的、手順、出来映えを 説明出来る工程を作り上げる。

What is Location free?

Ferrite Core process: DSS line (Direct sintering system)

Conventional / 従来 : Process has been separated by different location / 拠点分担

*Raw material process (Ferrite factory) ⬅ ➡ Finishing product (Coil factory)

素材の生産（フェライト工場） ⬅ ➡ 製品本体（コイル生産工場）

Future / 今後：Make integrated process of Raw material and finish goods (Coil) / 素材 / 製品 統合ライン化

• Input: Ferrite powder ➡ Output: Coil (as finish goods)

Target, needed to achieve
1. Strengthen shortening L/T
2. Maximize space efficiency
3. Supply non-defect from front end process

Integrated process of "Raw material" and "Finish goods"
素材＋製品の 一貫統合ライン

Minimized personnel operation
(Monozukuri not depends production location)
最小人員オペレーション（生産場所を選ばないモノづくり）

Highly utilize Man and Robot / 人とロボットの活用

• Conventional Cell line ➡ Man and Robot fusion process / 人とロボットの融合

Target, need to achieve
1. Realize versatile Robotization
2. Maximize space efficiency
3. Flexible corresponding production.
4. Maximize productivity of Man and Robot

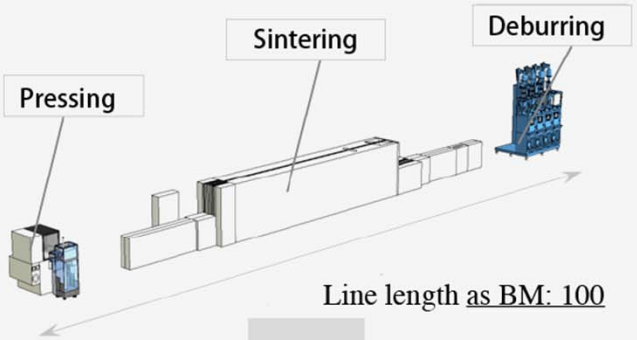
Advanced Cell line
進化したセルライン

Executing Monozukuri Innovation

DSS (Direct sintering system)
+ CAN bus line integrated

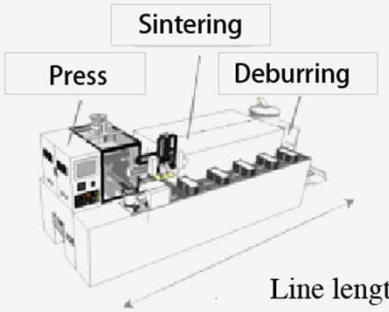
TDK

Current process of Ferrite core



Line length as BM: 100

DSS (Direct Sintering System) for Ferrite core



Line length as target: 25

Conventional

Ferrite core process in Factory A

Pressing | Sintering | Barrel

100(BM)

Can bus process in Factory B

Terminal | Winding | Peeling | Connecting | SP Assy | Meas.TP

100(BM)

Transfer Factory to Factory

New

DSS line | Winding Isolation Connection | Assy | Test Pack

25 | 45

Line length Target

Effectiveness	Conventional(BM)	New (Target)	Out come
Line length	100	35	65% off
Area	100	20	80% off
Lead time	100	30	70% off
Personnel/ line	100	20	80%off

Executing Monozukuri Innovation (Newly Established Monozukuri Center)

◇ Material engineers and process engineers will work together applying cutting-edge processes negating the status quo to accelerate the development of new products

◇ A dedicated group of process developers will accelerate process innovation and strengthen core technologies for the entire company

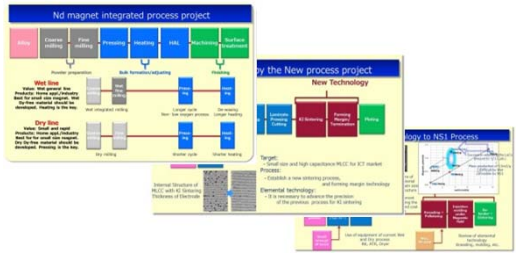
Accelerate new product creation
Strengthen Monozukuri process technologies

Executing Monozukuri Innovation (Newly Established Monozukuri Center)

■Accelerate New Product Creation

◇ Form projects along product commercialization themes for new materials and new processes

◇ Verify new products on the production line with product development that extends to the trial production line



- Metal magnet (new integrated process)
- MLCC (new integrated process)
- Ferrite magnet (new material, new process)

  etc.

■Strengthen Process Technologies

◇ Explore core technologies in depth to promote cutting-edge process innovation negating existing technologies

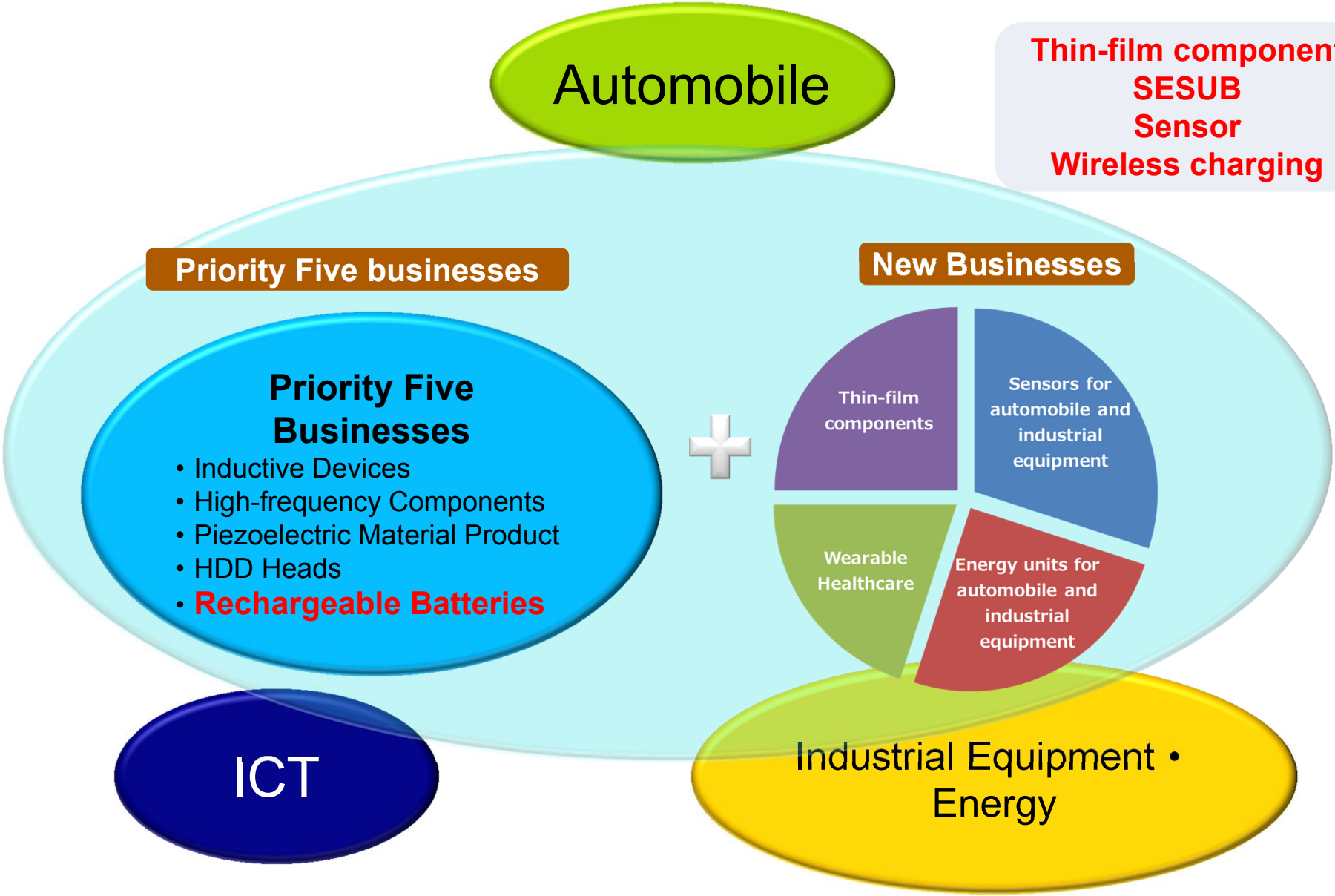
◇ Strengthen *Monozukuri* and nurture the required human resources for the entire company by upgrading process technology capabilities

- **Process design (IE)** • Material processes • Thin-film technology
- **Coating and printing (R-to-R)** • Thick-film technology
- Molding technology (powder and resin) • Debinding, firing and sintering
- Processing, dicing and flattening • Mounting and packaging • **Surface treatment**
- **Robot application** etc.

Summary

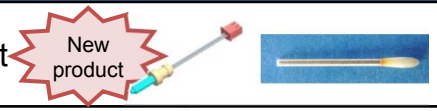
President and CEO
Takehiro Kamigama

Priority Markets, Priority Businesses and New Business



Sensors (for automobile market)

NTC Sensor Business

Industry segment	Application
Powertrain >200°C	Exhaust 
Powertrain ≤200°C	TMAP, Engine management 
	Transmission 
	SCR 
Comfort	HVAC 
	Seat heating 
E-mobility	E-motor 
	Battery management 

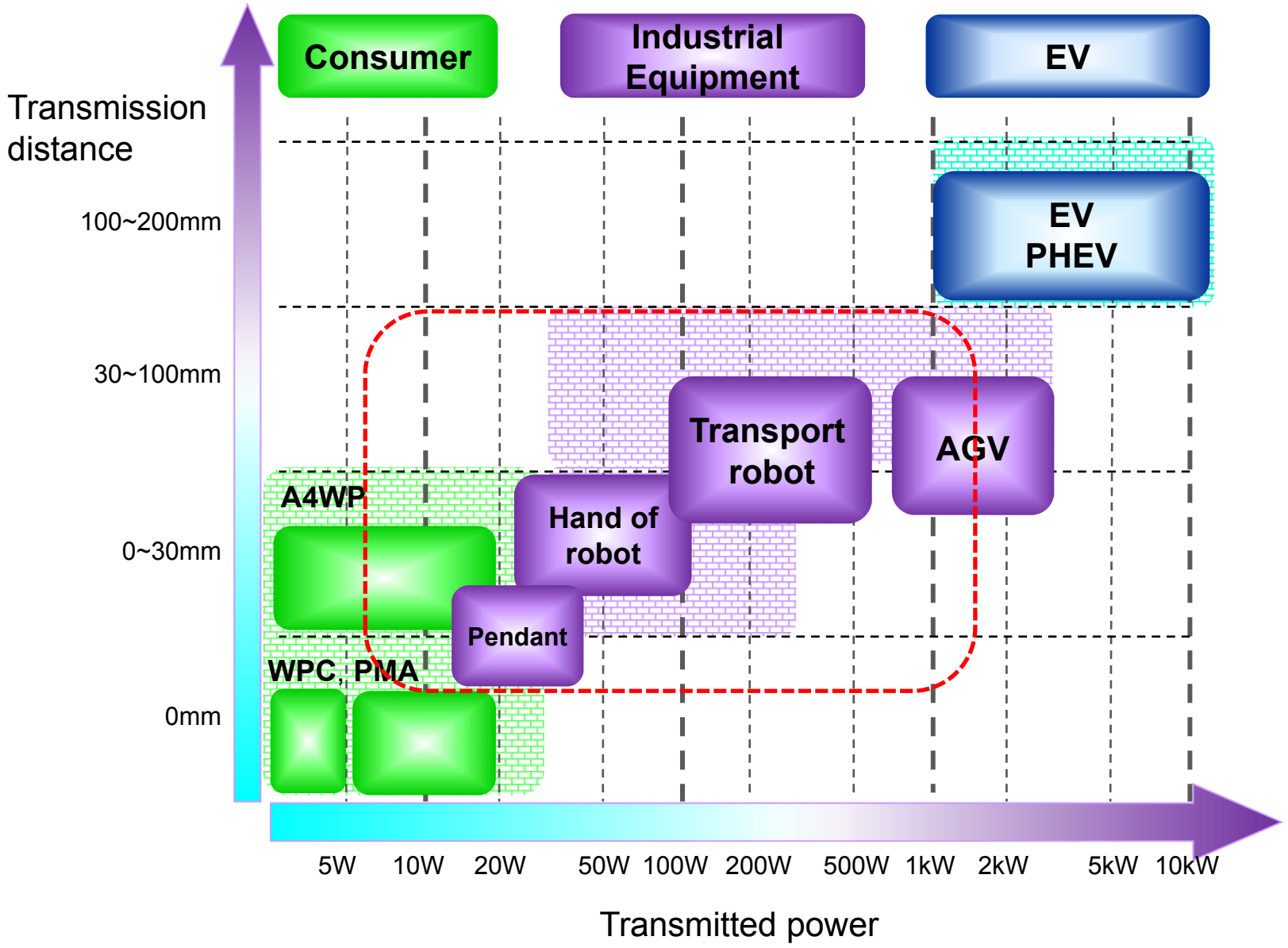
Magnetic Sensor Business

Industry segment	Application
Encoder	Camera, Linear scale 
Angle Sensors	EPS, Wiper 
Gear tooth sensors	Wheel speed, TPMS (Tire pressure monitoring system) 

Pressure Sensor Business

Industry segment	Application
Fuel	Fuel and vapor control 
	Tank and leakage control 
Exhaust	Particle filter (gasoline & diesel), Exhaust gas recirculation 
	Selective catalytic reduction 
Powertrain	TMAP, transmission, exhaust 
Brake	Airbrake 

Wireless Charging System (Portfolio)



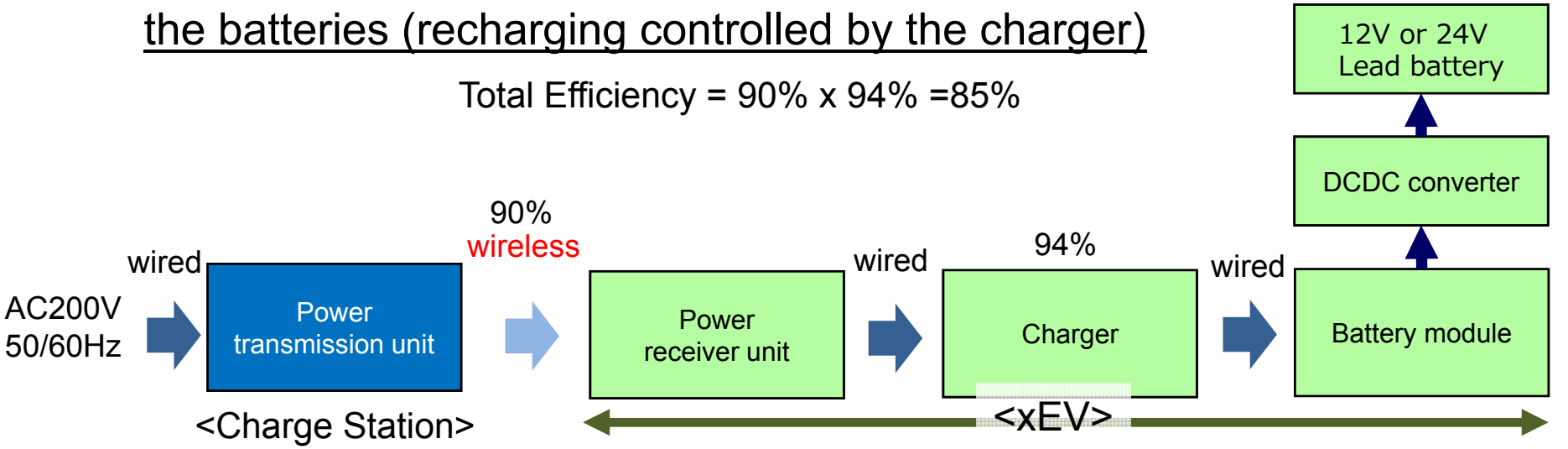
Wireless Charging System

(expansion of businesses for industrial equipment in addition to xEV)

TDK

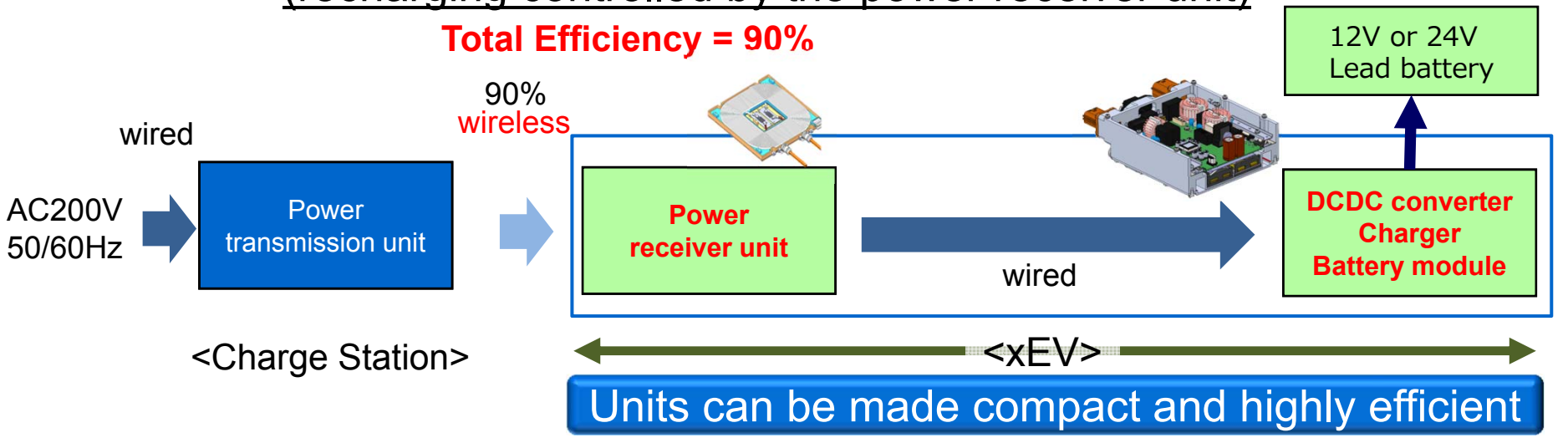
Now: A power charger equipped in the vehicle is used to recharge the batteries (recharging controlled by the charger)

Total Efficiency = 90% x 94% =85%



In the future: Wireless systems will directly recharge the batteries (recharging controlled by the power receiver unit)

Total Efficiency = 90%



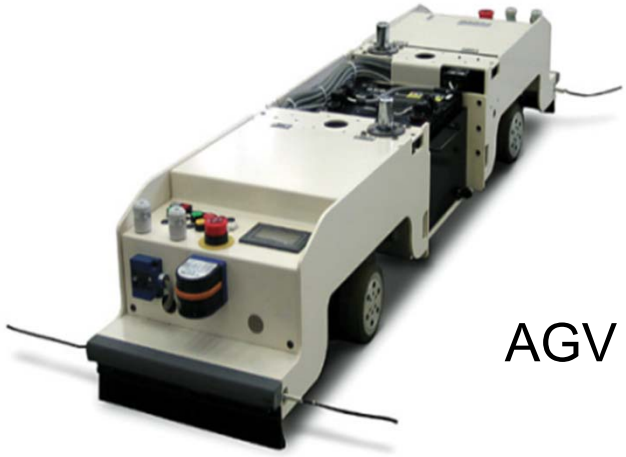
Units can be made compact and highly efficient

Wireless Charging System

(expansion of businesses for industrial equipment in addition to xEV)

Mobile Robot

Hand of Robot



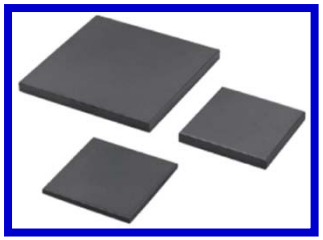
AGV

Pendant for CNC

Wireless Charging System

(Electronic components for Wireless Power Charger System)

◆Ferrite



◆Film capacitor

◆MLCC

◆Noise counter measure components

◆Lithium Polymer Battery

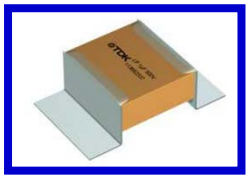
Input

AMP unit → Tx unit → Rx unit → Power receiver unit → Battery

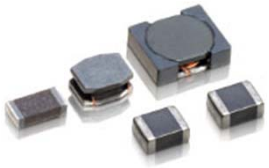
◆Varistor

◆Current Sensor

◆Cera Link



◆Inductor



◆Transformer

◆NTC thermistor

◆Electrolytic capacitor

Thin Film Devices · SESUB (Expansion of production site for thin-film passive components)

Press Release (30 Nov, 2015)

Press Releases

TDK and Renesas Electronics Sign Basic Agreement on Transfer of Renesas Electronics Subsidiary's Tsuruoka Factory

Nov. 30, 2015

TDK Corporation ("TDK", TSE: 6762), Renesas Electronics Corporation ("Renesas Electronics", TSE: 6723), and Renesas Semiconductor Manufacturing Co., Ltd. ("Renesas Semiconductor Manufacturing"), a wholly owned subsidiary of Renesas Electronics, today announced that they signed a basic agreement on November 27, 2015 under which Renesas Semiconductor Manufacturing's Tsuruoka Factory will be transferred to TDK. The three companies target to conclude a definitive agreement on the transfer by the end of February 2016, and are currently negotiating the details, including the handover date and the transfer (reemployment) of personnel currently employed at the Tsuruoka Factory.

In the news release "Renesas Electronics Shows Direction of Renesas Group," announced on August 2, 2013, Renesas Electronics indicated its intentions for the Tsuruoka Factory (then the 5-inch front-end wafer fabrication line of Renesas Yamagata Semiconductor Co., Ltd's Tsuruoka Higashi Factory) as "planned to be closed in 2 or 3 years," and plans were proceeding to close the factory by the end of the current fiscal year.

TDK, for its part, has identified the electronic components business based on magnetic materials technology as a core business. It considers its three priority markets to be the ICT market, which encompasses products such as smartphones that continue to be increasingly popular worldwide; the automotive market, which includes hybrid vehicles and electric vehicles; and the industrial equipment/energy market, which covers applications such as wind power generation and solar power generation. TDK is intensely focused on efforts to expand these businesses and their profitability through a concentration on the electronic components business targeted at these three markets. To assure future growth, TDK is working to take thin-film technology built up over many years for the manufacture of magnetic heads for hard disk drives and extend it laterally into electronic components. In order to respond in a timely manner to the vigorous demand of thin-film components that demonstrate the company's strengths centering the three priority markets, TDK decided to acquire Renesas Semiconductor Manufacturing's Tsuruoka Factory.

TDK approached Renesas and Renesas Semiconductor Manufacturing in early October of this year with a view toward acquiring the Tsuruoka Factory. The three parties were able to come to a meeting of minds, and as a result, a basic agreement regarding transfer of the Tsuruoka Factory was concluded. Negotiations on detailed conditions will continue with the aim of concluding a definitive agreement at a future date.

Background

- Establishment of thin-film passive components production base in Akita district
- Securing of the manufacturing and technical capabilities for thin-film product
- Securing of production space for future demand expansion of thin-film product

Tsuruoka Factory

※ Renesas Semiconductor Manufacturing Co., Ltd.

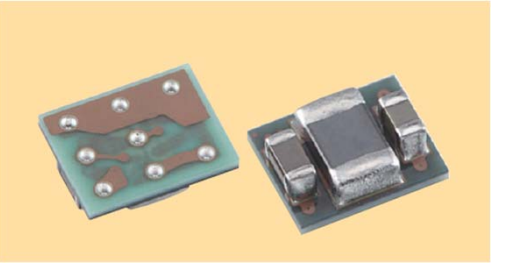
Thin Film Devices · SESUB (Target applications)

Target Applications		SESUB	Thin Film Devices
Smartphones • Tablet Devices	Power line use	Power Module	Low-profile inductors
	RF use	PA/RF Module	High Frequency Filters Capacitors downsized, arrayed and with narrow tolerance Hign Q inductors MEMS
	Sensor	Asic Package	
	Other		Common mode filters Composite components
Wearable devices (health care)	Power line use	Charger Module	Low-profile inductors
	RF use	PAN Module	
	Sensor	Asic Package	
Data Centers (servers)	CPU		Embedded capacitors

For Smartphone

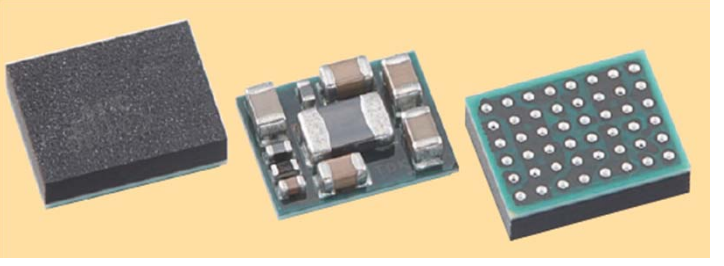
µDC/DC converter

- ◆Space-saving, power-saving DC/DC converter
- ◆Under development (Mass production will be started in 2016)



Envelope tracker

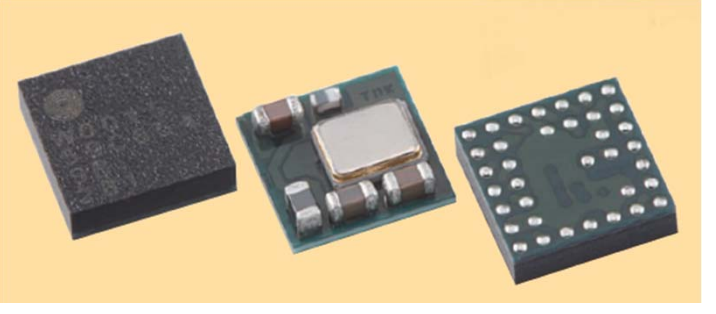
- ◆A DC/DC converter for driving a RF power amp with high efficiency
- ◆Under development (Mass production will be started in 2017)



For Wearable

Bluetooth Module

- ◆World smallest size
- ◆In mass production

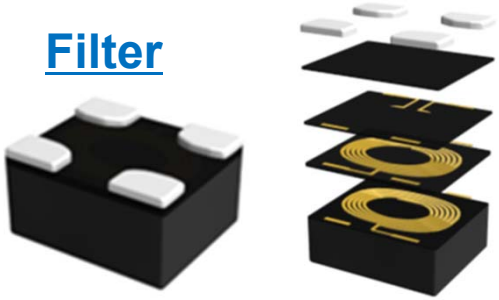


Thin Film Devices · SESUB

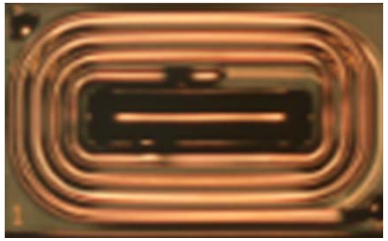
(Product families in the thin-film device business and their features)

Product family	Feature
Common-mode filters	Size reduction and performance improvements
High-frequency filters	Reduced footprint enabled by size reduction and use of arrayed configuration Performance improvements in high-frequency
Inductors	Low-profile power devices (low-profile modules) and embedded high Q-factor types (low profile)
Composite components (capacitors and inductors)	Reduced footprint and low profile achieved by composite design.
MEMS	Three-dimensional structure and material characteristics used at the core to achieve performance improvements.

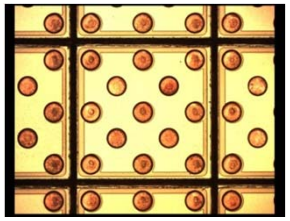
Filter



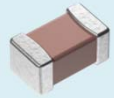
Inductor

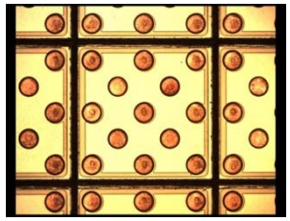


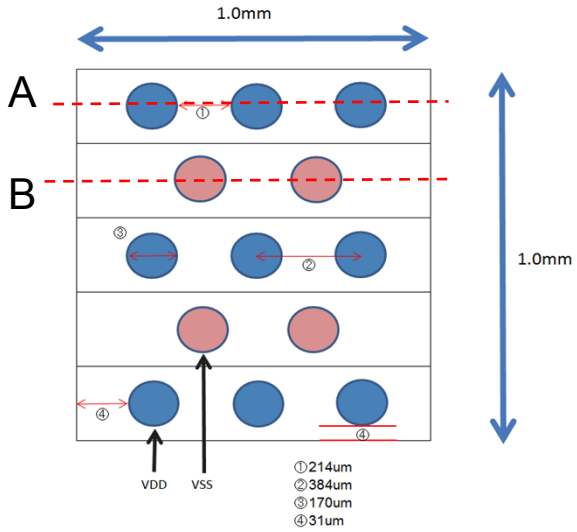
Capacitor



Thin Film Devices · SESUB (Thin-film capacitor TFCP)

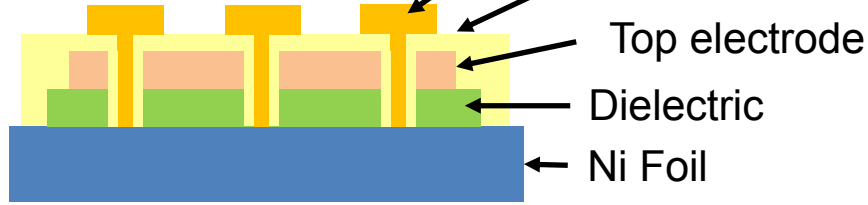
Item	Shape	Thickness (mm)	ESL (pH)
MLCC		0.5	350
TFCP		0.055	26



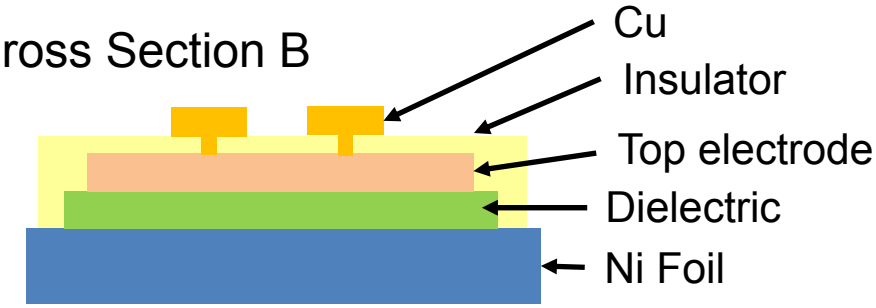


※Mass production will be started in 2017.

Cross Section A



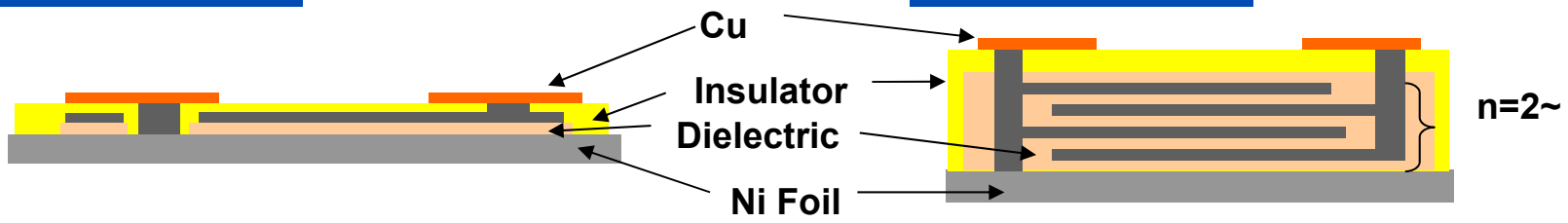
Cross Section B



Thin Film Devices · SESUB (Thin-film capacitor TFCP)

Single Layer

Multi Layers



Thickness 30μm~100μm

Year	2015	2016	2017	2018	2019
Capacitance Form 1608	22nF	47nF	100nF	470nF	2.2uF
1005	4.7nF	10nF	22nF	100nF	470nF
0603	1nF	2.2nF	4.7nF	22nF	100nF

1608, 1005, 0603(mm) : 0603, 0402, 0201(inch)

Thin Film Devices · SESUB (Business model for SESUB products)

Market change

Industry led by IC manufacturers rather than by telephone manufacturers

- Uniformized specifications
- Standardized OS (e.g., Android and iOS)
- Shortened development period

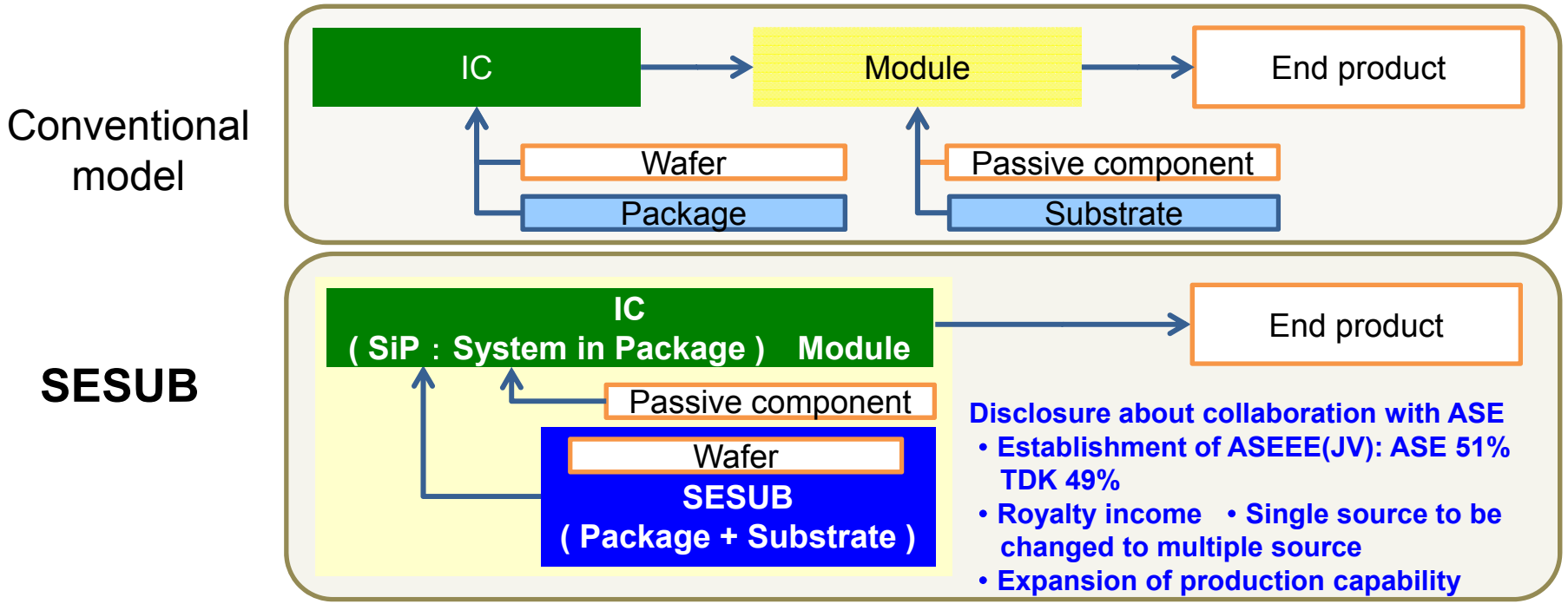
↓

Smartphone manufacturers use IC manufacturers' references

SESUB business: Gain customers in collaboration with IC makers and OSAT* companies

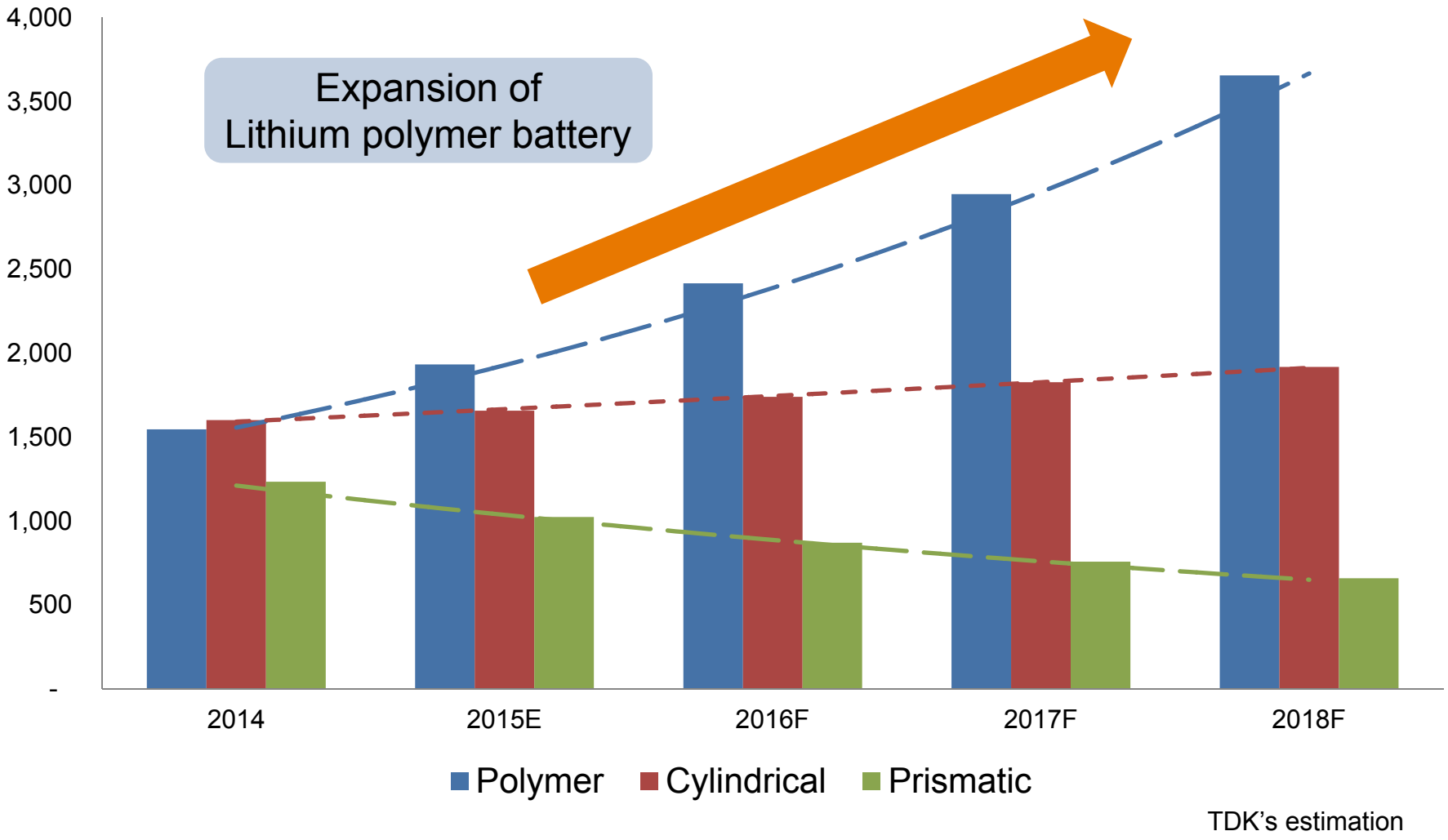
*Outsourcing assembly and testing

Business model



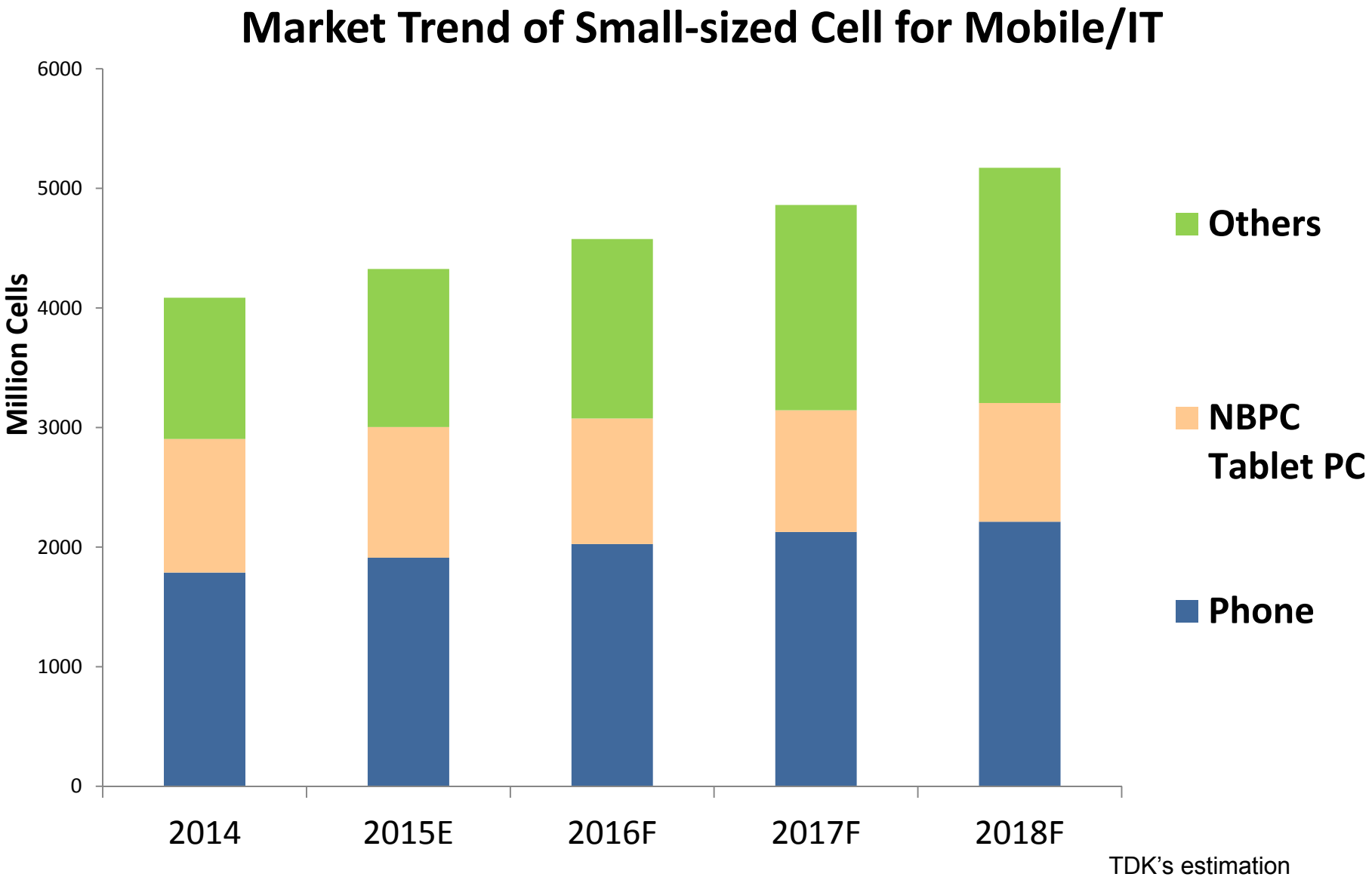
Rechargeable Batteries

Market Trend of Small-sized Cell for Mobile/IT (By Cell Types)



TDK's estimation

Rechargeable Batteries



Management Target in Mid-Term

Growth Investment

- Investment in new products, new businesses, and M&A
- Increase production capacity of existing businesses

Return to Shareholders

- Stabilize or increase dividends through EPS growth
- Target a 30% dividend payout ratio

	FY March 2015 Results	FY March 2018 Target
Operating Income Margin	6.7%	Over 10%
ROE	7.2%	Over 10%

Growth Investment

(Yen billions)

	Total investment over the next 3 years (Mid-Term Business Plan)	FY March 2016 Projections
Capital Expenditure	350.0～400.0	130.0
R&D Investment	About 230.0	77.0

- Construction of new factory buildings in the Akita area
- Production capacity increase in the 5 core businesses
- Investment in new products and new businesses

Cautionary Statements with Respect to Forward-Looking Statements

This material contains forward-looking statements, including projections, plans, policies, management strategies, targets, schedules, understandings, and evaluations about TDK, or its group companies (TDK Group). These forward-looking statements are based on the current forecasts, estimates, assumptions, plans, beliefs, and evaluations of the TDK Group in light of the information currently available to it, and contain known and unknown risks, uncertainties, and other factors. The TDK Group therefore wishes to caution readers that, being subject to risks, uncertainties, and other factors, the TDK Group's actual results, performance, achievements, or financial position could be materially different from any future results, performance, achievements, or financial position expressed or implied by these forward-looking statements, and the TDK Group undertakes no obligation to publicly update or revise any forward-looking statements after the issue of this material except as provided for in laws and ordinances.
The electronics markets in which the TDK Group operates are highly susceptible to rapid changes, risks, uncertainties, and other factors that can have significant effects on the TDK Group including, but not limited to, shifts in technology, fluctuations in demand, prices, interest and foreign exchange rates, and changes in economic environments, conditions of competition, laws and regulations. Also, since the purpose of these materials is only to give readers a general outline of business performance, many numerical values are shown in units of a billion yen. Because original values, which are managed in units of a million yen, are rounded off, the totals, differences, etc. shown in these materials may appear inaccurate. If detailed figures are necessary, please refer to our financial statements and supplementary materials.


TDK