# Strategy for Industry Business

November 27, 2020

Noriyasu Kuzuhara, Senior Executive Officer
Toshiya Eguchi, Executive Officer
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Giving Shape to Ideas

# Contribute to Customers and Society by Pursuing Value Chain Reforms in Industries

KONICA MINOLTA

**Facilitating manufacturing optimization in wide range of industries and providing safety and security by our unique imaging IoT platform and providing value to entire supply chain**

### Support a creative and sustainable society
Expand businesses supporting changes in input/output in digital age into their peripheral areas

**Materials and component field**

**Sensing field**

### Support the creation of value related to emotions and lifestyle
Expand genre-top strategy from color measurement to visual inspection

**Imaging IoT solutions field**

### Safe and secure society centered on humans
Contribute to a safe and secure society by visualizing invisible risks and accumulating and analyzing data

# Materials and Components Field
Utilizing advanced technology to provide the key devices that are indispensable to industries.

<Performance Materials><Inkjet Components> <Optical Components>
Film for displays      Inkjet heads    Lens units and optical elements

# Sensing Field
Supporting quality management in wide range of industries with technology that measures color and light

Cars and building materials    Displays and lighting    Food, drugs, cosmetics    Paper, apparel, plastic

# Imaging IoT Solutions Field
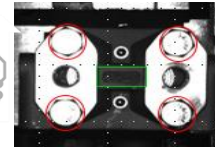Solutions combining edge devices and imaging IoT/AI

Video surveillance    Inspection and monitoring solutions    FORXAI    Imaging IoT platform

# Materials and Component Business

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# Materials and Components: Characteristics of Bussiness

We provide processed products (performance materials, optical components) and inkjet processes at the first stages of the supply chain for massive industries. This helps to advance the input/output capability in industry digitalization.

## Supply chain

| Raw materials | Processed products | Components | Devices | Products and services |
| --- | --- | --- | --- | --- |
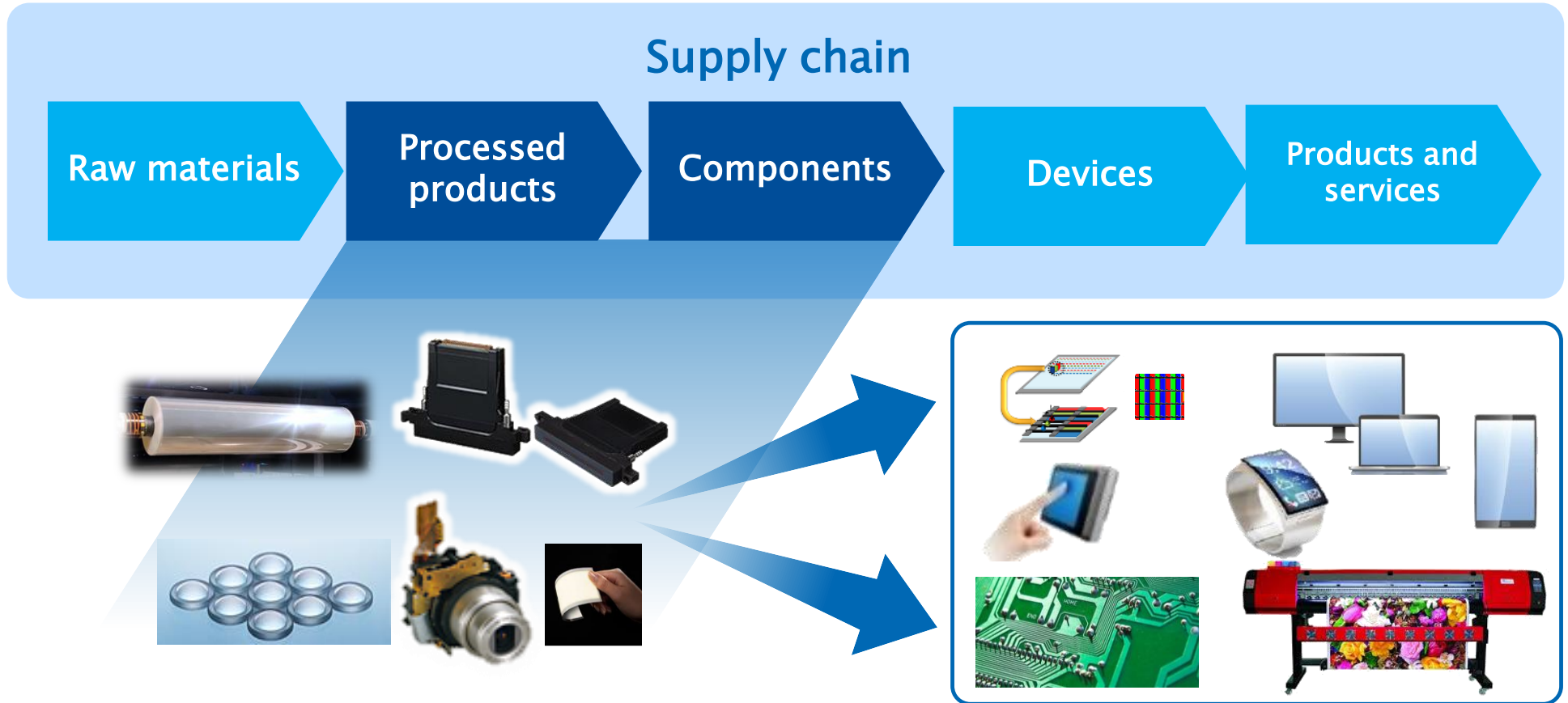
Target markets can be changed flexibly in response to changes in the environment affecting downstream devices and products
➡ **Business characteristic**

# Materials and Components:
# Intangible Assets to Support Genre-top Strategy

| | Intangible assets | | |
|---|---|---|---|
| | **Technology** | **Customers** | |
| **Performance materials** | Solvent Casting and stretching technology built on photographic film | Firm relationship to small number of influential customers and partners on supply chain in large industries | · Phase difference film<br>· Thin film for small- and medium-sized displays<br>➡ No.1 |
| **Inkjet components** | Inkjet process technology developed in printer business<br>High durability based on materials technology | | Inkjet heads for Chinese sign market<br>➡ No.1 |
| **Optical components** | Optical design technology originating from cameras and copiers | | · Pickup lens<br>· Lens unit for cinema projectors<br>➡ No.1 |

# Materials and Components: Growth Strategy

We aim to expand into new fields that will represent the high-level concept for our business in the proactive perspective in 2025.
In this medium-term plan, expanding business in growth areas will be the driver of profit growth.

Reforms to customers' manufacturing in material processing in various fields

Raw materials → Processed products → Components → Devices → Products and services

Non-destructive analysis

Testing, analysis, proposals
Reform through DX

**New fields**

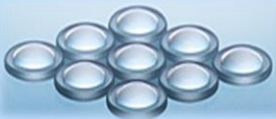Expansion in large-sized TV and mobile fields by new resin

Providing inkjet process into on-demand printing and industrial printing field

**Growth fields**

**Core fields**

# Materials and Components: Shift of Industrial Fields

We are moving away from fields that are primarily core businesses that have slowed or suffered a temporary impact due to the COVID-19 and designating growth areas as our target markets for expansion into FY2022.

| During COVID-19 After COVID-19 | Industries premised on direct communication and movement of people | | Advances in and diversity of information terminals, localization of manufacturing |
|---|---|---|---|
| | Declining fields ▶ | Temporary and limited impact | ▶ Growth fields |
| **Performance materials**  | | Television  | Large-sized TV / Small- and medium-sized information devices  |
| **Inkjet components**  | | Outdoor advertising  | Industrial printing (Printed-circuit boards, etc.) / On-demand printing  |
| **Optical components**  | Digital cameras  Cinema projectors  | Pick-up lenses  | Drones  Cars  |

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Building up the scale of sales in growth areas will drive higher profit.
We have set this sales ratio as a strategic KPI and will work steadily to grow our business.
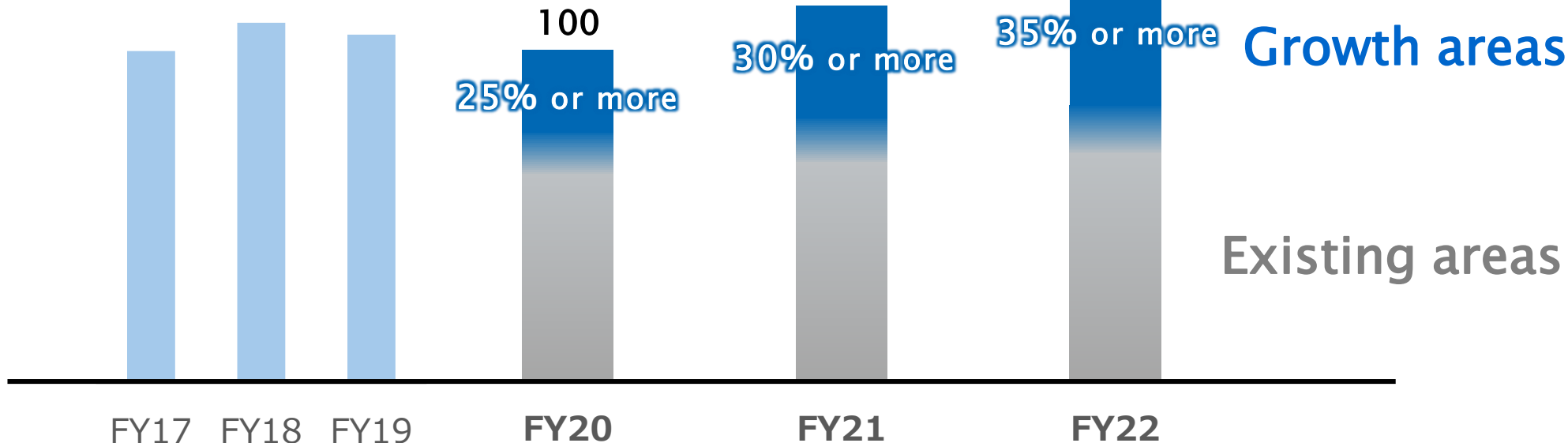
Operating profit +¥3.5bn

Expand scale of sales and increase profit by shifting to growth areas and restoring markets

Operating profit +¥2.5bn

Expand scale of sales and increase profit by shifting to growth areas

**Sales compared to FY20**

*Scale of sales assuming sales in FY20 were 100.

128

113

100

25% or more

30% or more

35% or more

**Growth areas**

**Existing areas**

FY17  FY18  FY19  **FY20**  **FY21**  **FY22**

# Materials and Components:
# Performance Material Business

① Larger display TVs and ② OLED/Flexible display for mobile devices are business opportunities.
Konica Minolta is aiming for expansion and growth as the only manufacturer with both TAC film, which can secure stable demand, and new resin film, which can be used in growth areas for displays.

## Solvent belt casting line

Konica Minolta's film casting factories use the belt casting method suited for phase difference film (VA, IPS) and ultra-thin film.
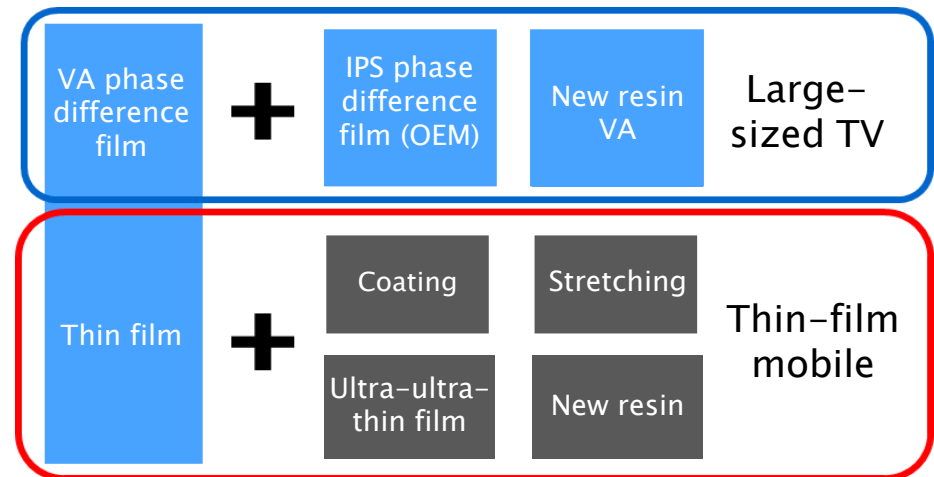
**No.1 share**

**Phase difference film for LCD-TVs**

**TAC protective film for small- and medium-sized mobile devices**
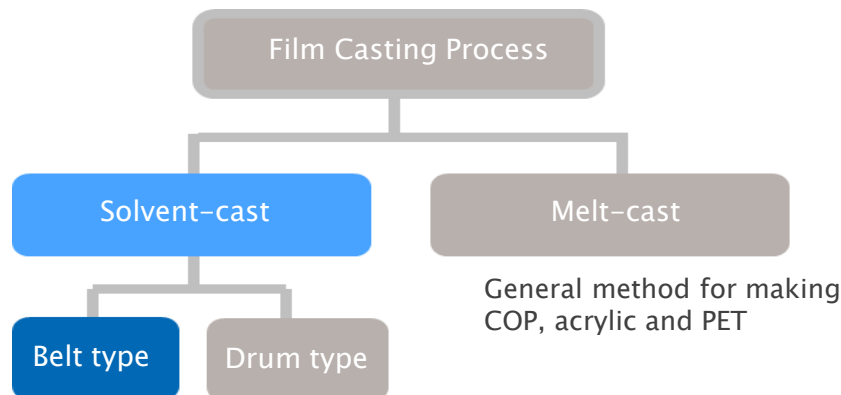
Foundation established even more firmly for expansion into growth fields

1. Expand production capacity — OEM shift, New resin VA

2. Introduction of new resins, strengthen high-performance infrastructure

Strengthen performance: Coating, Stretching, Ultra-ultra-thin film

**Film Casting Process**

**Solvent-cast** — **Melt-cast**

General method for making COP, acrylic and PET

**Belt type** — **Drum type**

| VA phase difference film | **+** | IPS phase difference film (OEM) | New resin VA | Large-sized TV |

| Thin film | **+** | Coating | Stretching | Thin-film mobile |
| | | Ultra-ultra-thin film | New resin | |

In the ultra-large sized display field, which continues to expand, we will support the multiple root for customers' buying behavior and strengthen aptitude for large size.
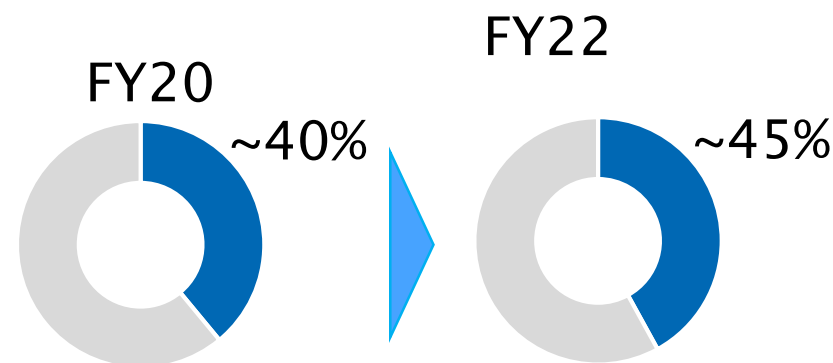  VA: SANUQI   IPS: TAC-IPS
With OLED-TV, we will expand with anti-reflection polarizer applications, and further expand new resins, in addition to the existing TAC film.

| Target area | | Market scale | Our expansion plan | Items |
|---|---|---|---|---|
| Market growth | Driven by large sized display, and OLED | +¥13.5 billion (FY20→22) | +¥6-7 billion (FY20→22) | SANUQI-VA TAC-IPS Film-type circular polarizer phase difference |
| Market changes | Material replacement, share | | | |

LCD phase difference＋OLED anti-reflection market scale （¥ billion）

More than LCD65 inches + OLED anti-reflection

Less than LCD65 inches

2020  2021  2022
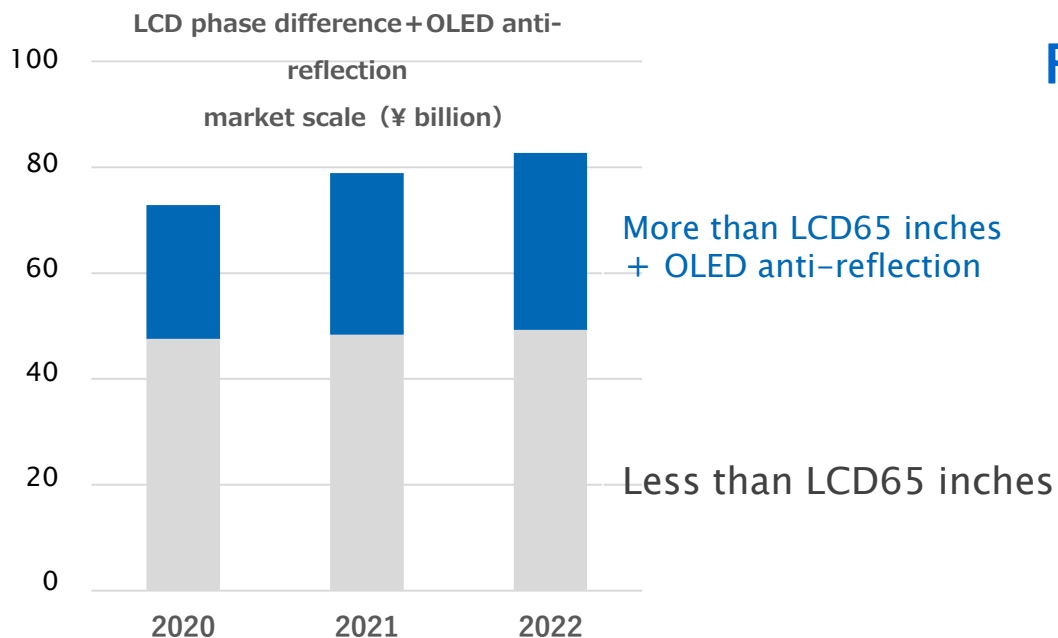
## Further solidify No. 1 share of phase difference film by area

FY20 ~40%

FY22 ~45%

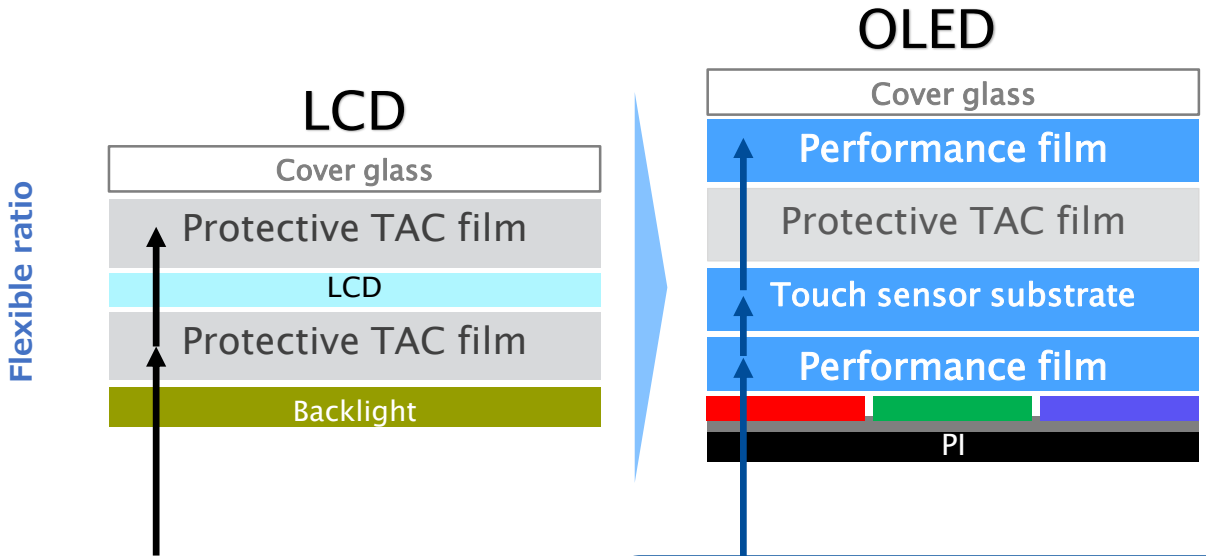Modified by Konica Minolta using data provided by Omdia.

# Growth Area ② Small- and medium-sized Mobile field

KONICA MINOLTA

As OLED is introduced, functions become more sophisticated and designs more diverse, materials have to be thinner and more functional. We will lock in a market that we can grow by using ultra-thin film and high-performance film as our asset.

**Small- and medium-sized mobile displays (monetary value)**

Small- and medium-sized mobile displays (monetary value) (Billions USD)

Flexible ratio
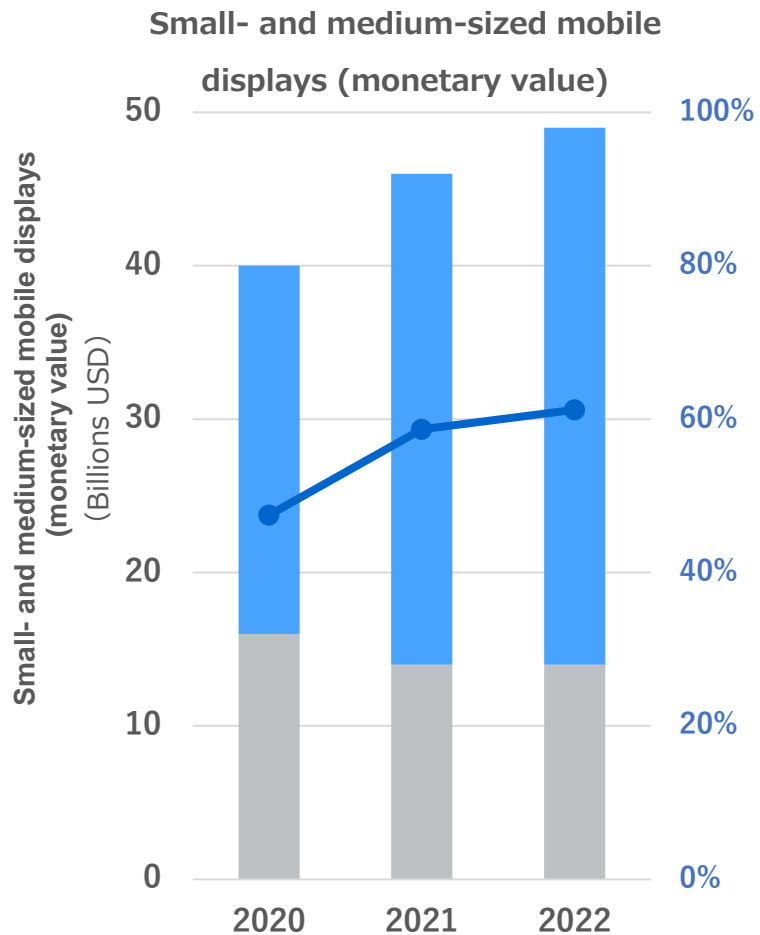
**Provide and expand ultra-thin film and high-performance film customized to characteristics of all kinds of displays**

## LCD

| Cover glass |
| Protective TAC film |
| LCD |
| Protective TAC film |
| Backlight |

## OLED

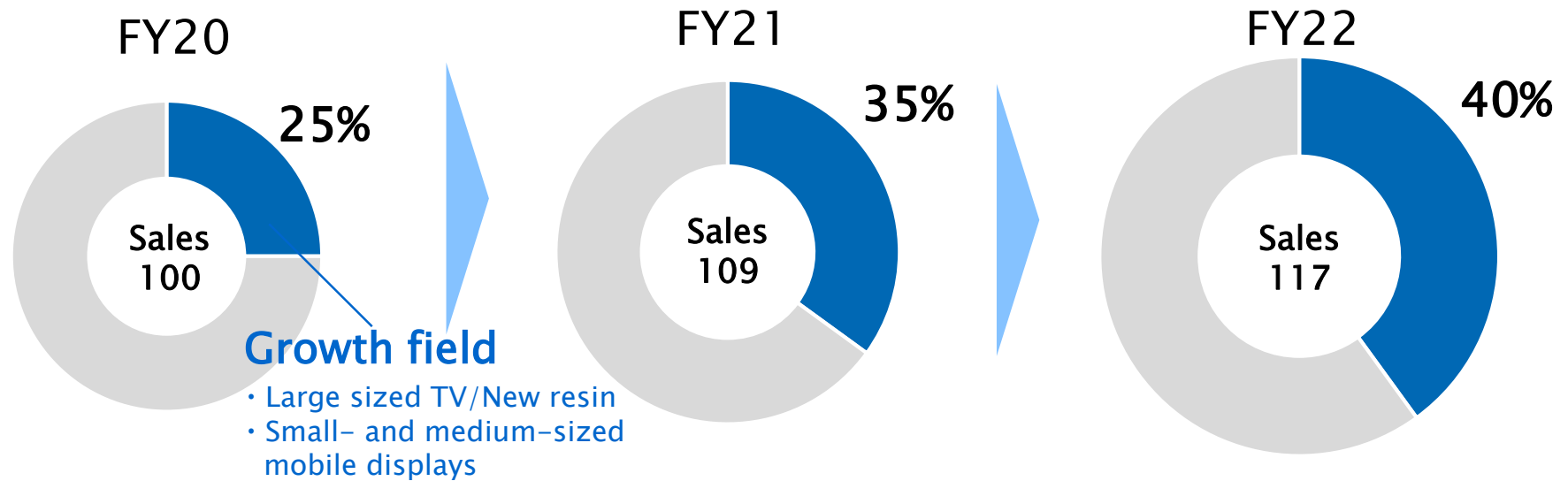| Cover glass |
| **Performance film** |
| Protective TAC film |
| **Touch sensor substrate** |
| **Performance film** |
| PI |

No. 1 share of protective TAC film

**Film with diverse functions added**

Coating processing / Stretching processing
Ultra-thin film / New resin with additional function

Modified by Konica Minolta using data provided by Omdia.

# Performance Materials: Expanding Growth Fields

We have identified large-sized TVs, new resins and small- and medium-sized mobile devices as our growth fields, and will expand sales with these drivers to generate profit.

*Scale of sales assuming that sales in FY20 were 100.

## FY20

**25%**

Sales
100

**Growth field**
· Large sized TV/New resin
· Small- and medium-sized mobile displays

## FY21

**35%**

Sales
109

## FY22

**40%**

Sales
117

## Strategic KPI

· **Percentage of our phase difference film for large displays**
　FY20: 15%　　　　　　　　FY21: 20% or more　　　　　FY22: 30% or more

· **Rate of high-performance items for small- and medium-sized devices**
　FY20: 10%　　　　　　　　FY21: 25% or more　　　　　FY22: 50% or more

# Materials and Components:
# Inkjet Component Business

We provide high added value to customers in the upstream supply chain, specializing in inkjet head-related devices. In this medium-term strategy, we set a broad target in the printing field, which is undergoing digitalization.

## Sales

*Sales assuming sales in FY20 were 100.

100 — FY20
136 — FY21
175 — FY22
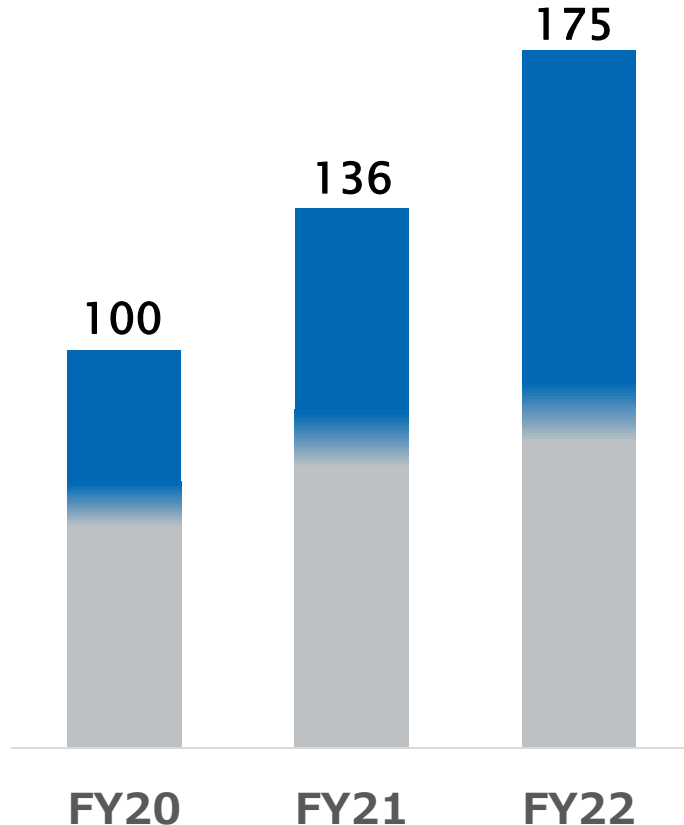
**Growth fields**

### Promoting inkjet process in new markets

With the concept "print on things," we will expand inkjet heads to markets that have been slow to adopt inkjet printing thus far. Business expansion will exceed market growth.

**Existing fields**

### Restore and maintain prior markets

We aim to steadily restore prior markets, particularly sign graphics, from the impact of the COVID-19 and maintain the business's scale.

➡ **Support for reforms in China's sign graphics market through new environment-friendly products**

# Inkjet Components: Target Growth Markets

We have divided growth fields into two categories and set these as our targets. We aim to expand our business in these fields according to our position and market characteristics.

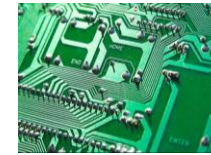## Medium-term sales for inkjet heads in growth fields



FY20     FY21     FY22
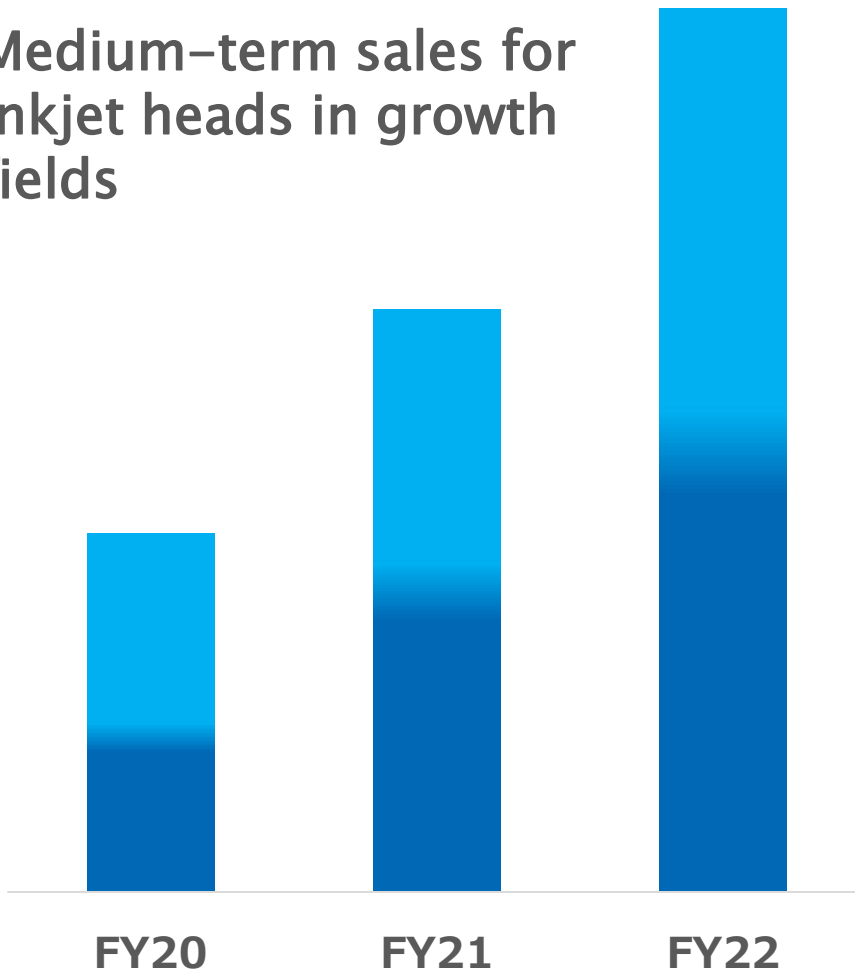
### Growth field ①: Industrial applications
### "Further strengthen fields in which we are strong"

We can utilize the key features of our products and achieve further growth in fields in which we already have a high market share.



Displays     Printed-circuit board printing     Automobile painting

### Growth field ②: On-demand printing
### "Gain new strengths and enter markets on a full scale"

We will raise added value with new technology acquired in M&As and expand share in growing markets.



Soft packaging and packages     Cardboard boxes     Building materials and textiles

# "Further strengthen fields in which we are strong"

Expand inkjet heads in industrial printing field, which is expected to see high growth, with our high share in the sign graphics market as our starting point

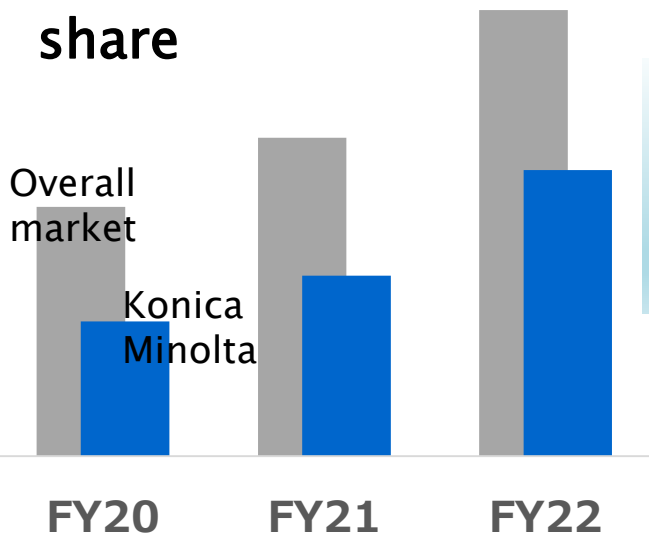With materials technology as the foundation, achieve wide-range ink compatibility and high durability

Expand into industrial applications

Device manufacturer

Konica Minolta

Ink manufacturer

Industrial printing End-user

## Market scale and our share

Overall market

Konica Minolta

FY20 ➡ 22

Forecasting growth rate exceeding market growth
Market: +80%
Konica Minolta: +90%

FY20  FY21  FY22

## Market's characteristics
Building relationships with key players such as major end-users and device manufacturers will be a key point. This is consistent with the style of the materials and component business, our particular skills.

## Our positioning
Our products, which are highly durable since they use special ink, have an edge, and have already won high share in the market.

## Market growth potential
Needs for the use of inkjet products in industrial applications, such as displays and printed-circuit boards, are expected to expand rapidly.

## "Gain new strengths and enter markets on a full scale"

The influence of COVID-19 has accelerated the localization and customization trends in manufacturing. We will fully enter the market for on-demand printing, which is growing rapidly as a result.
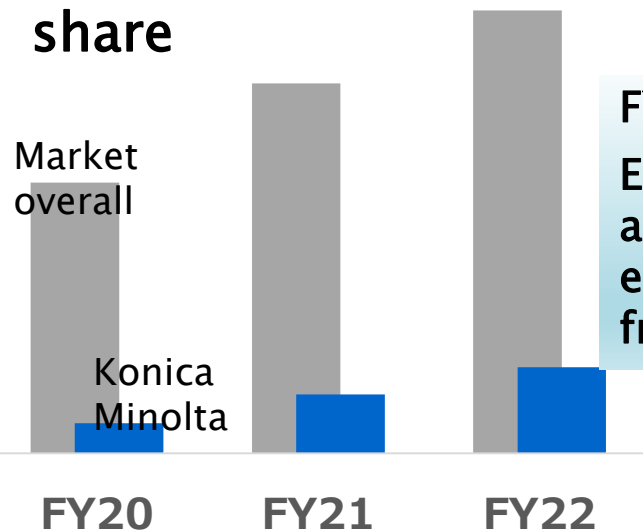
Our inkjet heads (conventional) +

**Technology acquired through M&As in previous medium-term plan period High-precision, high-density and high-speed inkjet heads**

## Market scale and our share

Market overall

Konica Minolta

**FY20 ➡ 22**

**Enter market on a full scale and expand share from 11% to 20%**

FY20  FY21  FY22

**Market's characteristics**
Market with fierce competition between companies; the basic features of inkjet heads (high precision, nozzle density, ejection performance) are weighed heavily.

**Our positioning**
The market share of our conventional products is somewhat low. We have finished expanding the product lineup of highly unique new technology that we have acquired.

**Market's growth potential**
In the printing industry in emerging markets, including China, on-demand services are expected to expand rapidly and over a broad range. These regions overlap with the sign graphics market, in which we keep a high share already.
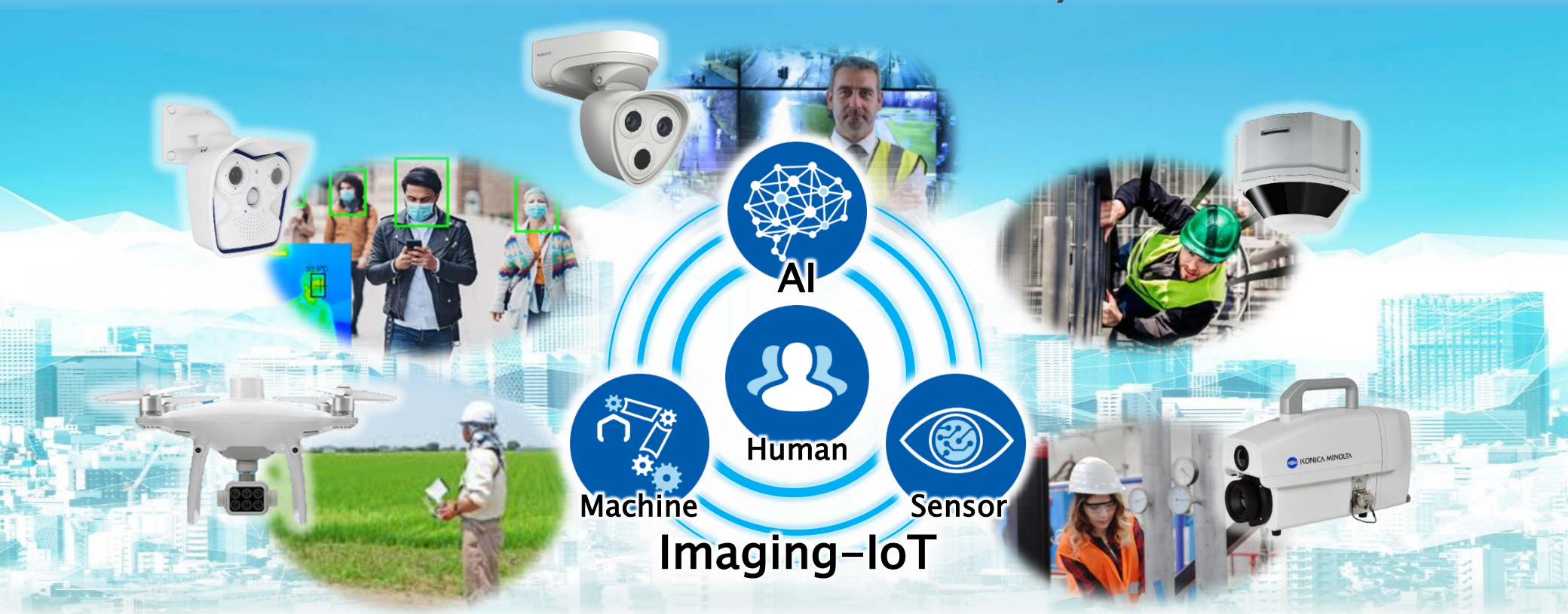
KONICA MINOLTA
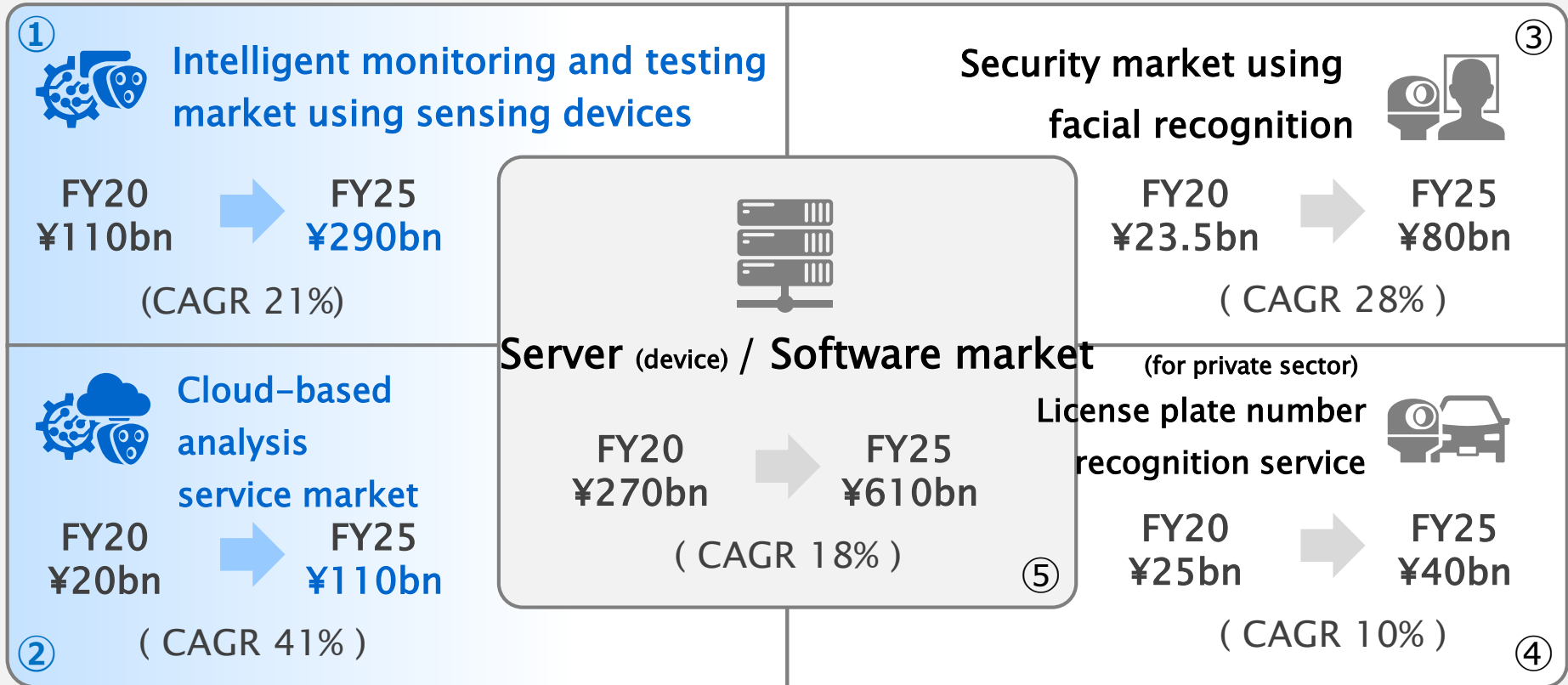
# Imaging IoT Solutions Business

November 27, 2020

Toshiya Eguchi, Executive Officer

Giving Shape to Ideas

## Image analysis service market (¥1.1trn)[1]

① **Intelligent monitoring and testing market using sensing devices**

FY20 ¥110bn ➡ FY25 ¥290bn

(CAGR 21%)

② **Cloud-based analysis service market**

FY20 ¥20bn ➡ FY25 ¥110bn

( CAGR 41% )

**Server (device) / Software market**

FY20 ¥270bn ➡ FY25 ¥610bn

( CAGR 18% ) ⑤

③ **Security market using facial recognition**

FY20 ¥23.5bn ➡ FY25 ¥80bn

( CAGR 28% )

(for private sector)
④ **License plate number recognition service**

FY20 ¥25bn ➡ FY25 ¥40bn

( CAGR 10% )

**Total addressable market for this business[2]**
**Image analysis service using sensing systems such as network cameras with AI processing functions and links to the cloud**
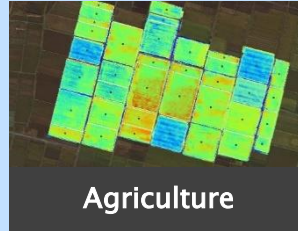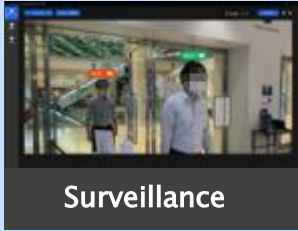
**TAM: ¥290bn**

*1 Reference: Calculated based on "FY20 Security Camera Market Predictions and Next-Generation Strategies" (Yano Research Institute Ltd.)
*2 This business's target market: ①¥250bn + ②¥40bn (our estimate)

# Expansion of Imaging IoT Solution Business in Industry Field

KONICA MINOLTA

## Imaging IoT Solutions Business Fields（Monitoring and inspection）

| | | | | | |
|---|---|---|---|---|---|
| Surveillance | Plants, infrastructure | Agriculture | Factories | Healthcare, nursing | Marketing |

### API / SDK

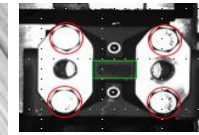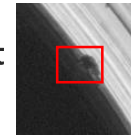| Installation, or use of applications, or AI | Data management | Multi-tenant | High security | | AI | | Device management | Account management | Remote updates |
|---|---|---|---|---|---|---|---|---|---|

· Posture estimates
· Attribute estimates

· Behavior recognition
· Recognition of surrounding objects

Human behavior monitoring

Measurement Inspection Diagnosis
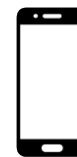
· Visual inspections
· Quality inspection

## FORXAI

### Konica Minolta's sensing devices

Mobotix AI camera

Gas leak monitoring system    3D LiDAR

### Diverse devices

FORXAI™ is an imaging IoT platform that accelerates the digital transformation (DX) of society together with customers and partners.

"FORXAI™" stands for "foresight," the ability to predict the future, and "for X AI" (AI for the sake of society).

Technology partners

Customers

Business partners

# FORXAI

Services provided with FORXAI™

Functions to provide optimal IoT services to solve customers' issues, and AI algorithms and API/SDK for the development environment

Research institutions

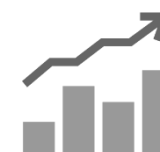Educational institutions

Local governments and government agencies

## Merits of introducing FORXAI™

**Rapid launch of services**

**Minimize management costs**
Remote updates
Maintenance

**Ongoing evolutions in value**
AI and image processing technology

# Shifts in Business Model with FORXAI™

Strengthen engagement with customers by sustaining relationship with partners using FORXAI™;
Shift to a high performance business model with more efficient sales and service operations in conjunction with partners

Customers



**FORXAI**

Technology partners

Business partners
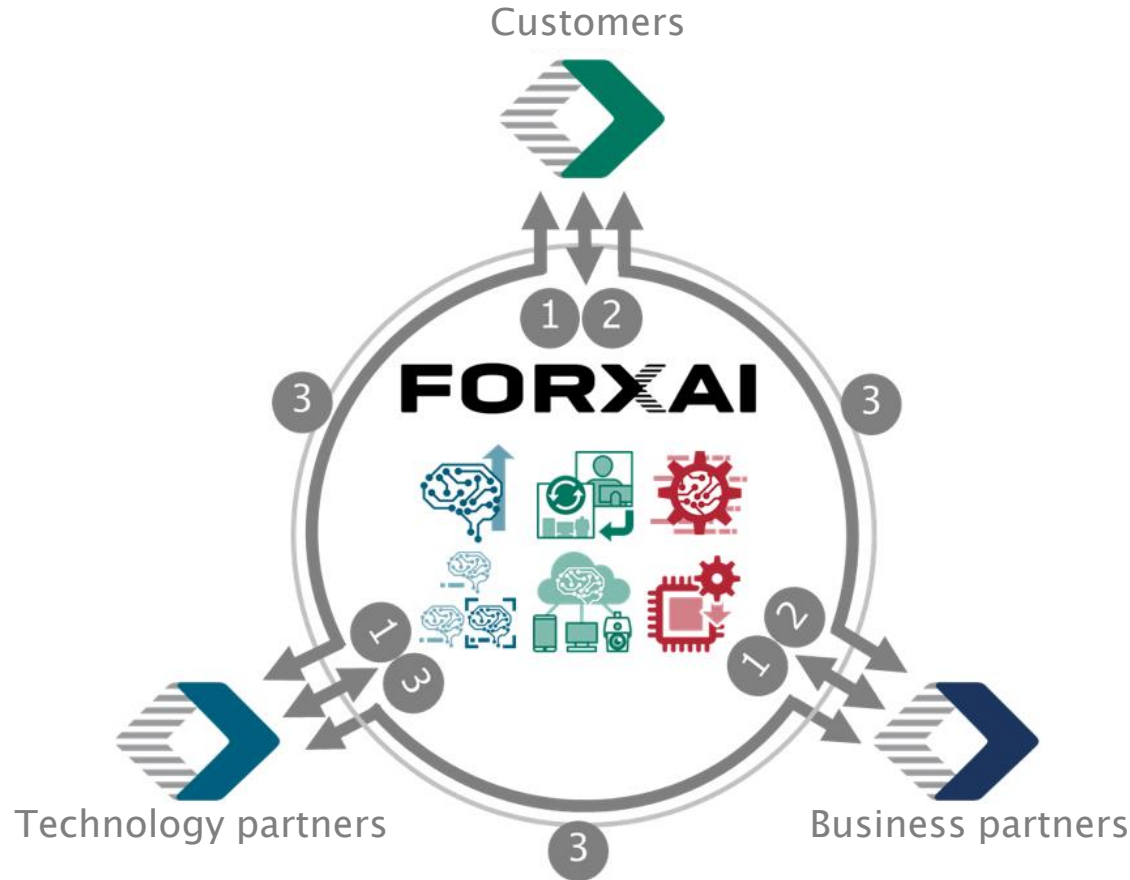
| | Fee-based model |
|---|---|
| 1 | Remote monitoring and updates (fixed fee) |
| 2 | Application and solution provision （Fixed/pay-per-use） |
| 3 | AI algorithm and data provision API/SDK usage fee （Registration fee, pay-per-use) |

← → Information line (goods, services and money)

# Fee-based model

# Konica Minolta's Imaging IoT Technology

Gain an edge with the combination of our own device and algorithm development technology and high-speed implementation technology

**Input device development**

**Data learning → Algorithm development**

**AI system development**

### Input device development

- Behavior analysis sensor
- Digital X-ray equipment
- Fluorescent nanoparticles
- Spectrophoto meter
- AI camera
- X-ray Talbot-Lau

### Data learning → Algorithm development

**Deep learning model creation**

**Machine learning model creation**

**Development infrastructure**

- Learning environment
- Data analysis PF

### AI system development

**Image recognition＋Data analysis**

**Human behavior**
- Posture and Behavior recognition
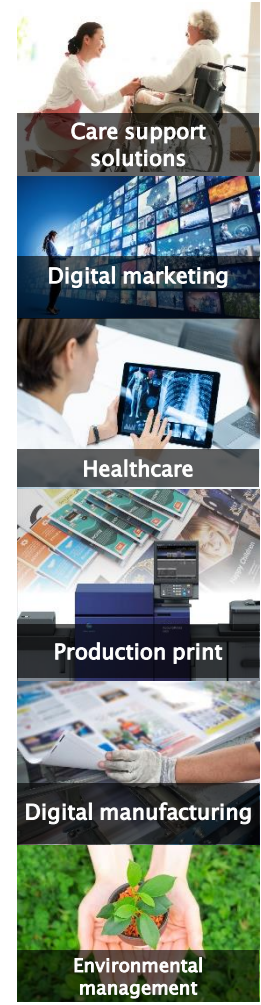
**Advanced medicine**
- Cell recognition
- Medical imaging

**Inspection**
- Visual inspection
- Facility inspection

**Algorithm implementation technology**

Hardware Optimized implementation
（CPU, GPU, FPGA）

### Applications

- Care support solutions
- Digital marketing
- Healthcare
- Production print
- Digital manufacturing
- Environmental management

# Building an Edge through Differentiating Technology

We will refine imaging IoT technology in the monitoring and inspection field with services, and expand the applicable scope of social implementation through co-creation with technology partners.

[Monitoring]

Human behavior＋objects (simultaneous recognition)

[Inspection]

Visual inspections of manufactured goods (quality check)
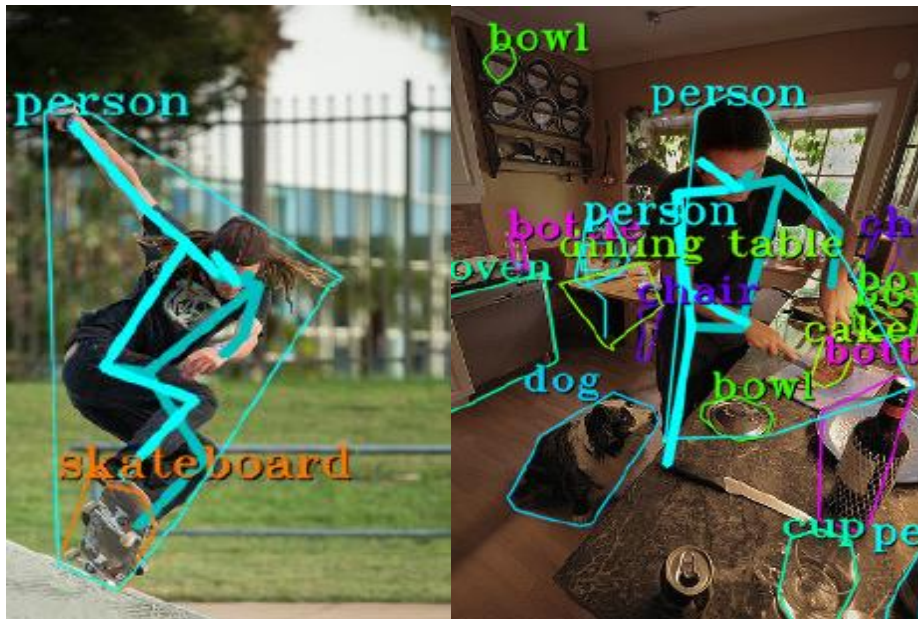


Global top-level recognition accuracy and processing speed (compared to top companies in International Conference on Computer Vision in 2018 and 2019)
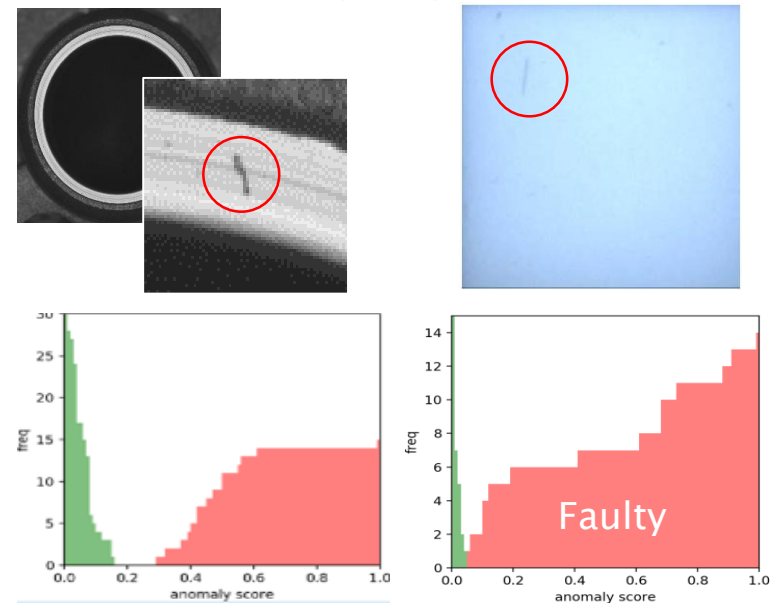
Global top-level quality accuracy in visual inspections (compared to companies specializing in image processing with a global top share)

# Examples of Business Expansion through Co-creation with Partners

By combining the technologies owned by strategic partners with cutting-edge technology, we aim to establish a competitive advantage and generate new value while expanding the business.

## Collaboration for complementary products and AI system introduction
**Panasonic i-PRO Sensing Solutions Co., Ltd.**

Video monitoring system to prevent spread of infectious disease



MOBOTIX

AI network camera and recorder
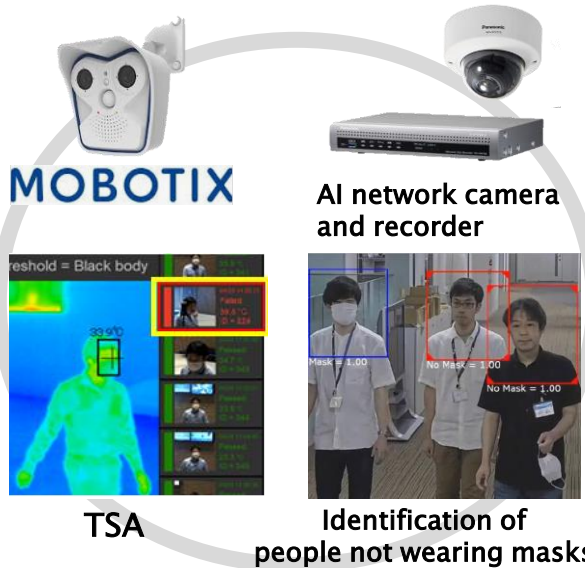
TSA

Identification of people not wearing masks

（TSA: Temperature Screening App.）

## Imaging IoT × 5G × Facial recognition
**NEC Corporation and KDDI**

Office solutions that change work styles with 5G communications

Local 5G（NEC)/Carrier 5G (KDDI)



AI

Machine    Sensor

Facial recognition（NEC)

## Imaging IoT × cloud service
**ABP International**

Expansion of cloud imaging service in North America



Cloud VMS

IPTechView
The RMM Platform for MSPs in IP Technology

# Accelerating Sales Growth and Profitability Improvements in Imaging IoT Solution Business
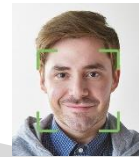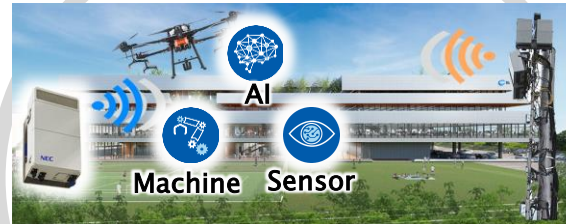
## Major initiatives

Scaling up by collaborating with strategic partners

### EU
・Strengthen competitive advantages in intelligent monitoring/inspection field by using AI cameras, a new product

### US
・Expand sales in collaboration with VMS manufacturer, using "made in Germany" as a strong point

### Japan, APAC
・Expand through solution developments with strategic business partners

Improve efficiency of development and sales using eco systems

・Promote development in collaboration with partners using the FORXAI™ platform and shift to a recurring business
・Reduce service operation costs

## Sales growth

100     CAGR ＋30%     167

Others
APAC
JPN
US
EU

FY20     FY21     FY22
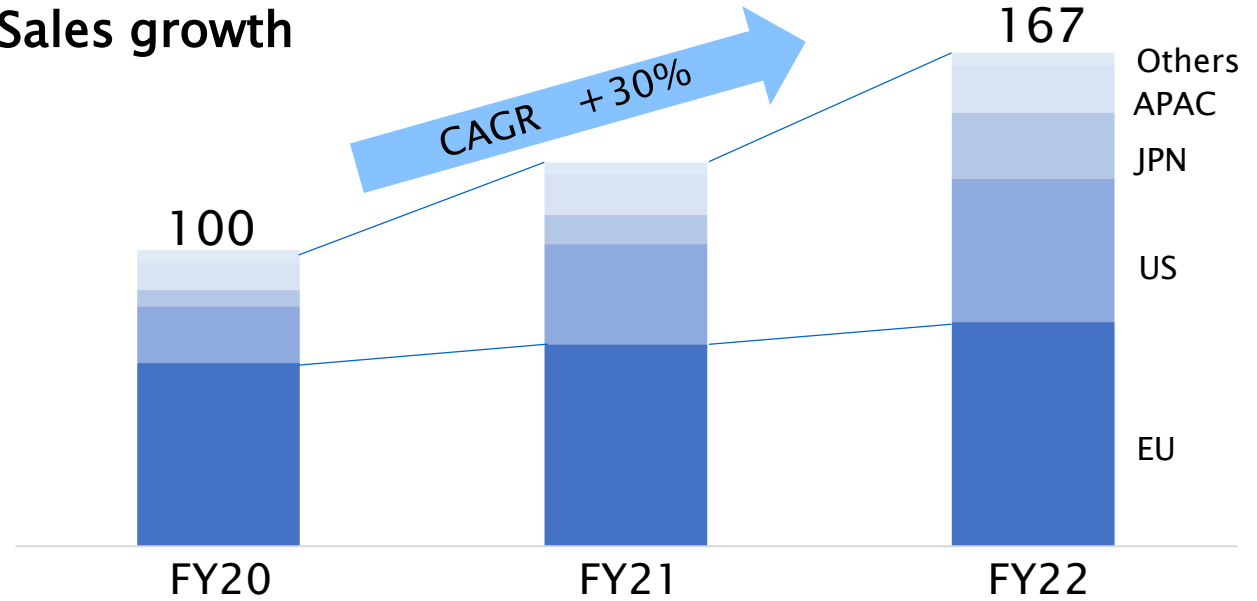
*Excluding visual solutions business

## Profitability improvements

Higher gross profit due to increase in sales

Increase in SG&A expenses

＋¥1.5bn

FY20→FY21

FY21→FY22

＋¥2bn

# Growth of Imaging IoT Solutions Business and KPI ahead of FY25

## ■ Image analysis service market

**Market for intelligent monitoring and inspection using sensing devices ¥290bn**

TAM: ¥290bn*

**Cloud-based analysis service market ¥110bn**

## ■ Target customers

**Monitoring and inspection needs**
- Security and safety on site
- Automation, predictive maintenance
- Extremely high reliability

**Target customers**
- Plants, factories
- Warehouses, logistics
- Schools, hospitals
- Buildings, offices
- Local governments, government agencies

×

## ■ Regional strategies

Maintain and expand Mobotix foundational business

Expand solutions via technology co-creation

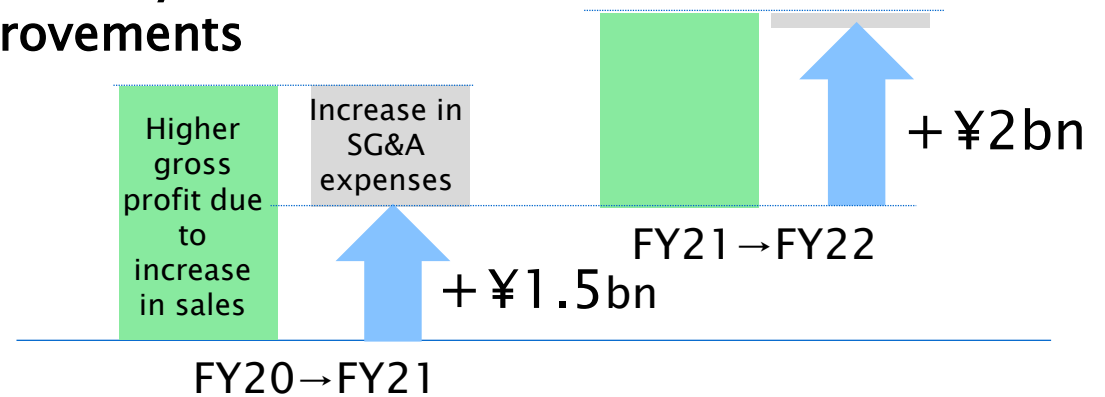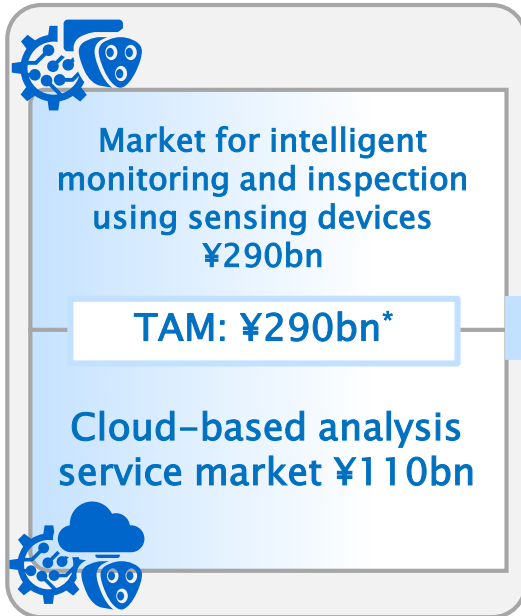US 4.6 times
Capture growth opportunities

EU 1.6 times

JPN Over 10 times

APAC2.6 times
Expand into growth markets

*Market for CPU network camera systems with AI processing functions and image analysis services via the cloud

## ■ KPI

| Measures | FY20 | FY21 | FY22 | FY25 |
|---|---|---|---|---|
| **Acquire strategic partners** to achieve a business model with rising sales and high revenue<br>✓ AI camera technology and solution partners<br>✓ Business partners in the gas monitoring business (Japan, US, APAC) | 55 companies | 75 companies | 100 companies | 150 companies |
| **Reduction in SG&A expenses** by raising the efficiency of the development and sale of services using FORXAI™ | Compared to FY20 | −10% | −15% | −20% |

# Sensing Business Strategy

November 27, 2020

Hitoshi Kamezawa, Executive Officer

**High-added-value business that provides measuring tools for light and color that is reliable and helps to optimize manufacturing**

The Standard in Measuring Color & Light

■ **Light source measurement**

**Display, LED, and lighting inspection**
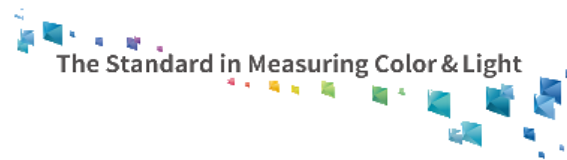
- Display color adjustment
- Display light irregularity inspection
- LED light evaluation and quality management
- Color management for auto parts

■ **Object color measurement**

**Color quality management in wide range of industries**

- Grade divisions by product color for foods
- Color management for printing (such as IQ-501)

■ **Visual surface inspection**

**Autos and ICT Visual surface inspection**

- Inspection of exterior damage
- Inspection of auto exteriors for gaps and unevenness

①FY2019 sales

Visual surface

Object color

¥27.8bn

Light source
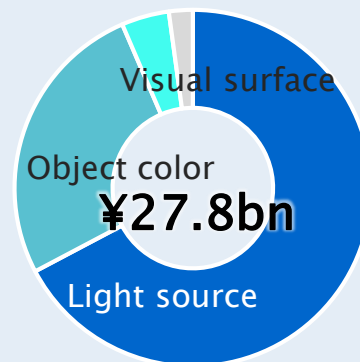
②H1 FY2020
11% YoY increase

**Factors behind increase in demand for our measuring instruments**

- Particularly during and after COVID-19 outbreak,
  - demand for IT devices has increased,
  - applications for display products have increased,
  - there has been a trend toward automation and manpower-saving
- New inspection needs are occurring due to new materials and new technologies

**Projects on market scope**[*1] **[¥billion]**

2019

| Light source 38 | Object color 44 |

Visual inspection 5

Imaging test 600

Light and image measurement test

2025

| Light source 50 | Object color 50 |

Visual inspection 10

Imaging test 870

Light and image measurement test
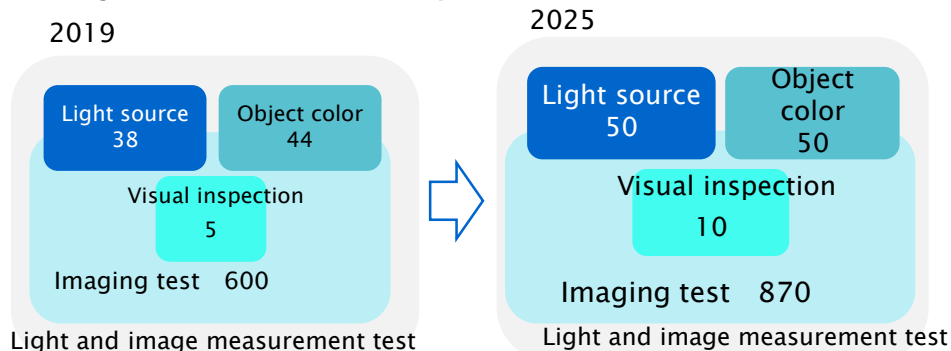
*1 Scale of market as estimated by Konica Minolta; excluding printing applications

# Establish businesses closely oriented to GMA* customers and 1-by-1* long tail sales through customers' value chain assets and a genre-top strategy

## ■ GMA strategy

Development in close collaboration with brand owner
Expanded to supply chain overall

Plan

KONICA MINOLTA   Instrument Systems

RADIANT VISION SYSTEMS   eines

Development   Sales

**Solution proposal**

**Model designation**

Brand owners
· Autos
· ICT

→ Supply chain
· Auto parts
· Panels

**Supporting growth of cutting-edge clients**

## ■ 1-by-1 long tail strategy

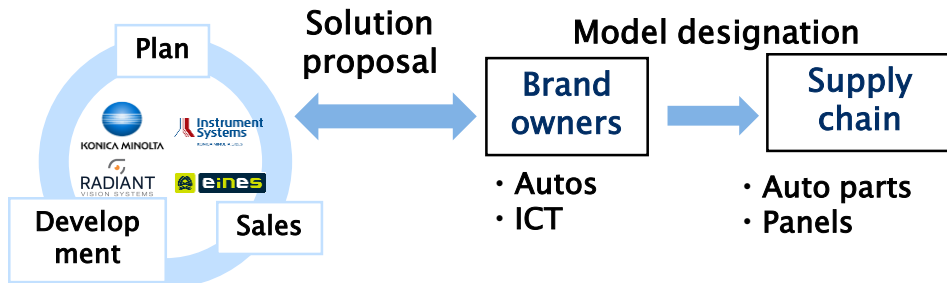Global sales service support network

Diverse industry with more than 100,000 MIF*

**Global customers**

KONICA MINOLTA ⬌ Cars, ICT, agriculture, processed goods, food, others

**Identify wide range of industry trends and secure stable revenue**

### Cycle for ongoing formation of genre-top services

KONICA MINOLTA

Instrument Systems
KONICA MINOLTA Group

RADIANT VISION SYSTEMS

eines

**Global client support**

**Contact with global customers in value chain**

**Genre-top technology**
Industry standard for color and display measurement
+visual surface inspection

**Multipolared development system**
Japan, US, Germany, Spain
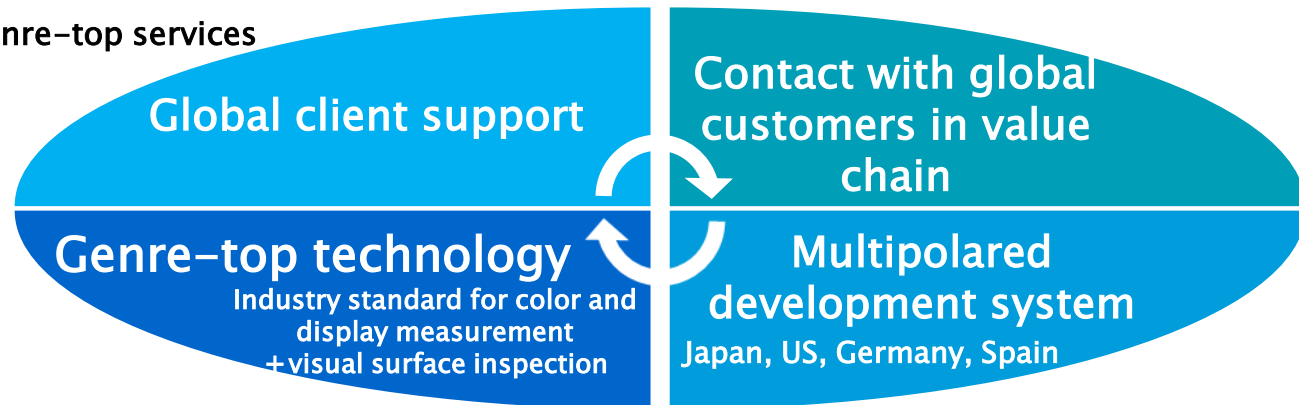
*GMA: Global Major Account

*1-by-1: Sales of multiple product models through our global sales network

*MIF: Abbreviation for "machines in the field"; number of our measuring instruments in operation in the market

**By achieving "high-quality manufacturing, in the security, safety and sanitation" field, we will transcend the capacity of human eyes to provide new customer value on an ongoing basis and solve global social issues**

Optimize manufacturing value chain

Ongoing data acquisition

Visualize issues

Provide value to professionals working in manufacturing sites
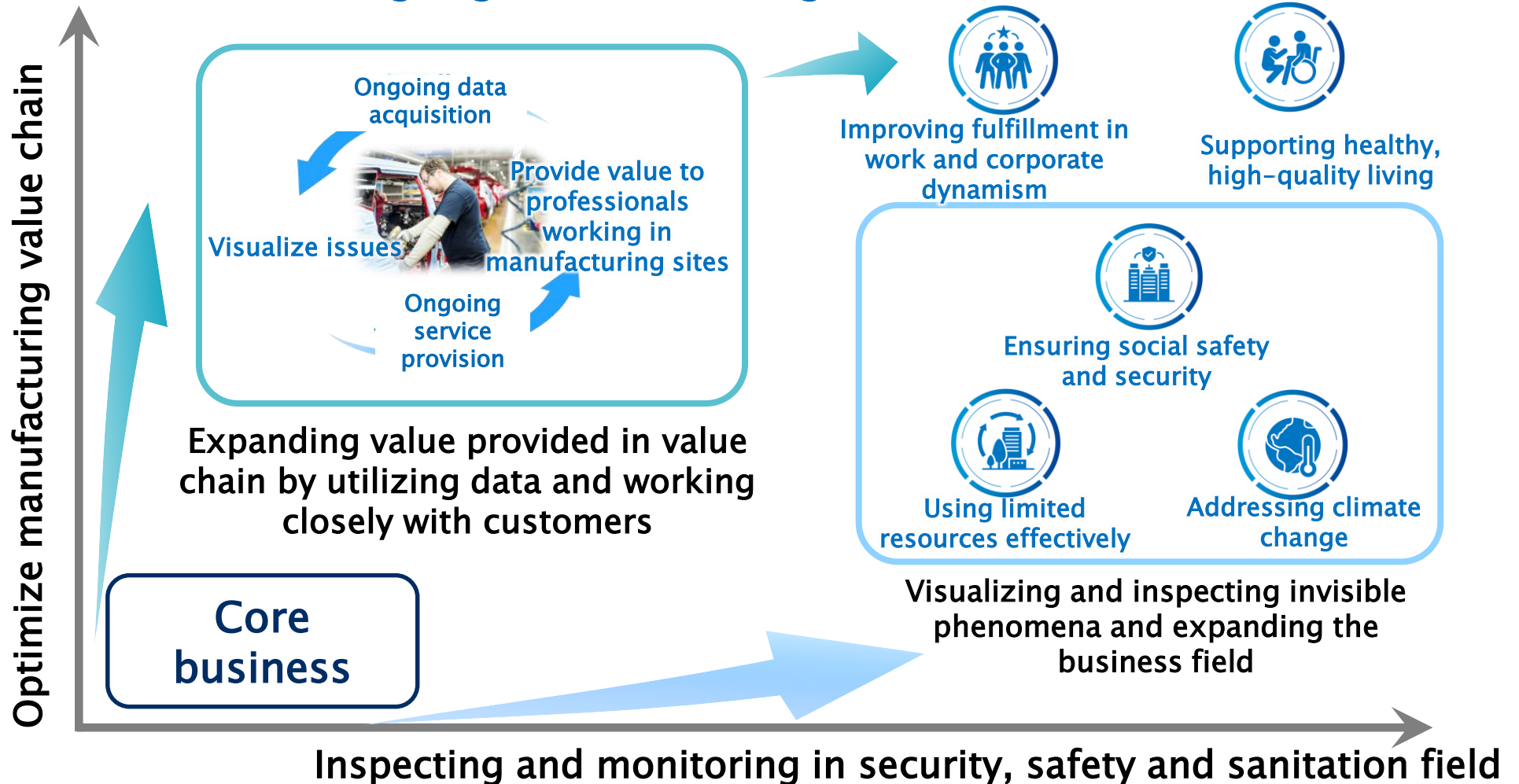
Ongoing service provision

Expanding value provided in value chain by utilizing data and working closely with customers

**Core business**

Improving fulfillment in work and corporate dynamism

Supporting healthy, high-quality living

Ensuring social safety and security

Using limited resources effectively

Addressing climate change

Visualizing and inspecting invisible phenomena and expanding the business field

**Inspecting and monitoring in security, safety and sanitation field**

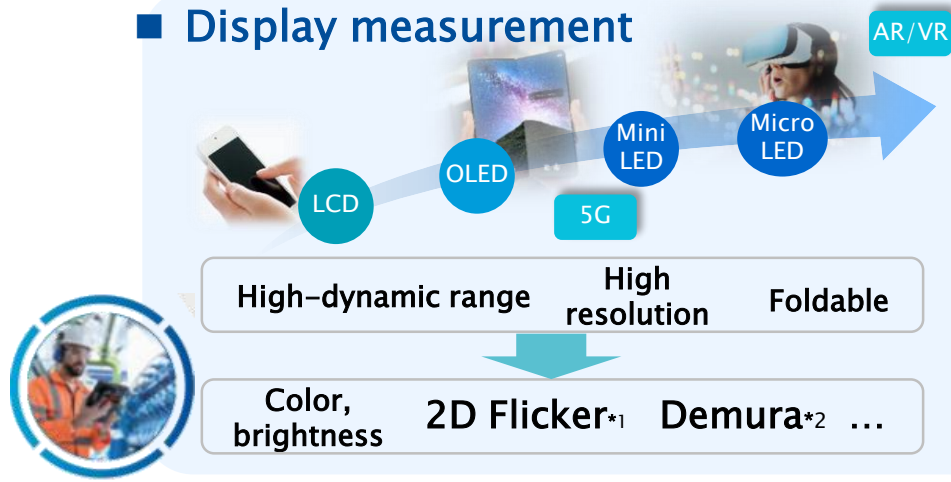**Accelerate optimization of value chain by utilizing visual inspection and color measurement data, and enter the safety, security and sanitation field with hyperspectral imaging as the core technology**

Optimize manufacturing value chain →

■ Upstream value chain, deepening

■ Early expansion

■ Strategic initiatives and exploration

### ICT (parts)

Film

Exterior measurement

**New** (exploratory)

### Autos (defects)

Visual inspection

**New** (Full entry in FY19)

### Recycling, food

Sorting

**New**

### Pharma

Element analysis and discrimination

### Healthcare

Remote sensing

**New** (exploratory)

### Display and lighting

Light source measurements

### Autos (paint), ICT, food, printing

Object color measurement

### Hyperspectral imaging (HSI)

Multiple wavelength measurement technology in the visible and non-visible light fields

**Core businesses**

**Inspecting and monitoring in security, safety and sanitation field** →
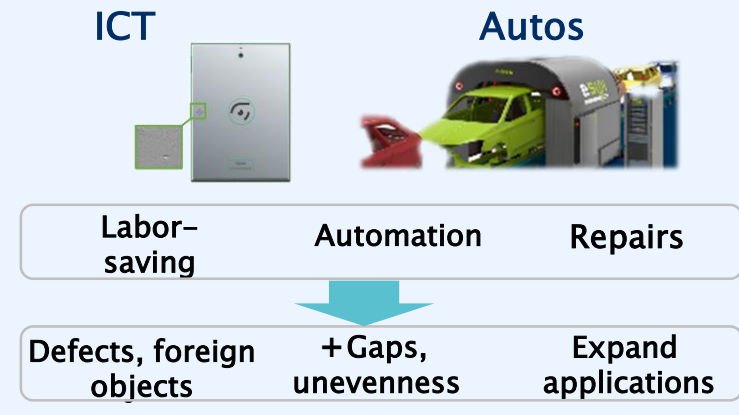
## Identify inflection points for the display industry and automotive industry by working closely with customers and solve critical issues with brand owners and the value chain



### ■ Display measurement

AR/VR

Micro LED

Mini LED

OLED

5G

LCD

| High-dynamic range | High resolution | Foldable |

| Color, brightness | 2D Flicker[*1] Demura[*2] ... |

**Observe**

Inspections and measurement

### ■ Visual inspection

ICT

Autos

| Labor-saving | Automation | Repairs |

| Defects, foreign objects | ＋Gaps, unevenness | Expand applications |

## Imaging IoT, AI

## Light handling technology

## Image analysis technology

## Konica Minolta's core technology

*1 Flickering on the display　　*2　Removing irregularities in display's brightness

**Acquired Specim\*, a leading company in the HSI industry that drives market development in industry applications, and at the same time acquired high-precision measuring technology and a customer base.**

## ■ Company overview

**SPECIM**
SPECTRAL IMAGING

| Company name | Specim Spectral Imaging Ltd. |
| --- | --- |
| Location | Oulu, Finland |
| Founded | 1995 |
| Representative | Tapio Kallonen |
| No. of employees | 68 (as of August 2020) |

## ■ Characteristics

✓ Expansion into wide range of applications, such as handy, inline and aerial photography
✓ Product lineup compatible with a wide range of wavelength, from visible to infrared
✓ Expansion of solutions that bundle together software and data processors that make it easy to add to devices for industry applications
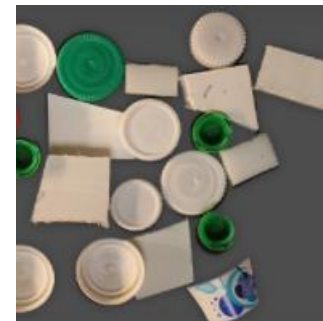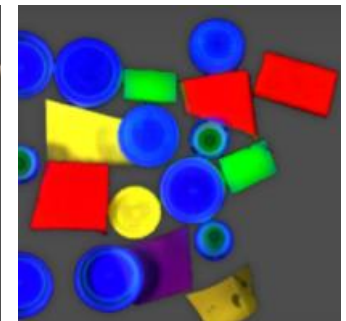
## ■ Hyperspectral imaging (HSI)

✓ Key technology that visualize invisible phenomenon; Identify the featuring quantity of the target fully, make it possible to make assessments that go beyond the ability of the human eye
✓ Diverse applications

・Recycling
・Food
・Healthcare
・Pharma
・Agriculture
・Mining
・Resources
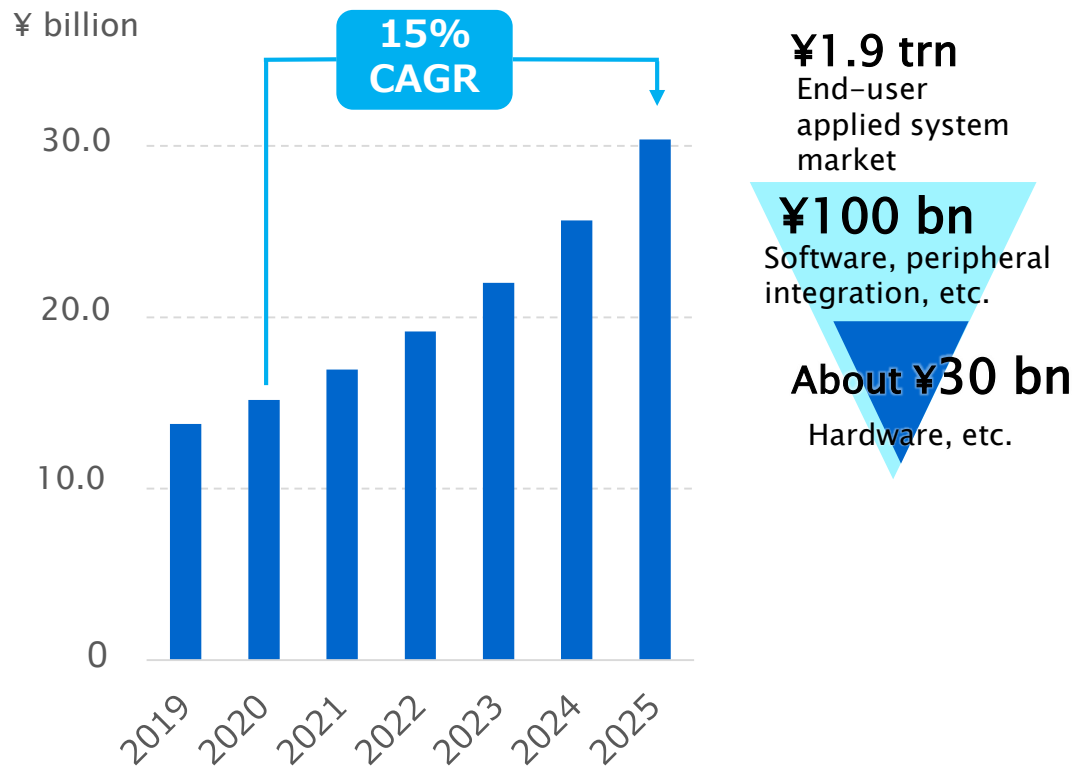
Color image          HIS processing image

■ PET ■ PP ■ PVC ■ HDPE ■ PS
Plastic materials

\*Have signed an SPA with Specim, and is currently in the middle of the steps required to complete the purchase.

**Accelerate device integration with HSI industry applications; expand business by working with manufacturers of recycling and food sorting equipment, and aiming strategically target growth markets such as the pharmaceutical industry**

## HSI market forecasts[*1]

¥ billion

**15% CAGR**

30.0

20.0

10.0

0

2019  2020  2021  2022  2023  2024  2025

**¥1.9 trn**
End-user applied system market

**¥100 bn**
Software, peripheral integration, etc.

**About ¥30 bn**
Hardware, etc.

## Example of application: Recycling

■World's garbage problem ➡ Establish recycling economy

➢ Policies encouraging resource recycle in major countries
➢ China's measure banning the import of plastic waste (2018)
➢ Initiatives aimed at raising the recycled plastic usage rate

➢ Automatic garbage-sorting and manpower-saving technology integrating HIS, belt conveyors and robots

· **Higher precision and efficiency, HSI in near-infrared field**

"Instantly" and "accurately" sorts waste in which various resources are mixed

· **Higher purity: Infrared HSI**

Using infrared HSI makes it possible to sort materials such as black plastic, which is harder to sort

*1: Source: Estimates based on market reports such as those prepared by Mordor intelligence.

# Wealth of application possibilities; aiming for expansion from research applications to industrial applications
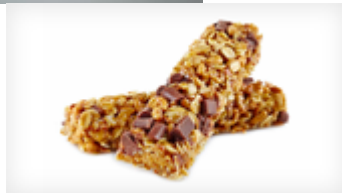
### Sorting

### Pharma

### Exploration

### Food, food processing

### Sealing tests

### Distribution of film thickness

### Analysis of cultural assets

Images are from SPECIM's website

# While maintaining high profitability business, expand business by further deepening core businesses and generating customer value in strategic investment fields
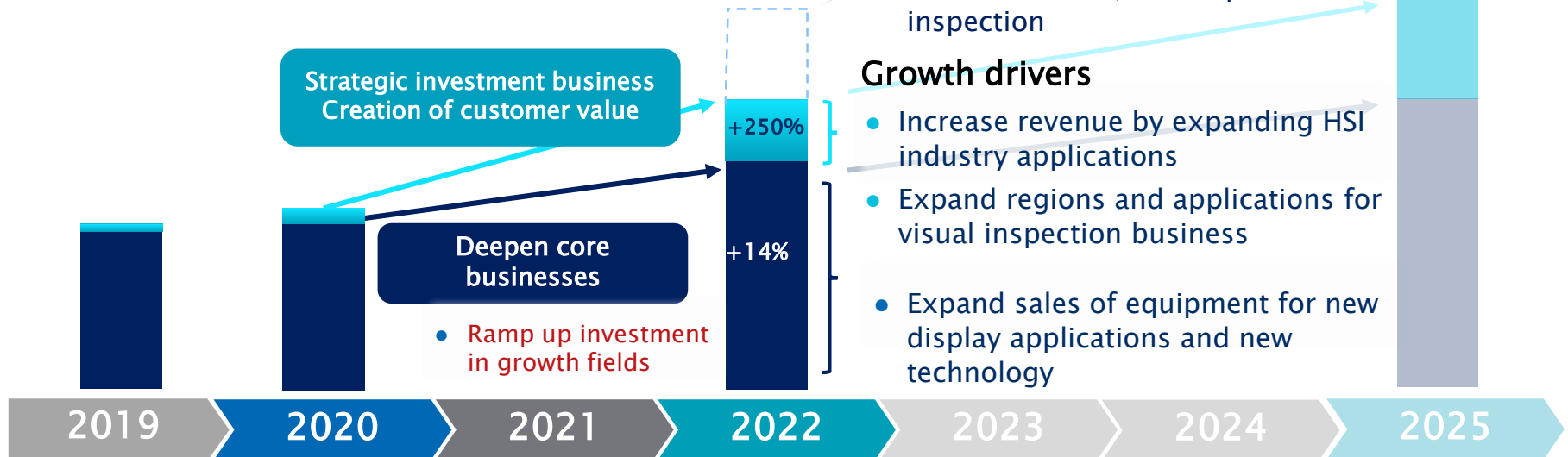
| | 2020 | 2021 | 2022 |
|---|---|---|---|
| **Increase in sales** (FY20 estimated level) % | **100** | **112** | **129** |
| KPI: Strategic investment business ratio | 6% | 14% | 17% |
| **Increase in operating profit** (compared to FY20 estimate) ¥ billion | - | **+1.0** | **+3.0** |

**Consider alliances in further expanding scale**

- Strategic alliances in safety and security field
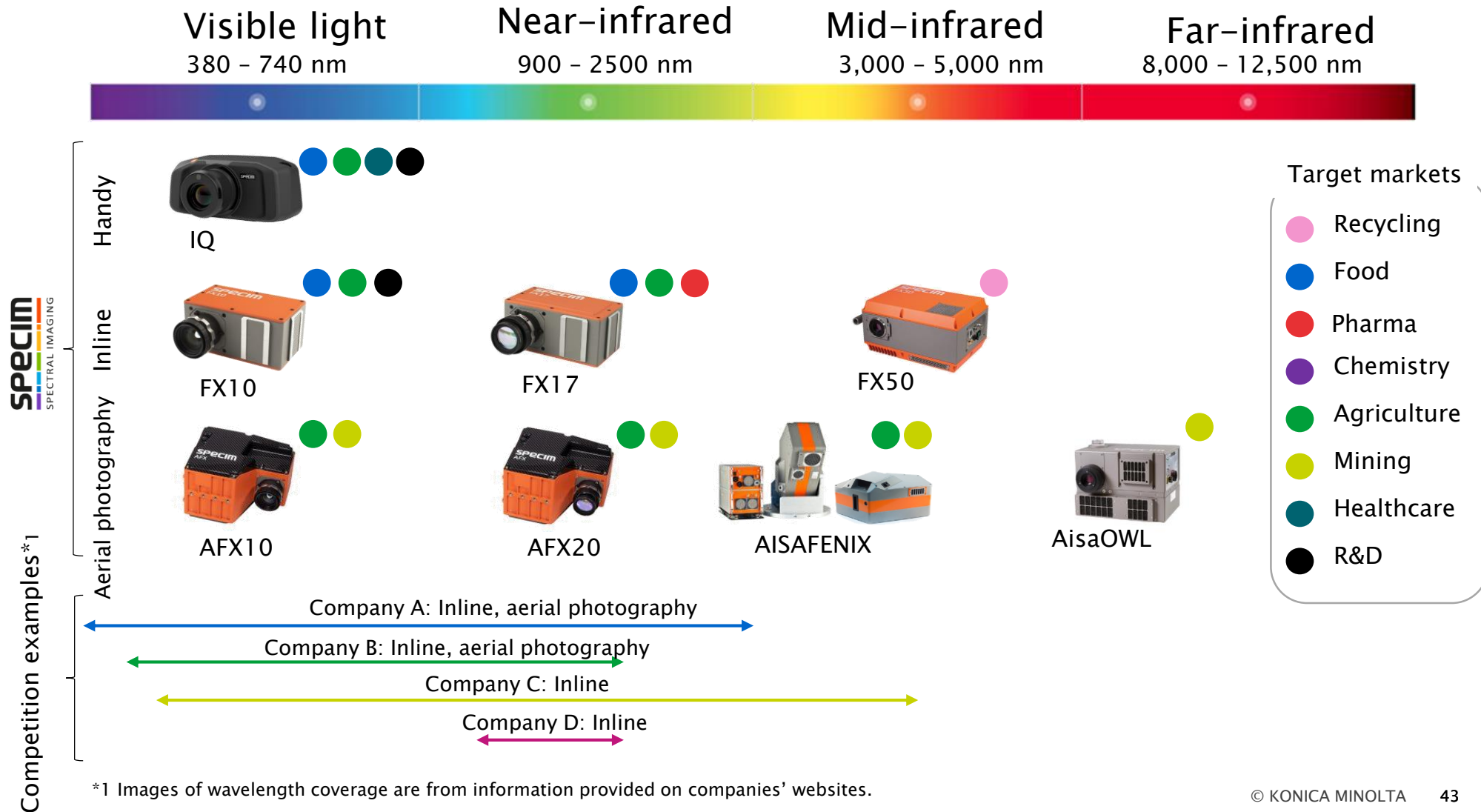- Alliance in auto/IT new parts inspection

**Growth drivers**

- Increase revenue by expanding HSI industry applications
- Expand regions and applications for visual inspection business
- Expand sales of equipment for new display applications and new technology

**Strategic investment business Creation of customer value**

+250%

+14%

**Deepen core businesses**

- Ramp up investment in growth fields

2019  2020  2021  2022  2023  2024  2025

Strategic investment fields: Exterior measuring, HSI applications

# Appendix

# Specim's representative products and main target markets

# The SpecimONE platform makes it easy to adopt HSI for industrial applications.

Even without deep knowledge about HSI, sorting applications for industrial use can be utilized by building various material classification models offline and then applying this classification model to the inline system
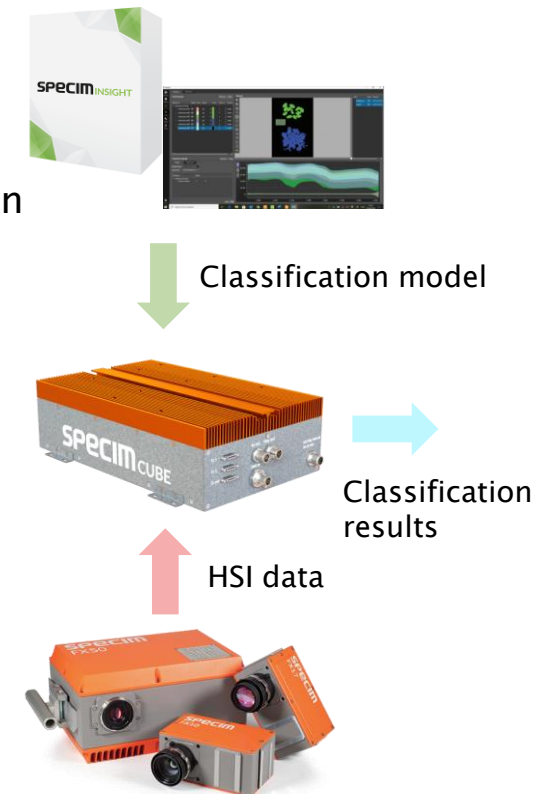
**SPECIM**INSIGHT

- Offline software
- Processes HSI data sets and builds classification models

Classification model

**SPECIM**CUBE

- High–performance processing platform
- Uses the classification model created with SpecimINSIGHT to generate sorting data in real time

Classification results

HSI data

**SPECIM** FX SERIES

- HSI cameras for industrial use

SPECIM FX
SPECIM INSIGHT
SPECIM CUBE

**SPECIM**ONE