# Materials and Components Business


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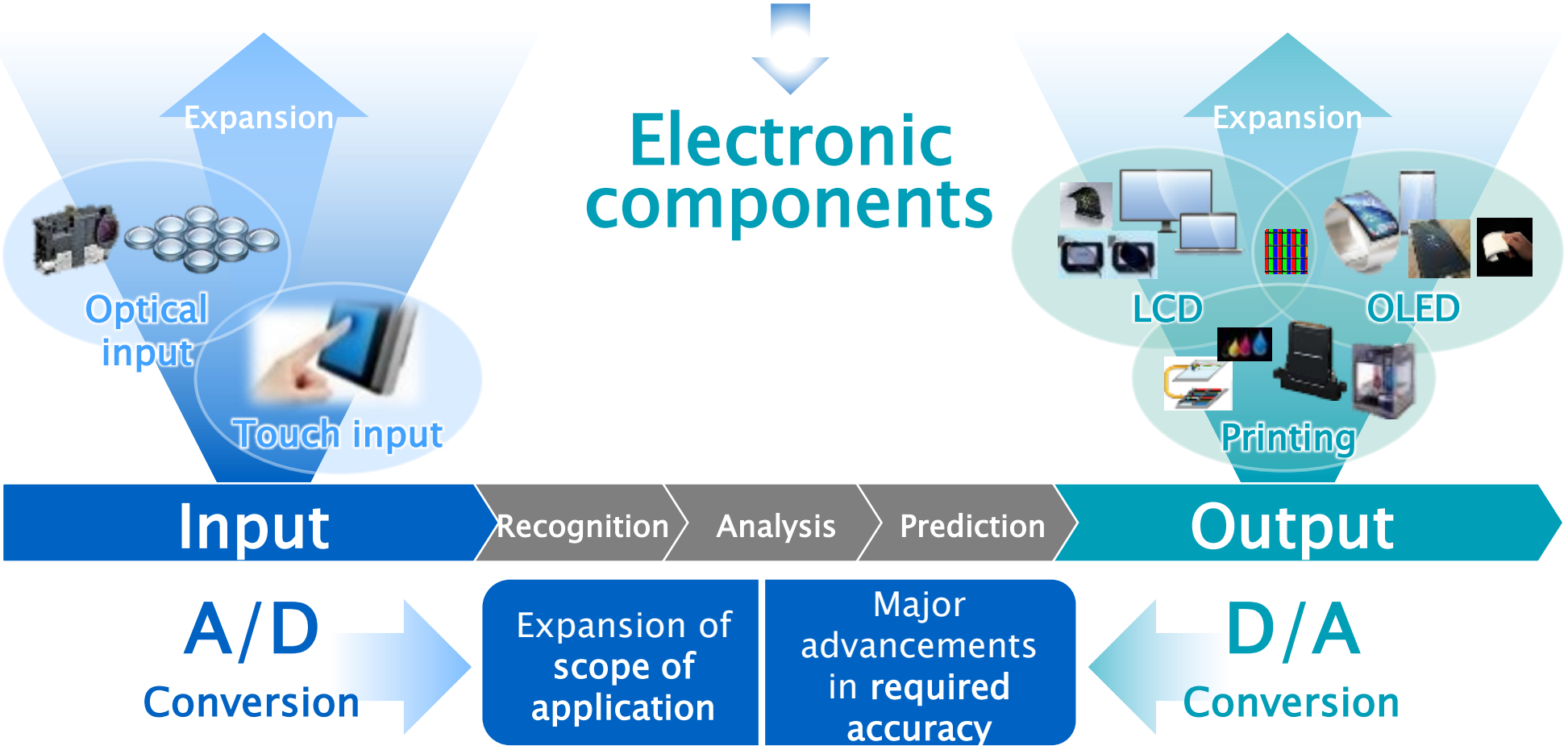
Noriyasu Kuzuhara

Executive Vice President and Executive Officer

General Manager of Materials and Components Business Headquarters

# 1. Characteristics of Materials and Components Business
## ① Breadth

**Contributing to advance the input/output capability in industry digitalization.**
**Targeting enormous markets expected to digitalize in future**



# 2. Characteristics of Materials and Components Business
# ② Depth

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**Enhancing value across the supply chain as a whole by providing high-added-value electronic components from the upstream portion of the supply chain**

# 3. Characteristics of Materials and Components Business
# ③ Flexibility

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## Flexibly changing functions and forms in response to downstream devices and products
## Driving workflow reform at our customers with technical innovation

**Devices/products**

Displays

Controls/electronic

Optical products

**Downstream insights**

**High-level and abundant technical capabilities**

**Core technologies**

Materials technology

Precision processing

Film-casting technology

Optical design

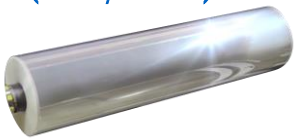
**Flexible evolution**

LCD TV applications

Large-format printer applications

DVD pickup lenses

Large-screen TVs and small to midsize display applications (LCD/OLED)



Industrial applications

Mobile units・Automotive applications

**Driving innovation**

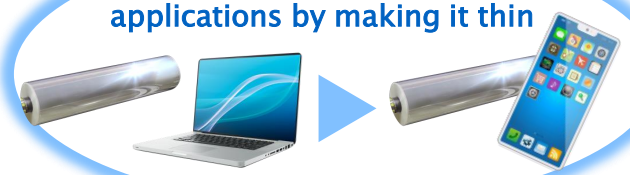
# 4. Characteristics of Materials and Components Business
# ④ Continuity/Repeatability

KONICA MINOLTA

Ceaseless workflow improvements at customers also offer business opportunities
Continuously providing value based on strong relationships with customers

Customer workflow reform based on technical innovation (flexibility)

Expanding IT film to mobile applications by making it thin



One to two years to participation and certification

Average product life of five to 10 years

Converting inkjets for signs to industrial applications

Customer workflow improvements (continuity)

# Materials and Components: Performance Materials Business

# Performance Materials Business Positioning in the Materials and Components Business

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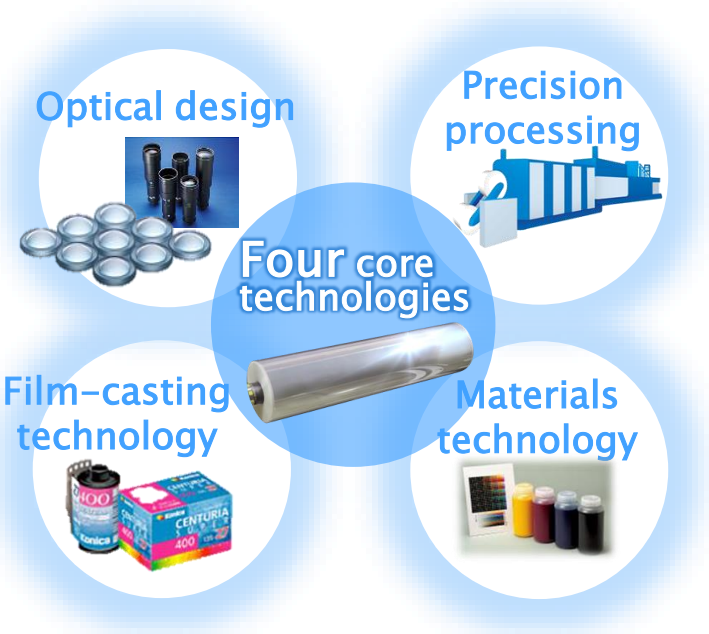
## Four characteristics

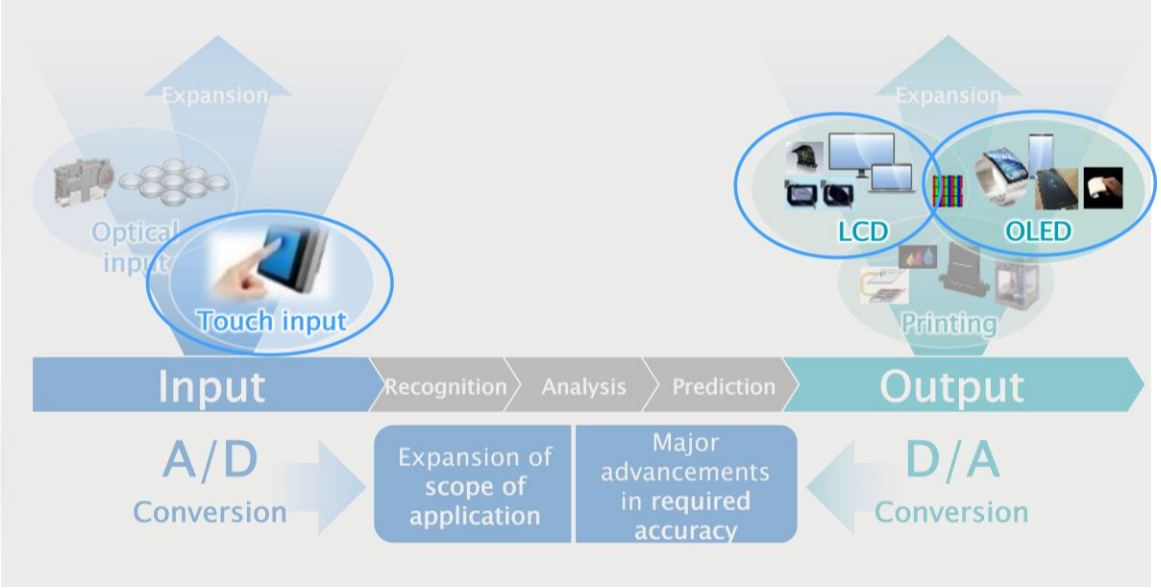
### Breadth
Enormous display field

### Depth
Deep connections with a small number of customers (10–20 companies) that extend to workflows

### Flexibility
Proposals possible that are suited to supply chain changes, with few product specification limitations

### Continuity/repeatability
Product life of approx. 10 years after working together thanks to products that match customer workflows



# Materials and Components Business Mainstay Products

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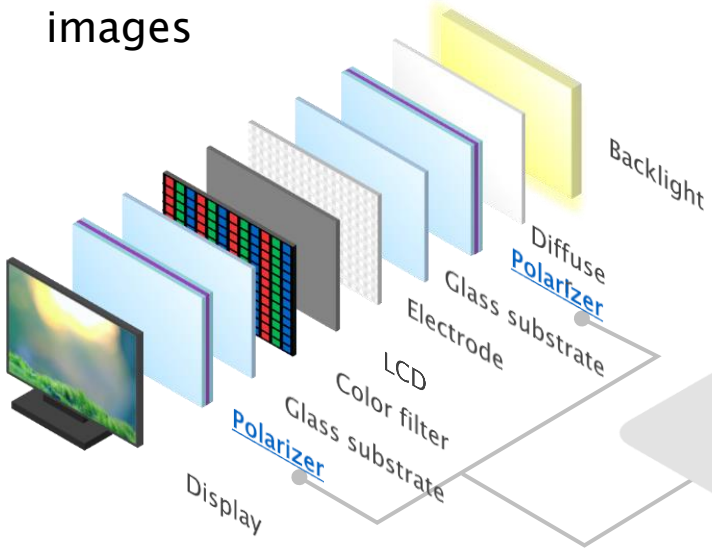
**Our main product is protective film for LCD display polarizers in the display field**
**Four sheets of polarizer protective film are used per display. There are two types, as follows.**

## Polarizer protective film

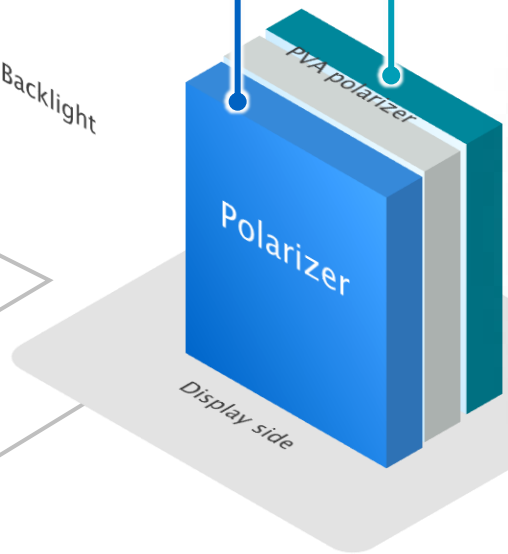
### Plain TAC film

Only polarizer protective functions required for shaping images

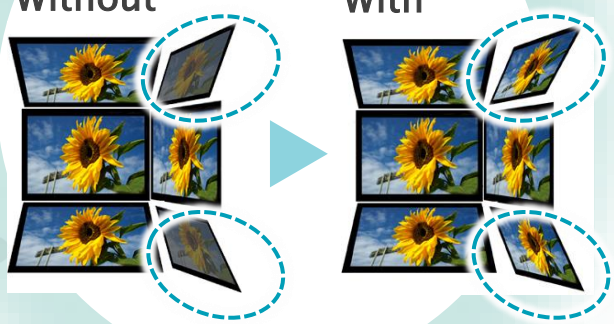



### Phase difference film

Addition of optical functions called phase difference and functions that improve view quality




**Contributing to expanded viewing angles!**

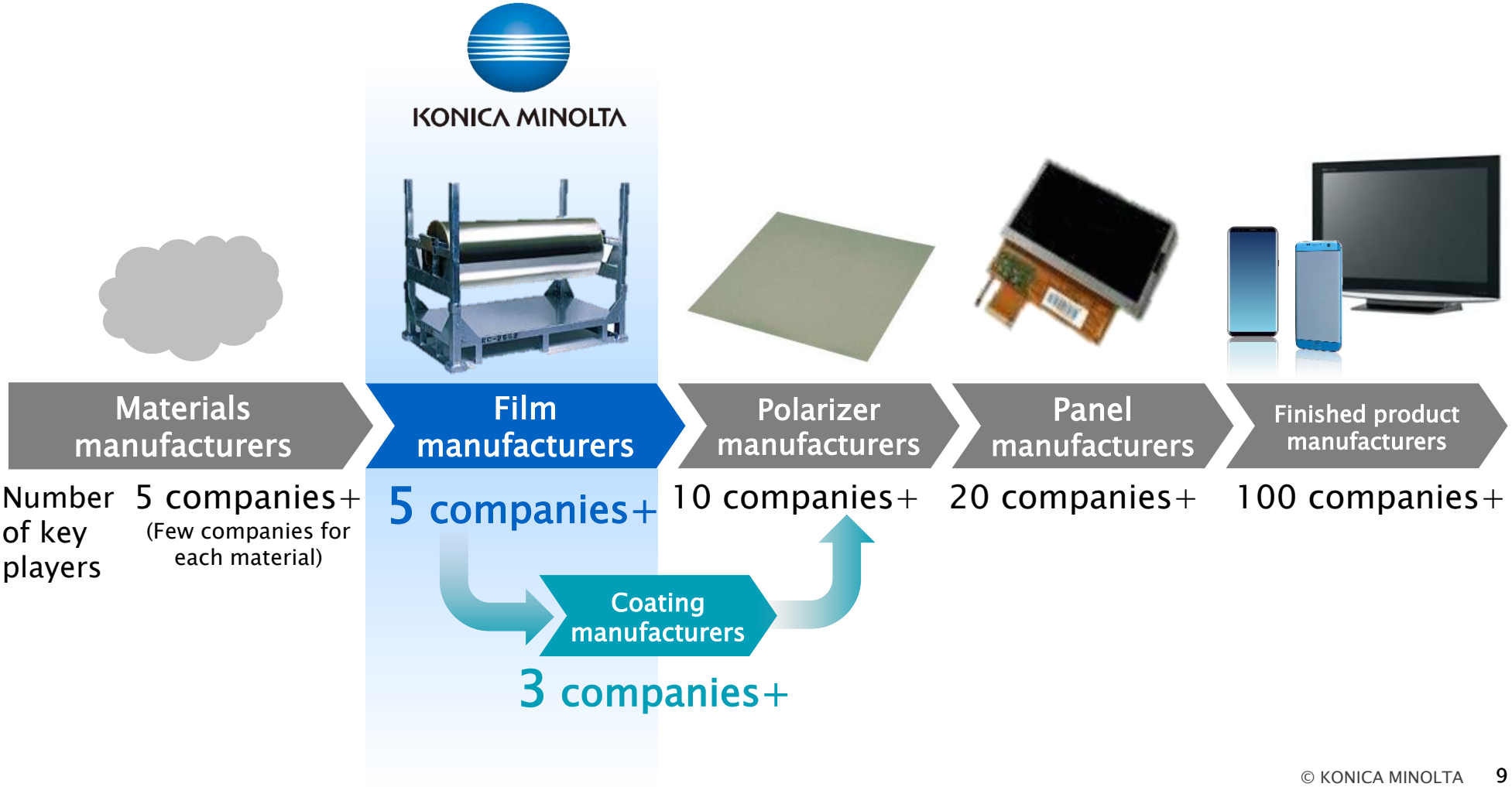



Difficult to see from the side

**Great, clear picture from any angle!**

# Supply Chain and Customers

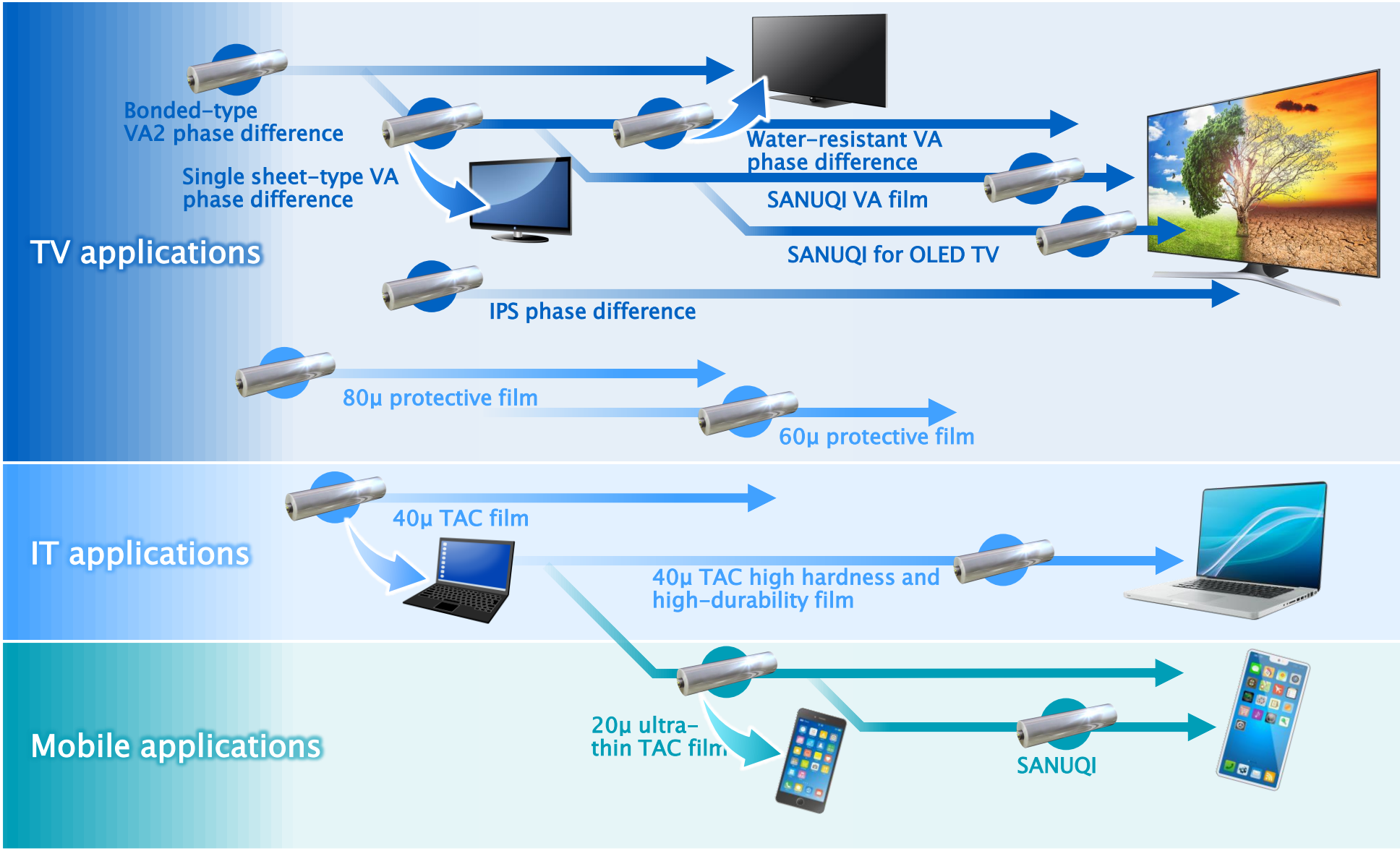
**Positioned upstream in the supply chain, we maintain deep relationships with a small number of customers, and provide products that can be plugged into customer workflow reform, based on quality information**



# Konica Minolta Product Applications and Changes

## Identifying Market Changes and Developing Multiple Products



# Workflow Reform　Product Evolution

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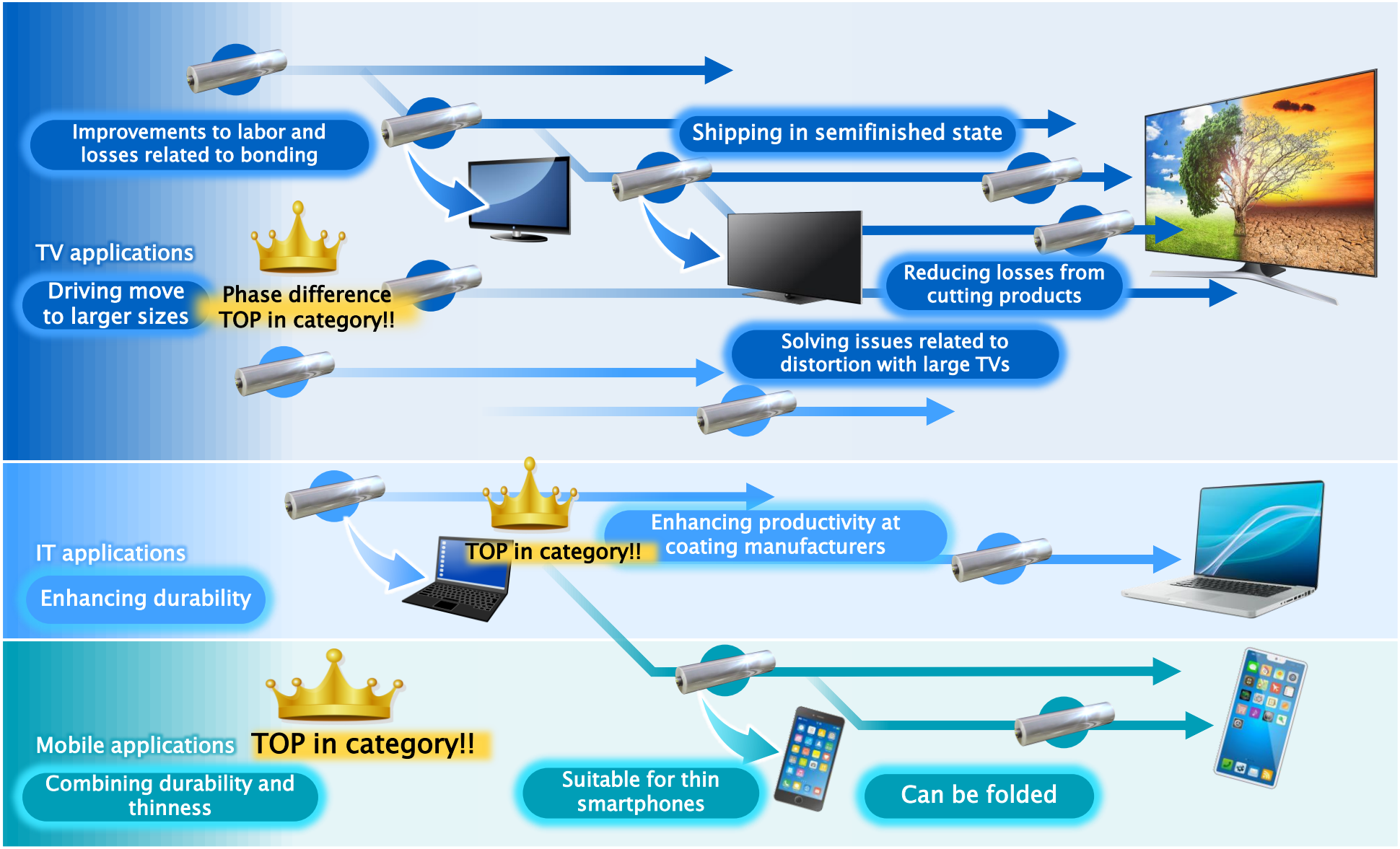
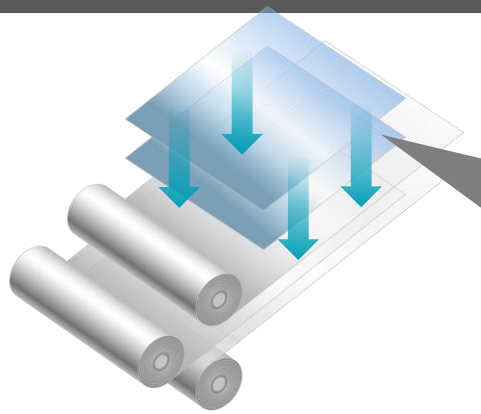


# Specific Examples of Workflow Reform and Improvement

## Example 1. Improving losses and labor related to bonding

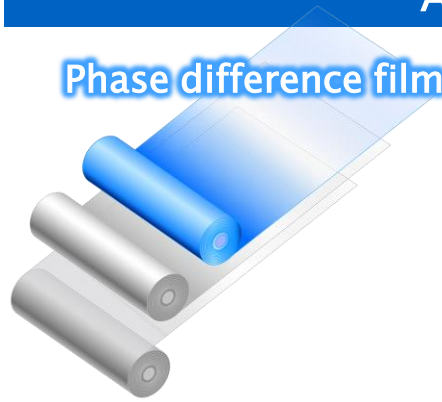
**BEFORE**



Bond the phase difference film sheet on the polarizer

**After**

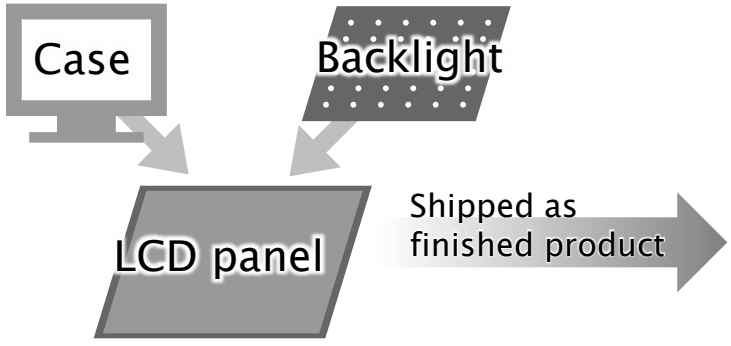
Phase difference film with protective function



- Bonding processes not required
- High productivity
- Reduction of losses

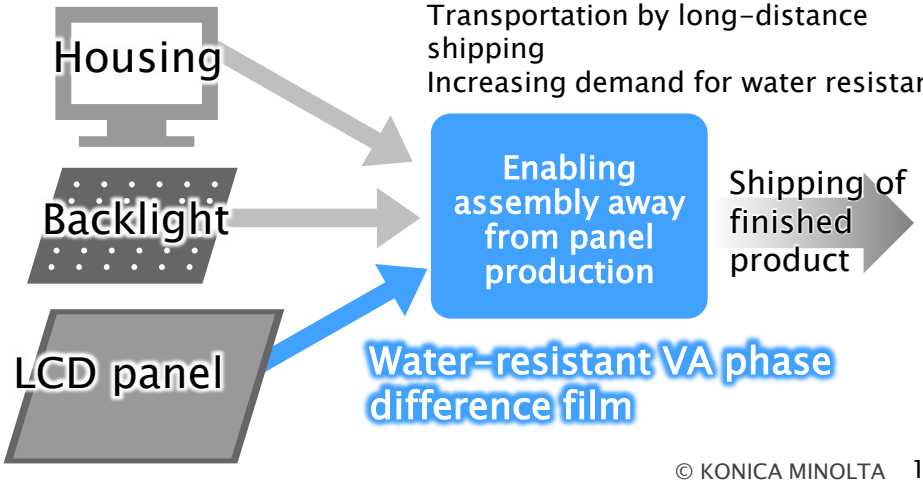
## Example 2. Adding functions that make changes in panel production

**BEFORE**




Assembled close to panel production

**After**



# Specific Examples of Workflow Reform and Improvement

## Example 3. Proposals that solve issues related to increasing the size of TVs and reducing the weight of panels

**BEFORE**

Small panels

Polarizer
Glass
Polarizer

Thin, large panels

Polarizer
Glass
Polarizer

Move to larger screens
Thinner glass to reduce weight
Contraction of polarizers warps display, resulting in poor view quality on sides of display

**After**

Polarizer
Glass
Polarizer

Developing thin TAC without harming its physical qualities, thus solving issues caused by larger sizes with solution to panel glass warpage

# Foundational Strategies for Products to Contribute to Workflow Reform 1

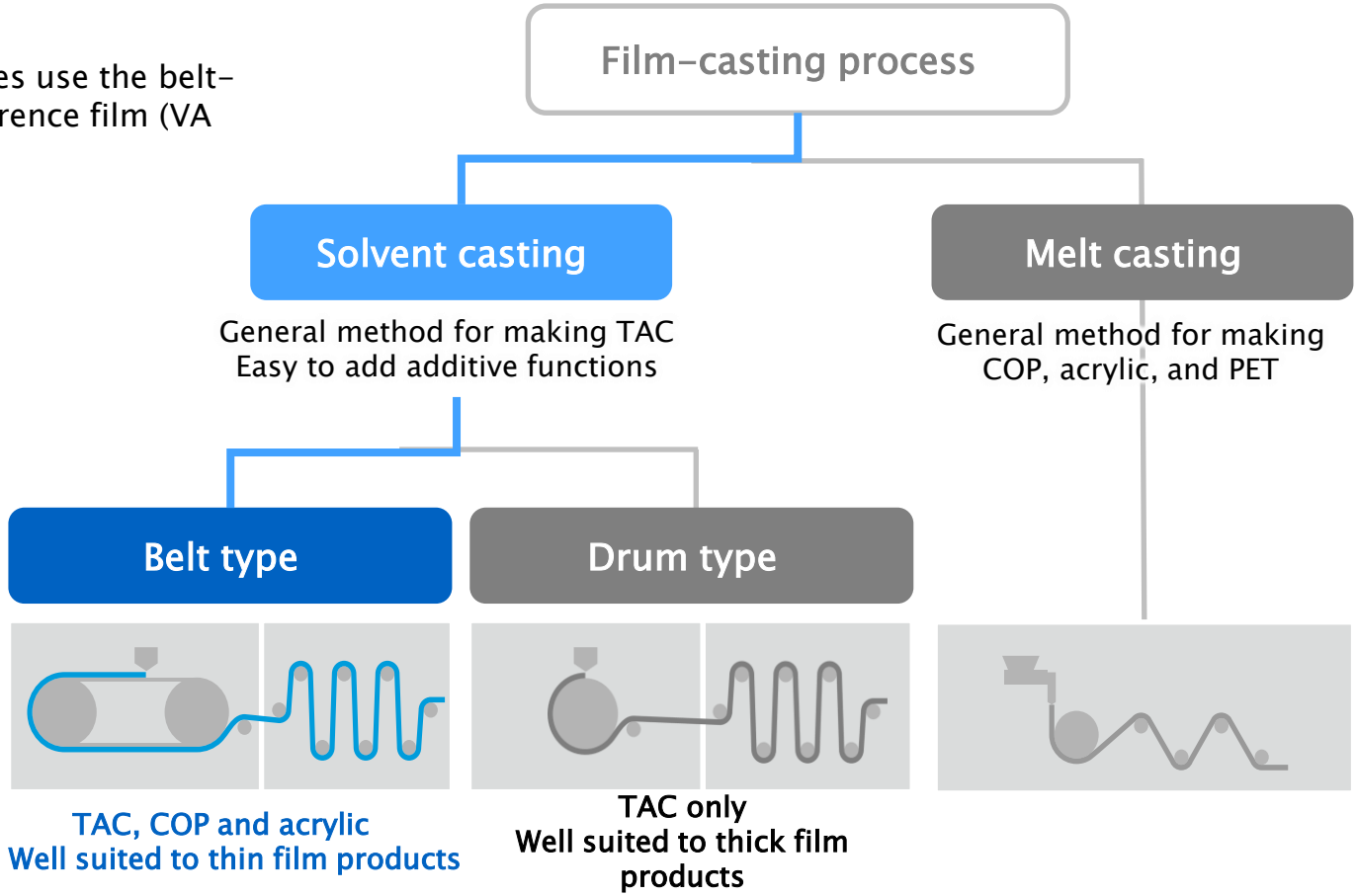
## Taking the leading market share for products that utilize the characteristics of solvent belt casting

### Solvent belt-casting line

Konica Minolta's film-casting factories use the belt-casting method suited to phase difference film (VA and IPS) and ultra-thin film.


**Phase difference film for LCD-TVs**

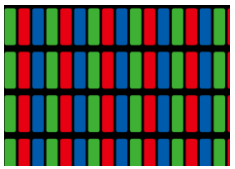
**TAC protective film for small and medium-sized mobile devices**



# Market Growth and Change

- Display market: Mature with moderate growth in demand for all sizes
- Significant internal changes and growing opportunities

## Panel manufacturers



**G10.5 large-size factories**

Cyclical downturn in new facilities, ongoing capacity increases

- Ensuring superiority among large TVs over G8

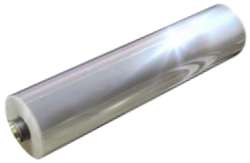
## Polarizer manufacturers

**2.3/2.5m-wide polarizer factories**

Accelerating investment to capture large TV demand

- Changes in competitive landscape: Growth of Chinese companies
- Growth in wide polarizer capacity: Around 18% per year

## Film manufacturers

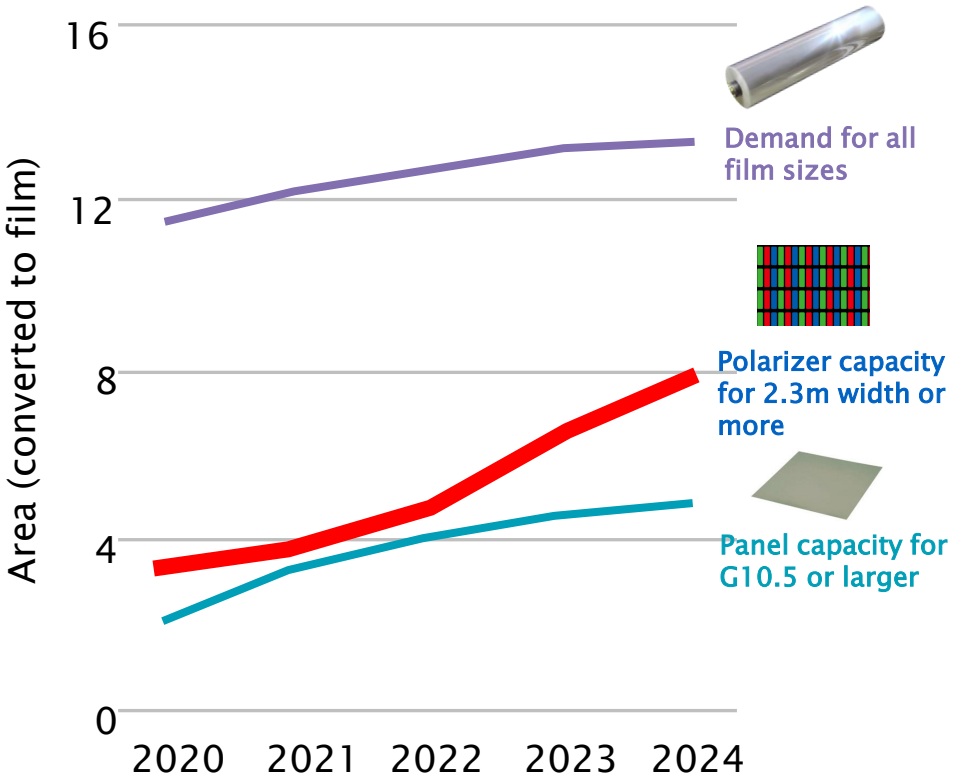


**2.3/2.5m-wide film factories**

Increasing ability to provide wide film in line with polarizer investment

- New investment, facility renewals, and various methods

## Demand moving toward large sizes and wide film




Panel capacity: DSCC data converted to film area
Polarizer capacity: Yano Research Institute data converted to film area
Film demand: OMDIA data

# Foundational Strategies for Products to Contribute to Workflow Reform 2

## Investing in the growing wide film field (from 2019, with further investment planned)

**Solvent flow casting method + new materials**


**Offline width processing**


| | |
|---|---|
| ① Existing production lines | Responding to the move to wide film by making all production lines offline |
| ② All product fields | Capable of responding to the move to wide film<br>All phase difference modes (VA/IPS), protective film |
| ③ Production capabilities | Utilizing high-speed productivity of solvent flow casting to expand manufacturing capabilities as a whole |
| ④ Enhancing length and thin-film suitability | Simplifying the supply chain and reducing losses |

# Foundational Strategies for Products to Contribute to Workflow Reform2 ~Simplifying the supply chain~

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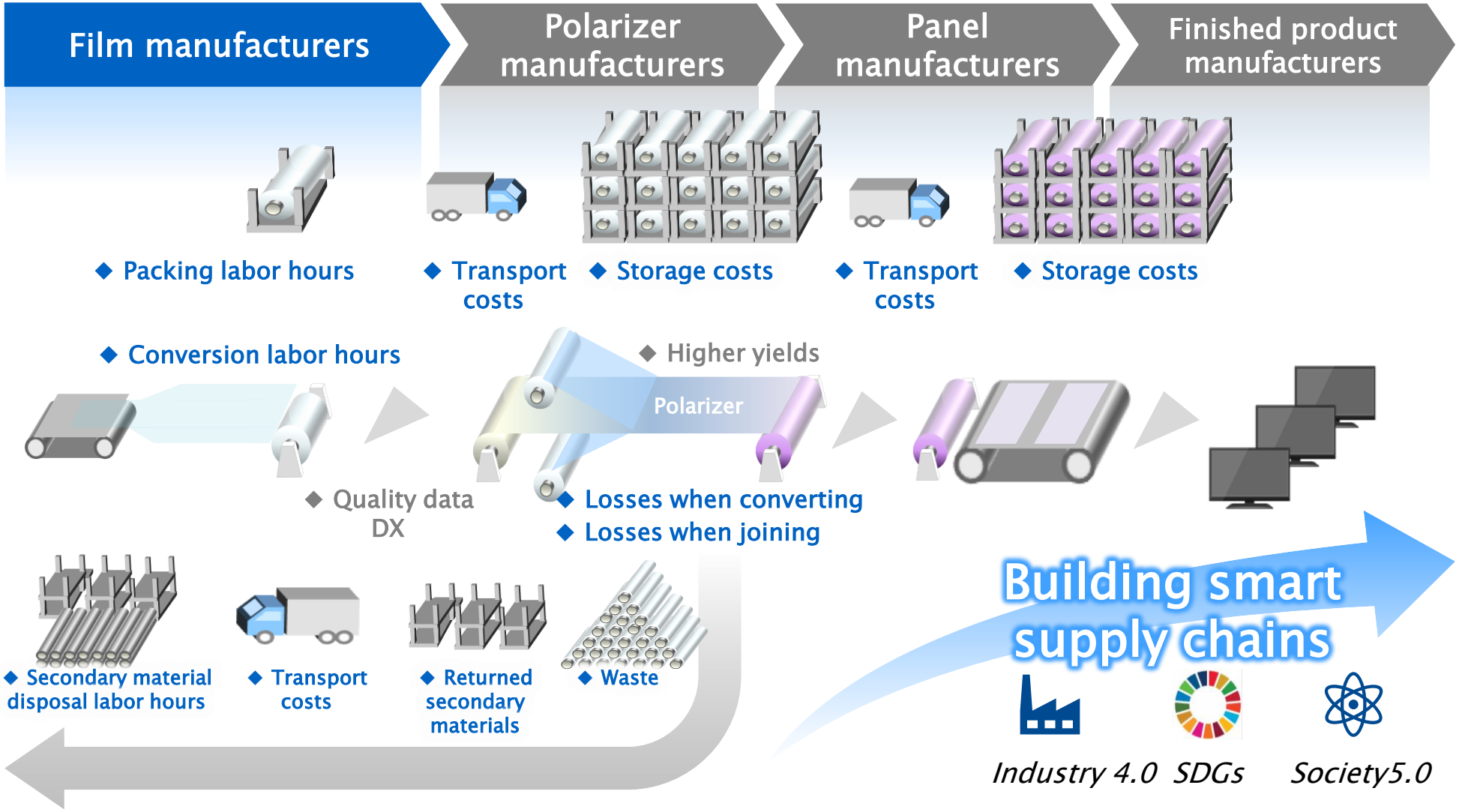
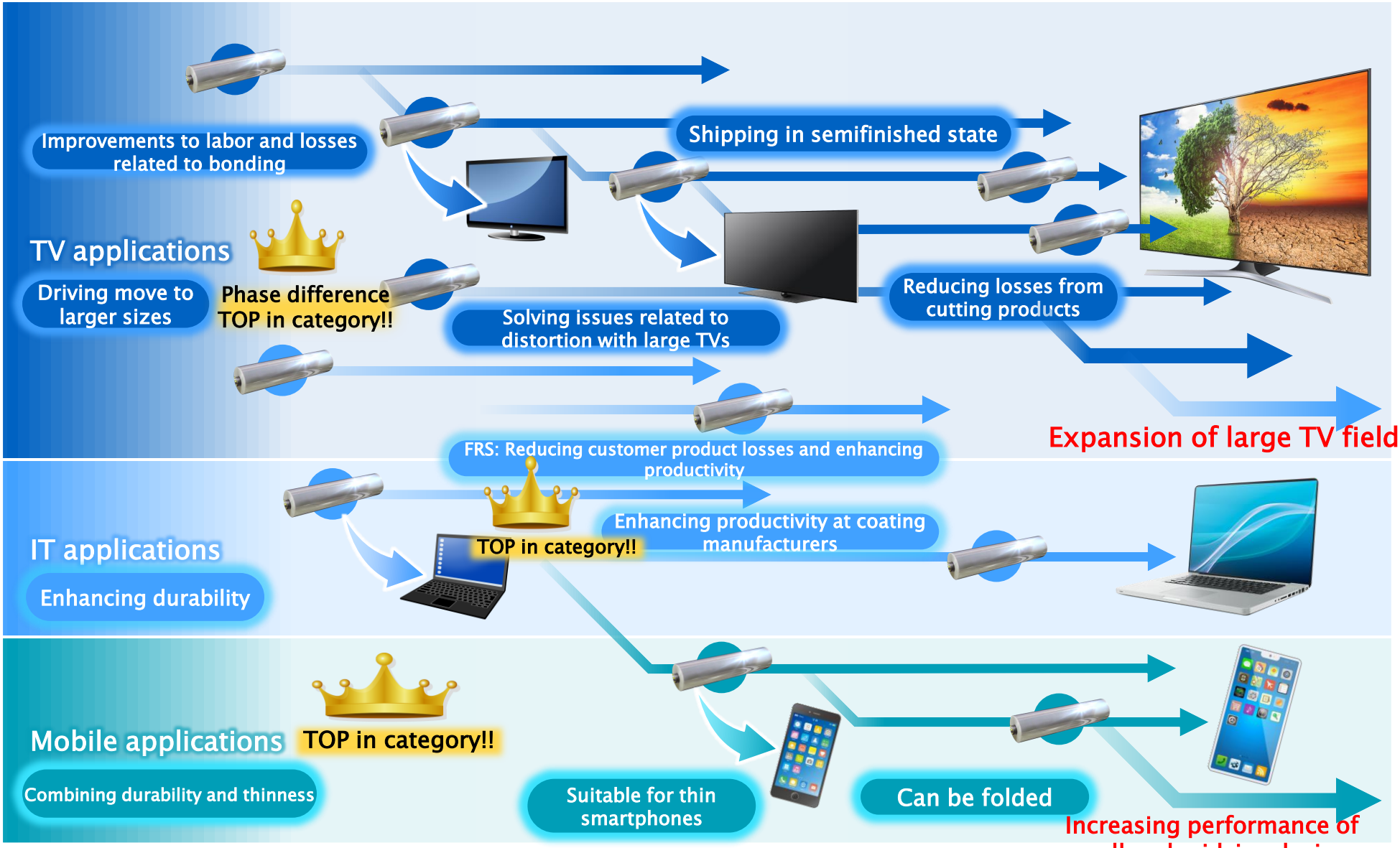
## Value of long length: Minimizing waste, cost, and environmental impact across the supply chain



# Further Workflow Reform and Evolution



# Looking to Achieve Medium-term Plan in FY2022

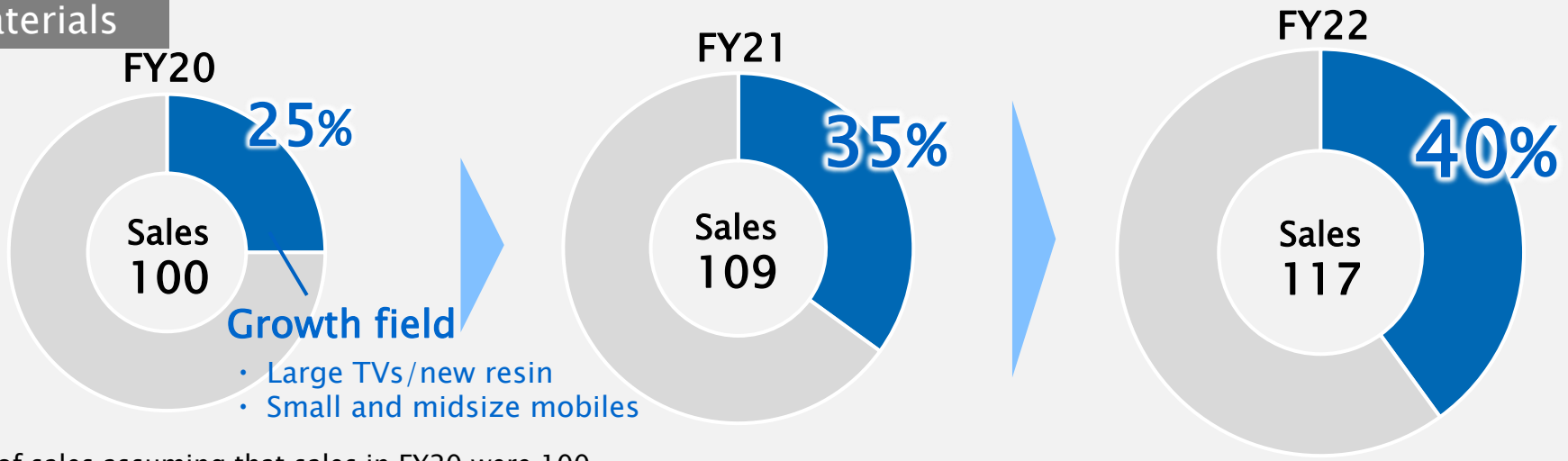
- Growth area: ① Large TVs and new resin
  ② increasing performance in small and midsize mobile field
- Current circumstances: Expect to achieve targets in FY21,
  and progressing in line with plans for FY22

**① Large TVs** SANUQI platform products performing as expected.
LCD-TVs: Year-on-year growth of SANUQI-VA
OLED-TVs: SANUQI-QWP generating results in FY21

**② Small and midsize mobiles** Volume increase for high-performance products

11/27/2020 IR-DAY Materials

We have identified large TVs, new resins, and small and midsize mobiles as our growth fields, and will expand sales with these drivers to generate profit




*Scale of sales assuming that sales in FY20 were 100

# Materials and Components:
# IJ Components Business

# Positioning of IJ Components Business

KONICA MINOLTA

## Four characteristics

### Breadth
Enormous manufacturing fields (large-format printer market, POD, manufacturing processes)

### Depth
Deep connections in industrial applications that extend to manufacturing processes

### Flexibility
Proposals are possible that are suited to a diverse range of applications

### Continuity/repeatability
Customer product life of five years once adopted

## Three strengths and core technologies

- Materials technology

- Precision processing

- Customer service capabilities

# Introduction of IJ Components Business

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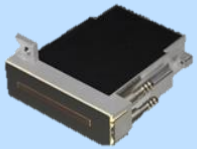
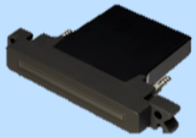
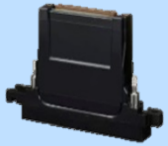
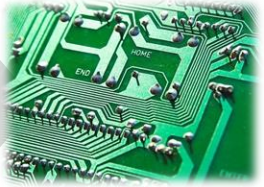
| Konica Minolta products | End products and customers | Applications |
|---|---|---|
|  KM512 series<br>  KM1024 series | Large-format printers<br>  <br>Printer manufacturers in China, Europe, and America |  <br>Sign graphics |
|  KM1024i series<br>  KM1800i module | POD (print on demand)<br>  <br>AccurioJet KM-1<br>Large printer manufacturers |  <br>Commercial printing<br>  <br>Soft packaging and packages |
|  KM1800i SHC-C<br>  KM1024a + series with additional features | Pattern generation during manufacturing processes<br>  <br>Major manufacturing equipment manufacturers |  <br>Printed-circuit boards<br>  <br>Displays |

# Origins of the IJ Components Business

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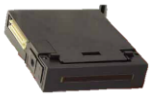
Nassenger V



Nassenger PRO 60

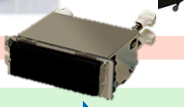
Industrial Print Business

Commercial printing

AccurioJet KM-1

Textiles

NASSENGER SP-1



NASSENGER 10

1995 Adopted technology from Xaar plc. (UK) Began developing IJ heads

2000 Began external sales of IJ heads

2017 Spun off as the Components Business
Flexibly and nimbly promoted move to inkjet printers for many applications

KM1024 series

KM1800i SHC-C

KM512 series

KM1024i series

2018

Acquired thin-film MEMS technology from Panasonic

Shift to on-demand manufacturing

Sign graphics

Construction materials

High-performance inks based on unique chemical technology

Printed-circuit boards

Displays

Soft packaging and packages

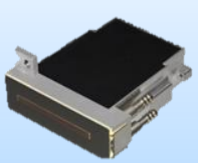
IJ Components Business

# IJ Components' Supply Chain and Customers

## Positioned upstream in the supply chain, we provide products capable of contributing to workflow reform at customers around the world, in various industries

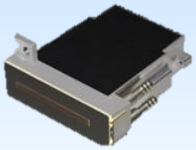
**Sign graphics**

Materials manufacturers → **IJ components (heads and ink)** → Printer manufacturers → Ad printers



**Industrial applications**

Materials manufacturers → **IJ components (heads and ink)** → Manufacturing equipment manufacturers → Product manufacturers



# History of Growth of IJ Components Business

Industrial applications

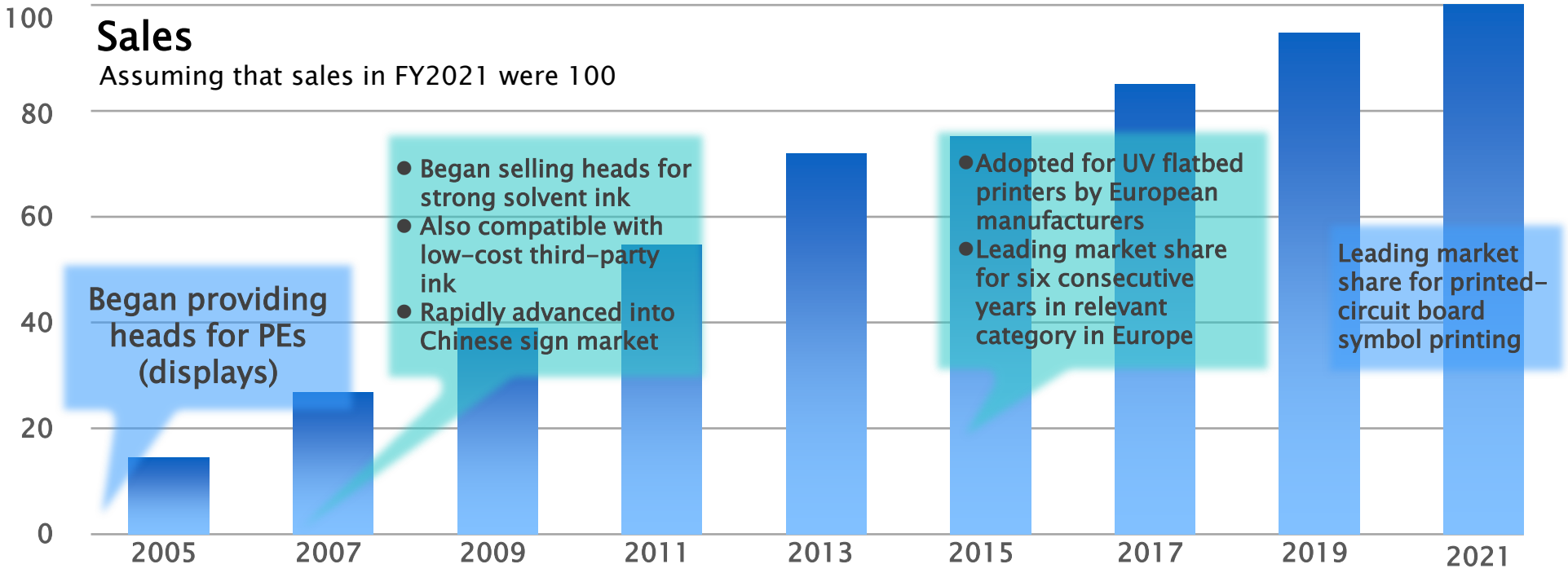
Foundations for acquiring PE customer base continuing to the current

Expanding applications to manufacturing

Sign graphics

Built base in sign market with highly durable heads

Won acclaim in Europe with high-quality heads



# Sources of our Strengths in IJ Components Business

KONICA MINOLTA

Developed in films

Developed in cameras

**Chemical capabilities**

**Precision processing technologies**

**Customer service capabilities**


Developed over many years in the industrial sector

## Expanding into fields where we can leverage our three strengths

**Driving the shift to inkjet printing in manufacturing and reforming customer workflows**

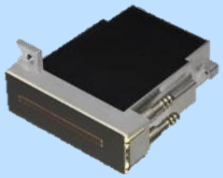
## Superiority in industrial applications

Sign graphics

**Material compatibility resistance**
Resistance to solvents, acids, alkalis

**High precision and resolution**
Micro-droplets, high-density nozzles, impact precision

**Ink options**
Compatible with low/high-viscosity ink

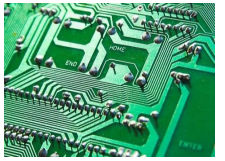


**Productivity**
Shift to high-speed drives and multiple nozzles

**Head × ink matching proposals**

**High reliability**
Long-lasting actuators

Displays

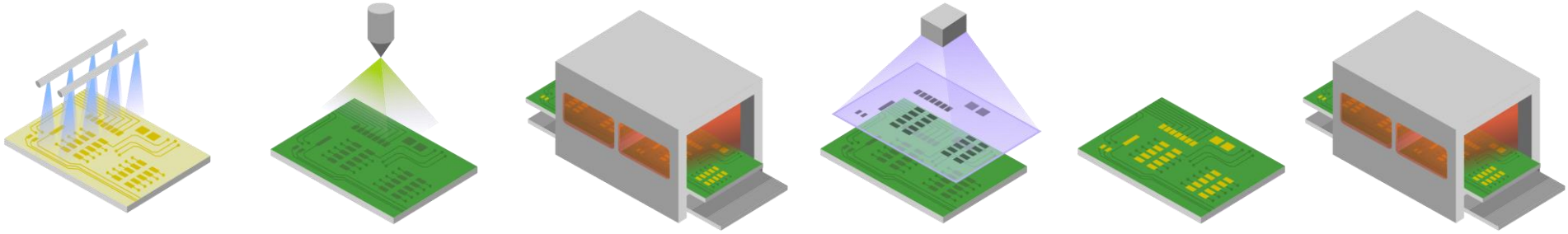


Printed-circuit boards

# <Reference> Shift to Inkjet Printing in Manufacturing

## E.g.) Solder mask processes for printed-circuit boards, workflow reform

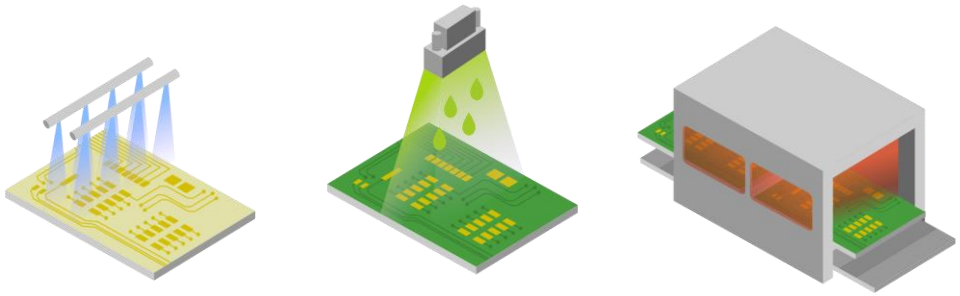
### Pattern generation process with conventional method (photographic development-type)



Cleaning ▶ Full-surface coating ▶ Preliminary drying ▶ UV exposure ▶ Developing ▶ Full drying

- Full-surface coating: VOC emissions
- UV exposure: Mask disposal
- Developing: Large amounts of waste liquid upon development

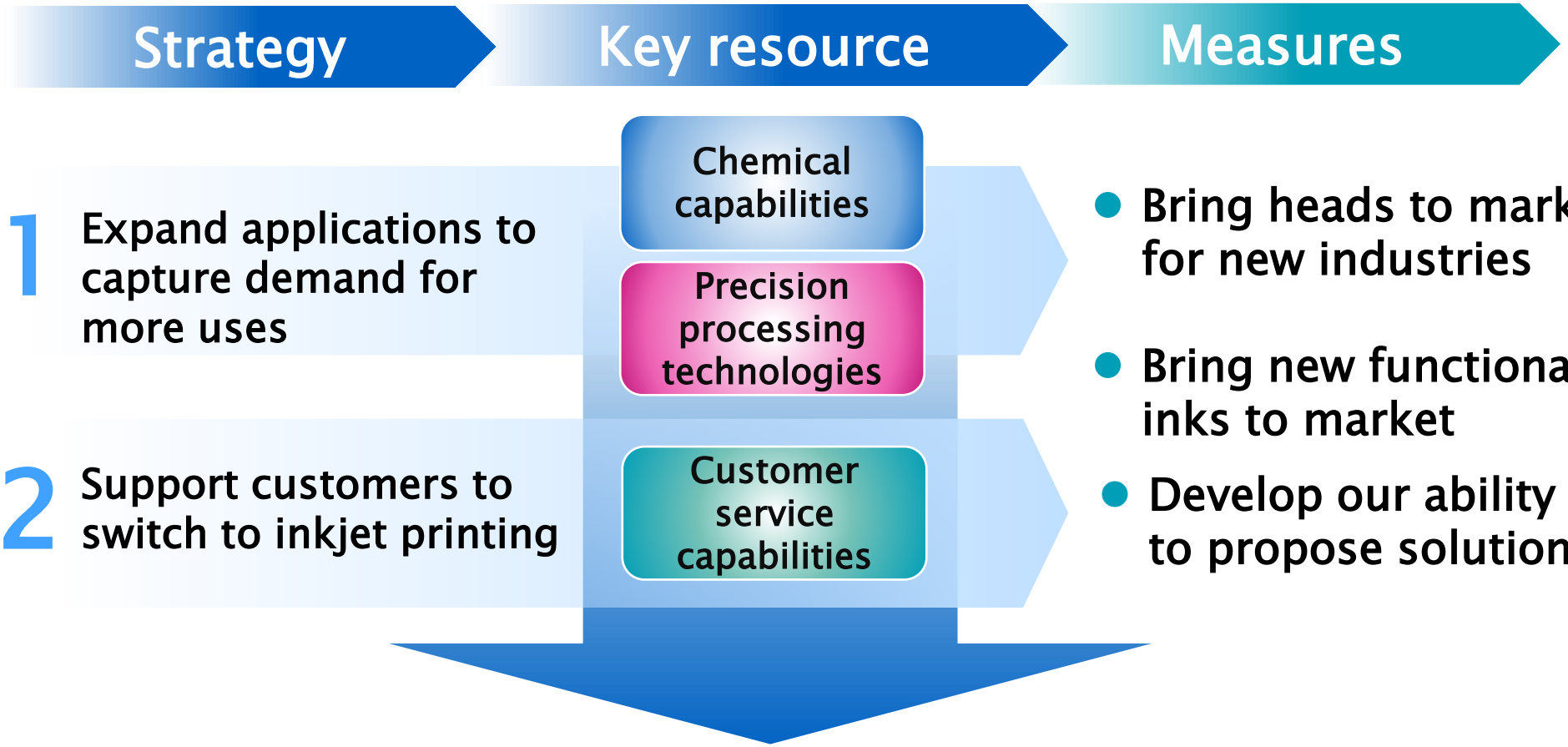
### Pattern generation process with inkjet method



Cleaning ▶ Inkjet printing ▶ Full drying

- Reduction of processes
- No VOC/No waste liquid
- Significant improvement in working environment

# IJ Components Business Growth Strategies



# Growth Strategy 1. Expand Applications to Capture Demand for More Uses

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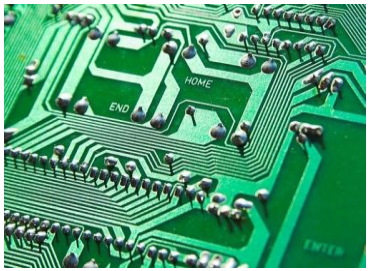
**We will expand applications for our products by enhancing our range of new functional inks and industrial heads, in order to boost our superiority in industrial applications**



Printed-circuit boards

Displays

Soft packaging and packages

Construction materials

**Konica Minolta strategies and superiorities**

**Technical capabilities:** We will build close relationships with equipment and panel manufacturers and anticipate demand with leading development and proposals based on heads for industrial applications that utilize our chemical capabilities and precision processing technology

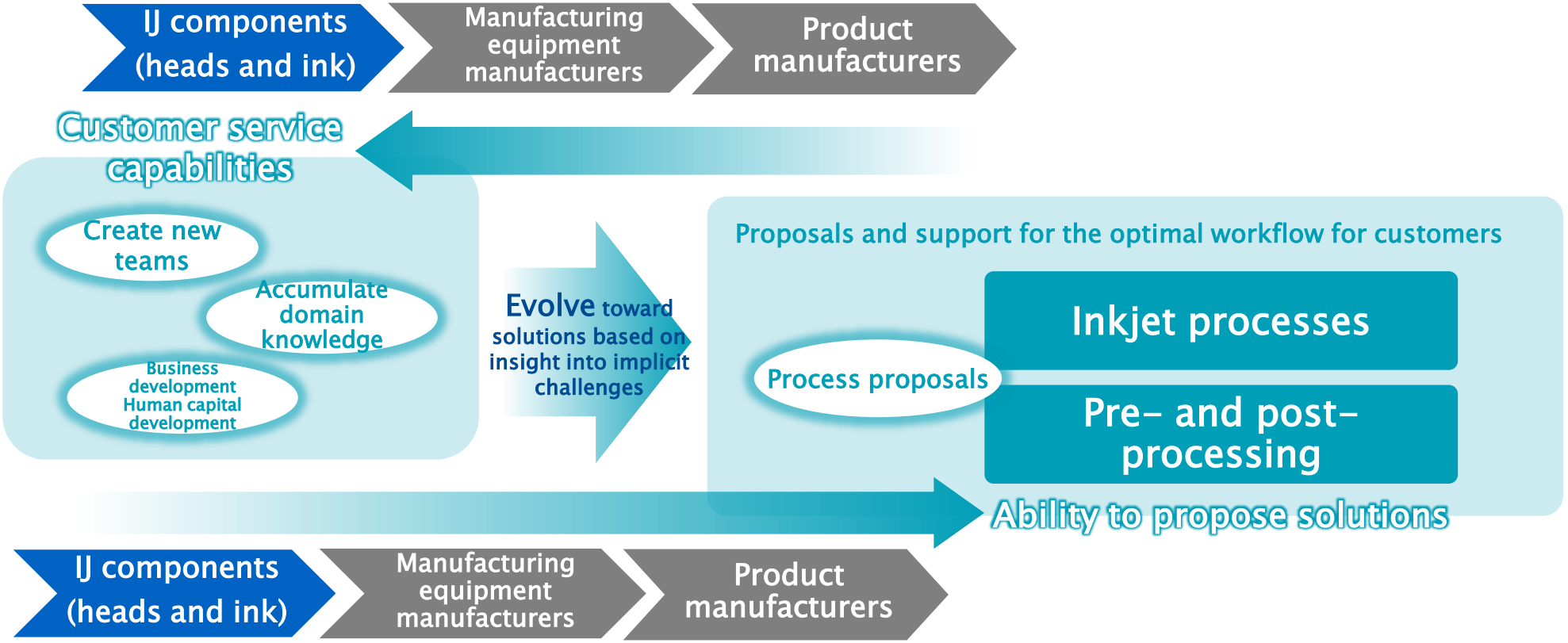
**Customer service:** Covering everything including customized accommodation of customer needs and support

**Brand power:** High brand recognition backed by a track record of having supplied heads since the early days of the market

# Growth Strategy 2. Support Customers to Switch to Inkjet Printing

## Promote a move to inkjet printing by proposing and supporting the optimal workflows for customers, centered on analog users*

*Analog users: Using printing, coating, evaporation, photolithography, etc.




**Provide total support to customers, from technical proposals through to application to mass production**

# Growth Strategy 3. Expand to Object Printing

KONICA MINOLTA

## Enter the object printing field and maximize our superiority in industrial applications, which will lead to significant business expansion

### Scan method

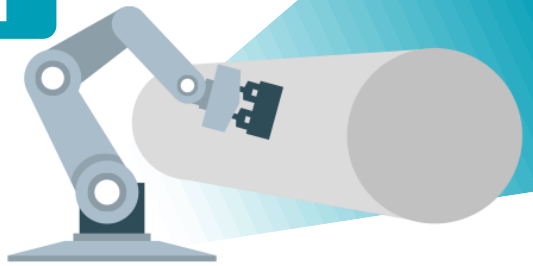
The head is scanned and the item to be printed is moved

### Single-pass method

The head is fixed and the item to be printed is moved

### Robot method

A high-performance inkjet head (capable of 3D movement) suitable for the robot method is used to print on an object



Aircraft

Automobiles

Construction materials

Helmets


Vending machines

# Toward Business Expansion and Portfolio Transformation

KONICA MINOLTA

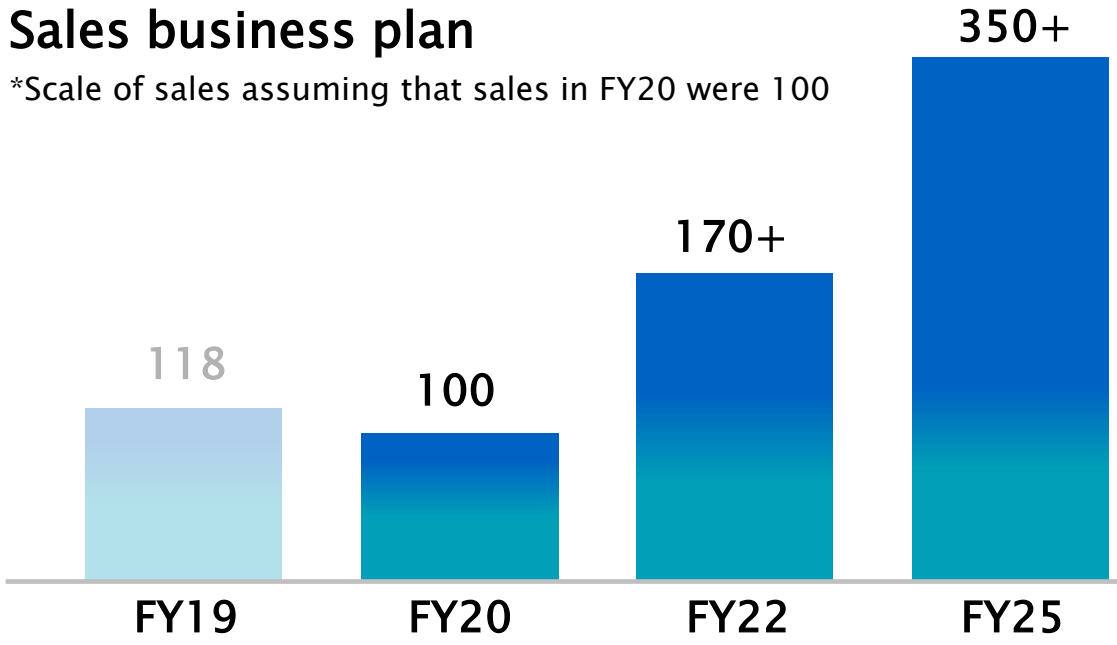
## Focusing capital on growth fields in manufacturing. Making maximum use of our strengths as we target expansion that outstrips market growth

| FY19 | FY20 | FY22 | FY25 |
|---|---|---|---|
| Market size: ¥81.5bn<br>Market share: 18% | Market size: ¥67.6bn<br>Market share: 17% | Market size: ¥90.0bn<br>Market share: 20% | Market size: Approx. ¥130bn<br>Market share: 23% |

*Market sizes and shares apply to heads only

### Sales business plan

*Scale of sales assuming that sales in FY20 were 100




**Growth field**

Printed-circuit boards, displays, soft packaging and packages, etc.

**Core fields**

Sign graphics, coatings, labels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