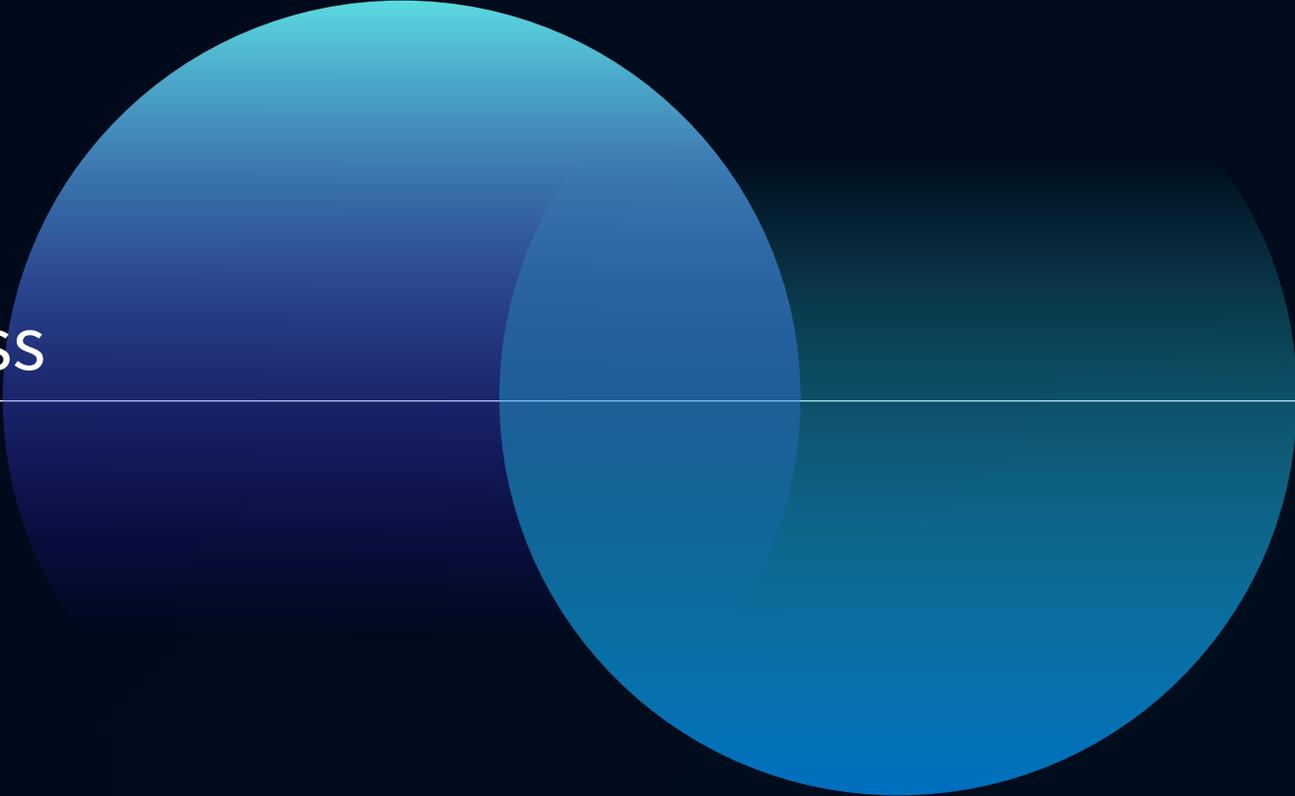


# Management Meeting



# Smart Life & Energy Business

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# Smart Life & Energy Business

## A Lifestyle True to Oneself Creating Clean Societies

AIoT connect white goods, solar, and healthcare to optimize your life.

We will expand renewable energy to create a carbon neutral world.

We aim to improve the Quality of Life (QOL) of all people while reducing environmental impact.



# Future Direction

Sharp enrich people's lives and society through high-value-added products that incorporate core technologies focused on food, water, air, and the environment



Develop core technologies and products to solve individual problems

Enrich people's lives and society through core technologies

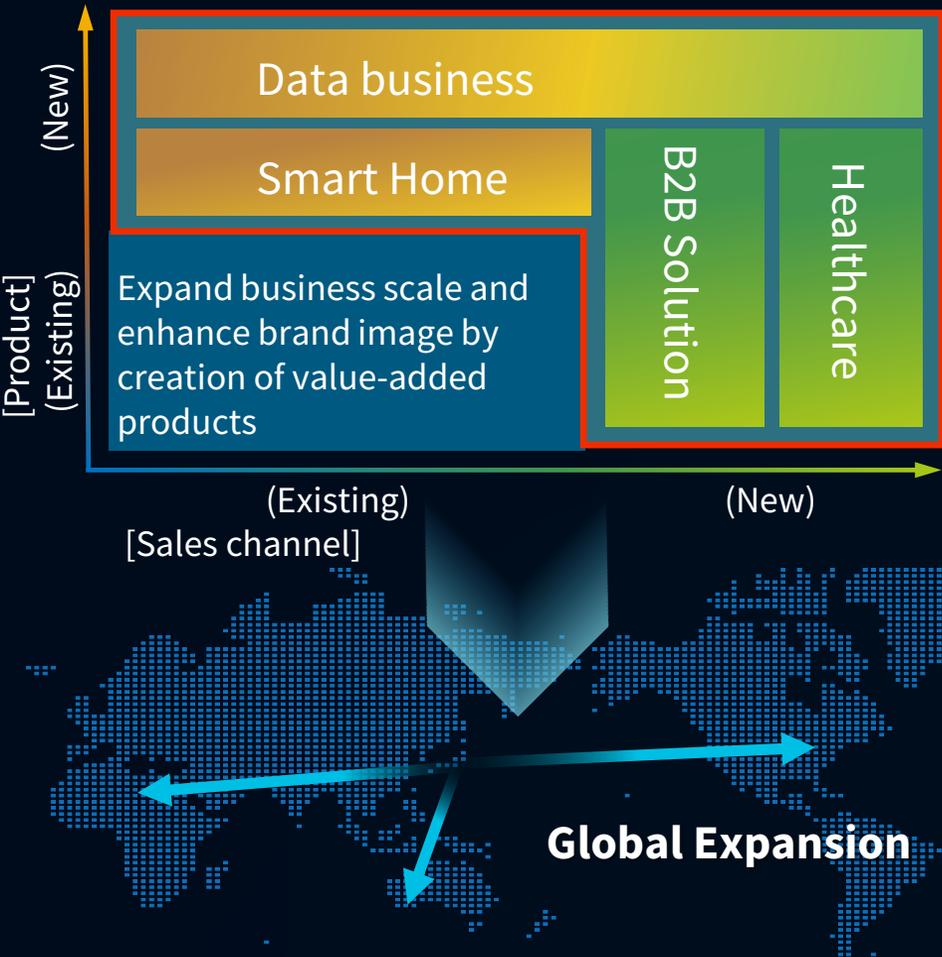
# Target areas where we can utilize our core technologies

## Core technologies

<b>Food</b>	Superheated steam Fresh-frozen Freshness maintained
<b>Water</b>	No holes tub Nature Technology
<b>Air</b>	Plasmacluster Noise reduction (passive noise control/ original design technology)
<b>Environment</b>	Solar power generation Material recycle



## Target areas



# Action Policies

New Business

Growth Business

Existing Business

- Develop healthcare-related equipment to protect people's healthy life
- Provide solutions to support medical and nursing care settings
- Expand smart homes that create, store and conserve energy
- Expand business scale by developing overseas blank or scarce areas
- Develop services to connect companies and users through AIoT platform
- Expand B2B business by utilizing own accumulated data (home appliance big data)
- Improve brand image by shifting to high-value-added products



Solutions for Medical and Nursing Care  
**New Business**



Smart home



Health promotion through mastication visualization



Centralized management system

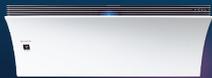


Visualization/analysis of healthcare data



Expanding business to overseas blank or scarce areas.

**Growth Business**



**Existing Business**

# Smart Life & Energy Business

Our energy business aims to create a carbon-neutral world through the further expansion of renewable energy



# Future Direction

New Business

Growth Business

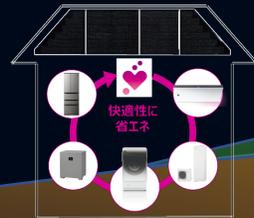
Existing Business

- Cultivate new needs with new technologies to realize carbon neutral
- Develop the universe/automotive market with space solar
- Expand business with EV collaboration、S-ZEH for carbon neutral homes
- Enhance efficiency of clean PV energy utilization with AI
- Promote the adoption of renewable energy in the ASEAN region



Perovskite

New Business



Smart Zero Energy Home



EV collaboration system



Space solar

Growth Business



Residential use



Power purchase agreement



EPC



ASEAN

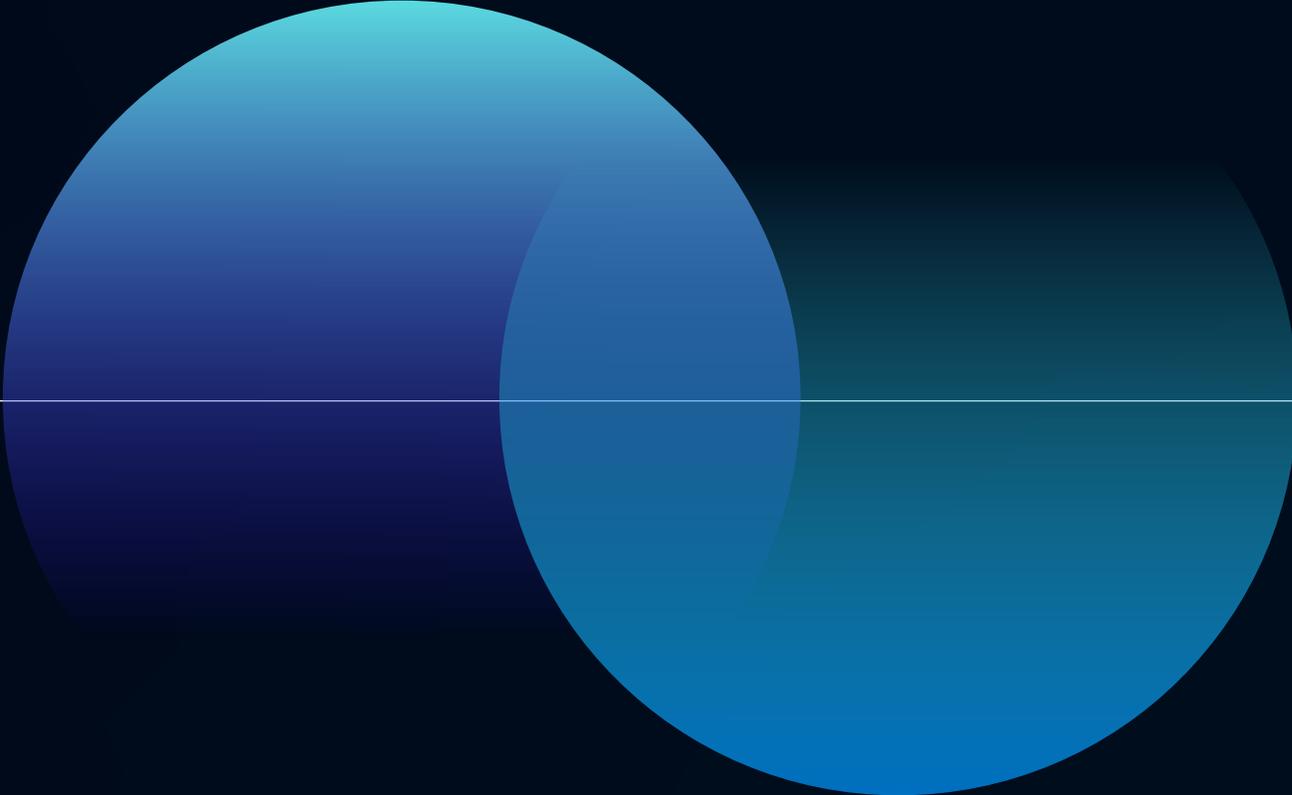


Self-consumption in factory

Existing Business

# Smart Office Business

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# Smart Office Business - Transformation -

We will maintain and expand business areas of MFPs/PCs supported by customer touch points and customer base. Also, we will expand business in three new areas by leveraging our customer touch points.

## MFP/PC business area

**Expand customer base and business opportunities to support existing businesses**

- ◆ Develop and launch strategic MFP products
- ◆ Strengthen PC One Stop Service for B2B customer base
- ◆ Expand hardware package sales and cross-selling

## New/expanding business areas

**Develop new business by leveraging the existing customer base**

- ◆ Expand IT solution service business
- ◆ Expansion of visual solution business
- ◆ Enter the robotics business in earnest and develop market

## MFPs: Customer base/customer touch points

**76** countries

**135** bases

**500K+** customers

**1,900+** channel partners

# Office solutions (IT services)

Expand IT solution service business based on MFP customer touch points

New business

Workplace managed services

IT Service



Smart office



MFP

Public service



New market

- ◆ Strengthen workplace managed services
  - Hardware managed service
  - Network/Security service
  - Application service
- ◆ Acquire IT service providers
- ◆ Expand smart office utilizing AI platform
  - COCORO OFFICE
  - SYNAPPX
- ◆ Develop all-in-one subscription/cross-selling
- ◆ Expand public print business
  - CVS MFP/content print services

# Visual solution

Solve the social issues by expanding visual solutions business

New business

LED display



Professional projector



Touch display



ePoster



Viewing analysis solution



e-Signage S

Signage solution



New market

## New business

- ◆ Develop ePoster\*, ultra-energy-saving signage  
\* in the process of Trademark application
- ◆ Expand IT services using AI technologies
- ◆ Strengthen sensing/analysis technology solutions

## Existing business

- ◆ Expand content distribution services
- ◆ Develop energy-saving LED/multi-device displays
- ◆ Expand cross-selling and acquire new customers

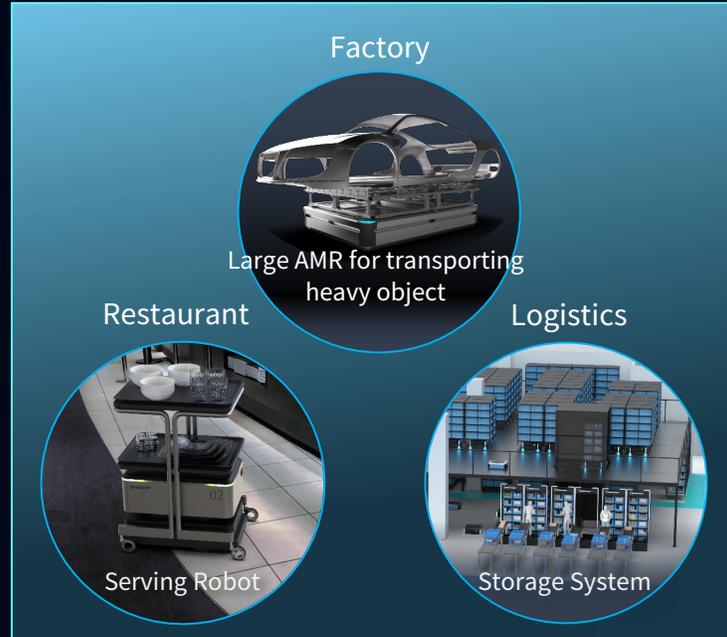
# Robotics

Enter the robotics business in earnest by leveraging AI technology and expand the market

New business



Automatic machine/  
operating system/  
robot lineup



Mobile Picking Robot

New market

## Factory

- ◆ Expand fully automated robot factory solution
- ◆ Develop deployment of custom-made equipment for EV manufacturing, etc.

## Retail

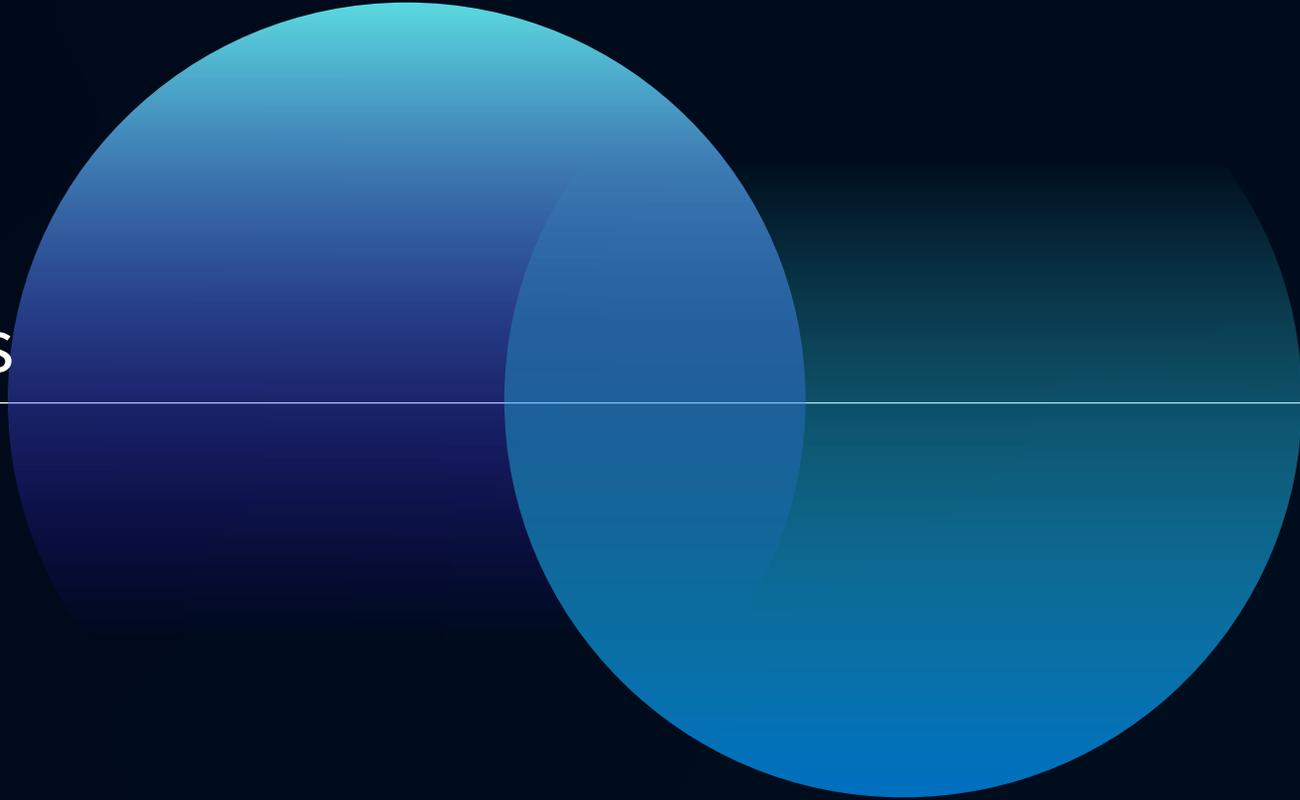
- ◆ Expand robotics solution
  - Catering, cooking, dark store picking

## Logistics

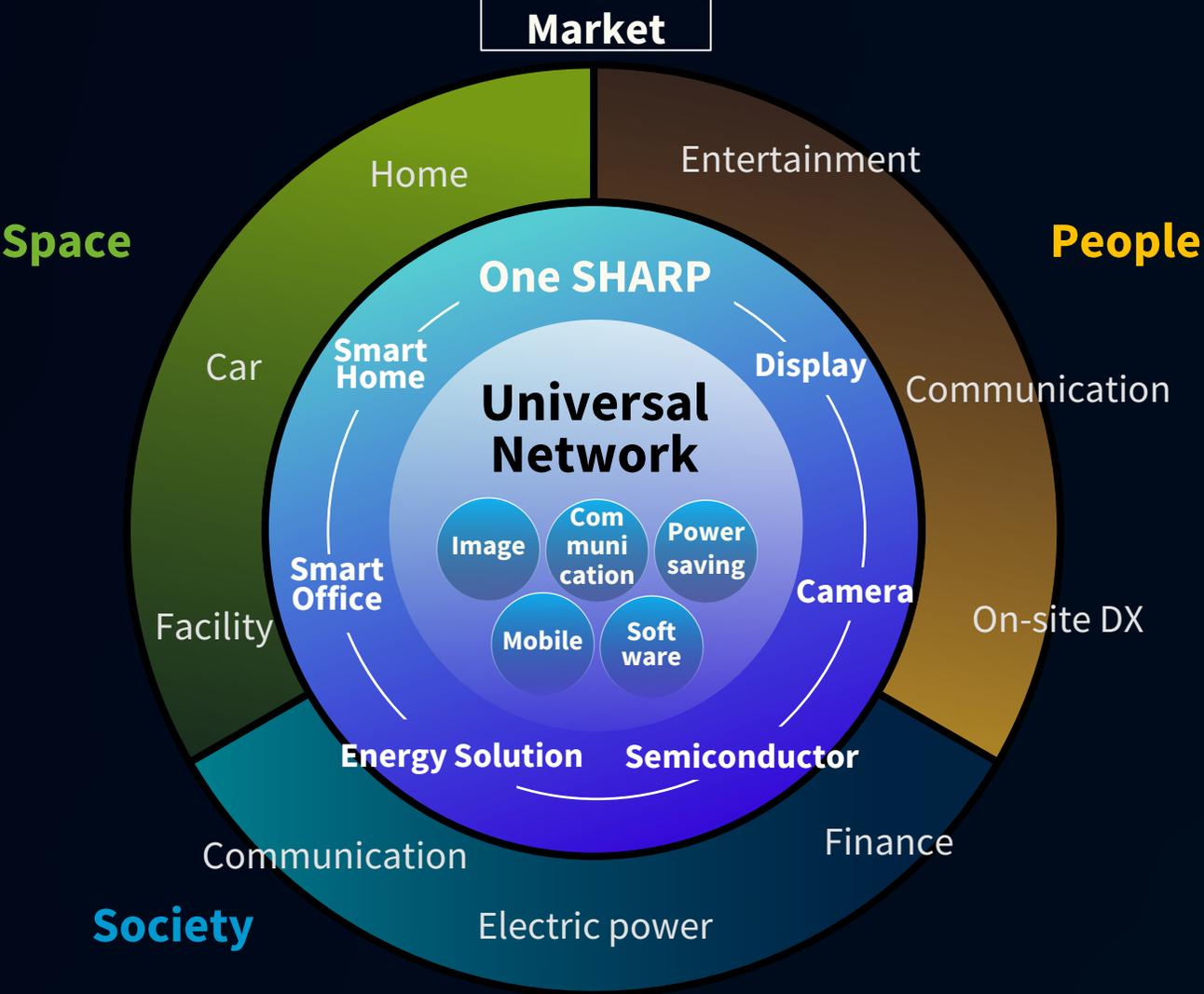
- ◆ Expand storage system for tenant-type logistics warehouse

# Universal Network Business

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# Future Direction



Create solutions that connect people, space and society as One SHARP

# Business transformation

## Next-generation communication technology

- Local 5G
- Pre 6G
- Satellite



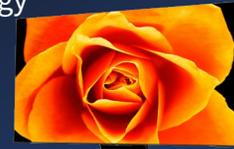
## Communication business

- Wireless communication technology
- Antenna technology
- Communication standard patent



## TV business

- Image display technology
- Image and sound processing technology
- Image standard patent



AQUOS XLED

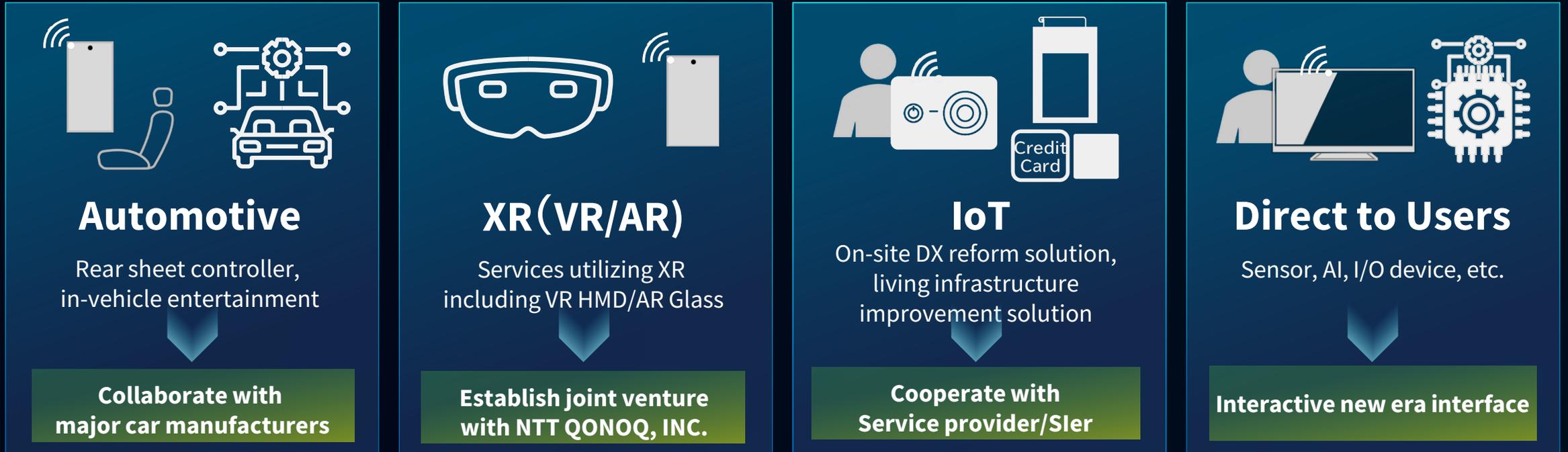
## Universal Network Solution

- Realize connectivity anywhere, anytime -



Integrate existing assets and next-generation communication technologies to realize anywhere, anytime connections

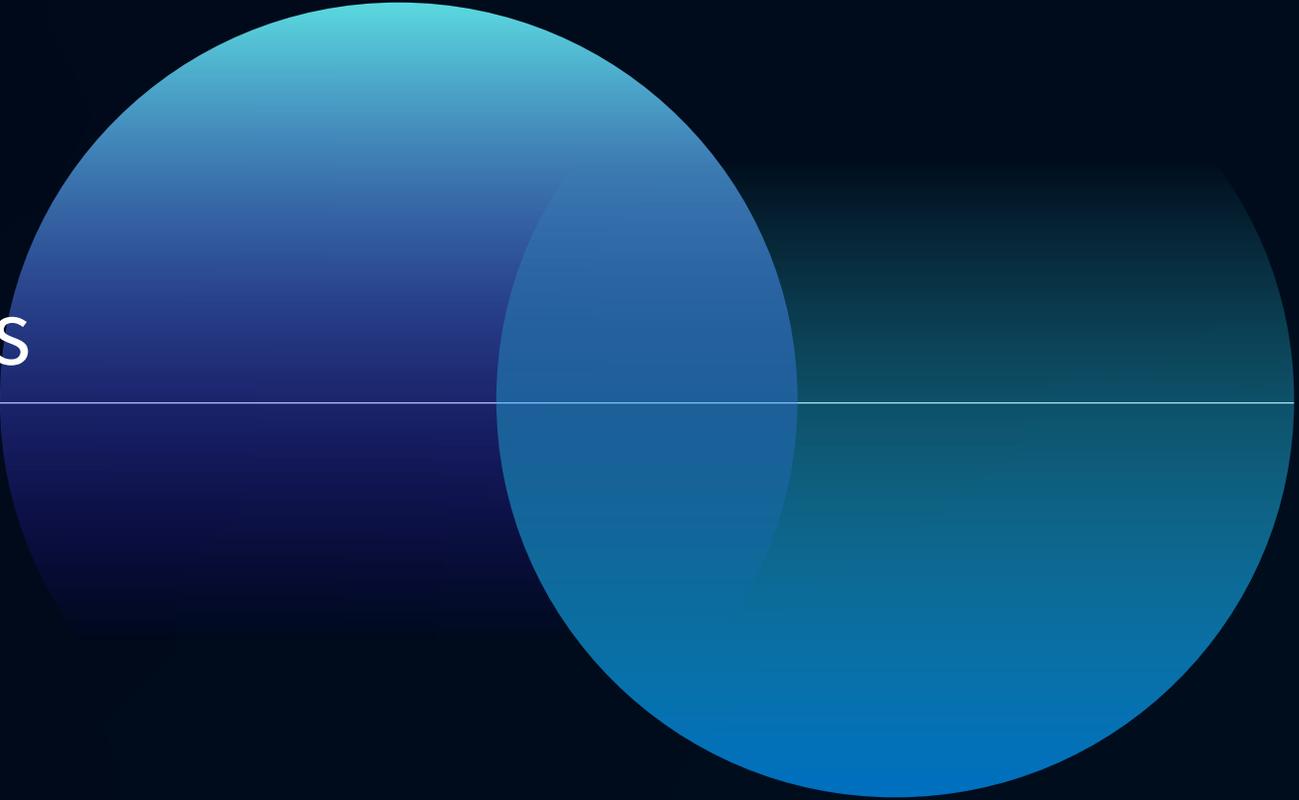
# Business transformation



Create solutions that connect people, space and society

# Display Device Business

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# Business Direction - Shift category for the future -

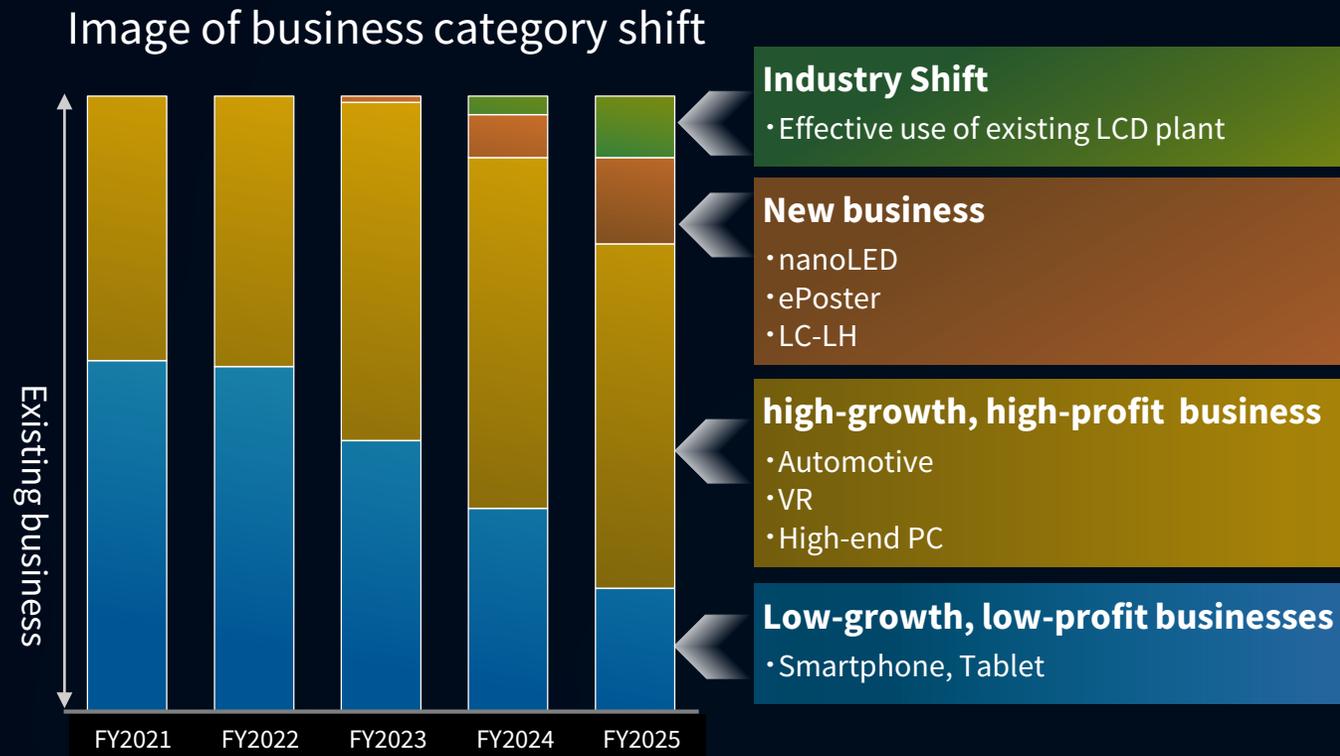
1. Downsize low-profit businesses and shift categories to high-growth, high-profit businesses centered on automotive and VR
2. Expand new businesses such as nanoLED, ePoster and next-generation solar cells

## (1) Selection and concentration of existing businesses

- Downsize low-growth, low-profit businesses  
Decrease in LCD demand due to OLED conversion of smartphone/tablet displays

## (2) Creation and commercialization of new businesses

- Expand business with new technologies
  - (1) nanoLED (next-gen self-luminous display)
  - (2) ePoster (reflective LCD/EPD)
  - (3) LC-LH (next-generation solar cell)



# Business Direction - Shift category for the future -

## Strengthen existing business

## Create new business

### Automotive

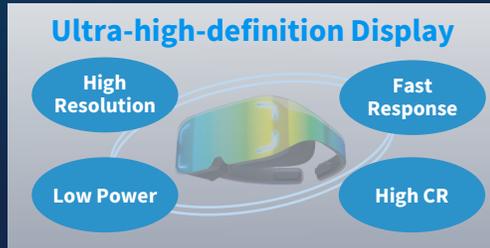
Strengthen support for EVs and autonomous driving with super long display, etc.



\* Driver monitoring camera

### Metaverse

Accelerate development of ultra-high-definition displays to meet the growing metaverse market



### nanoLED

- (1) Self-luminous and inorganic material display made from QD light-emitting device
- (2) We can make with low cost, as utilizing existing LCD equipment and factories



Mass production scheduled for FY2025

### ePoster

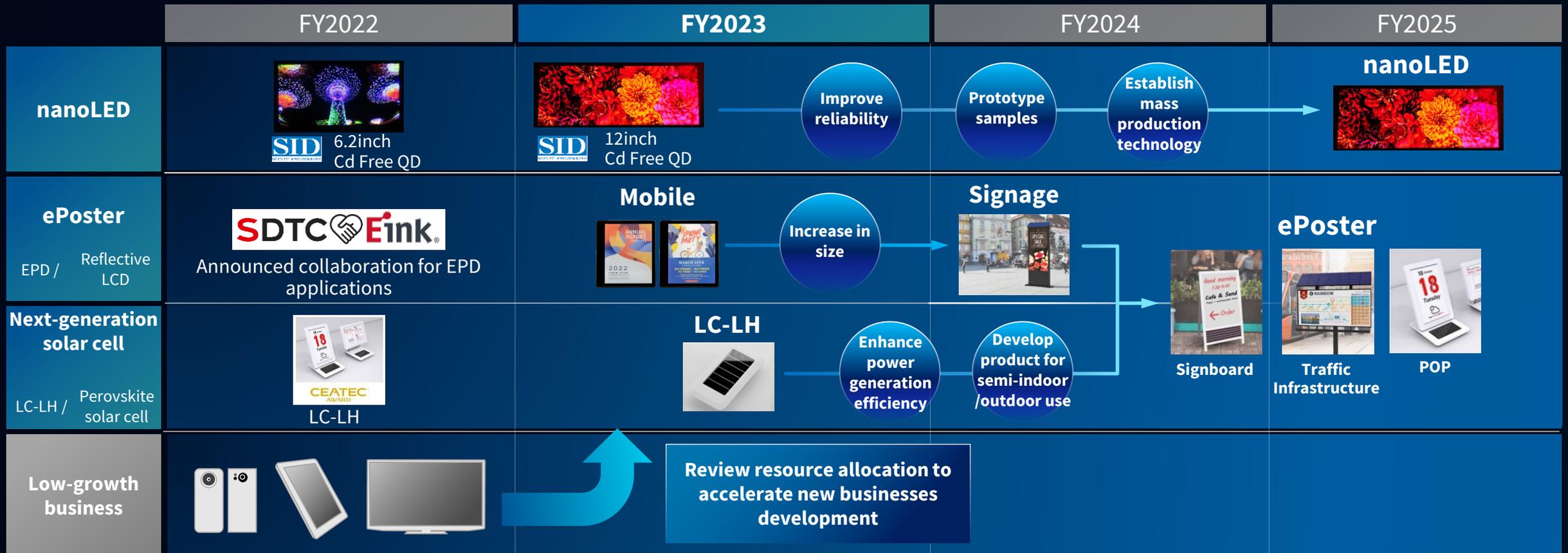
Power line and primary battery is not required thanks to ultra-low power display and next-gen solar cell



Mass production scheduled for FY2024

# Business Direction - Shift category for the future -

Review resource allocation to expand new businesses including nanoLED, ePoster and next-generation solar cells

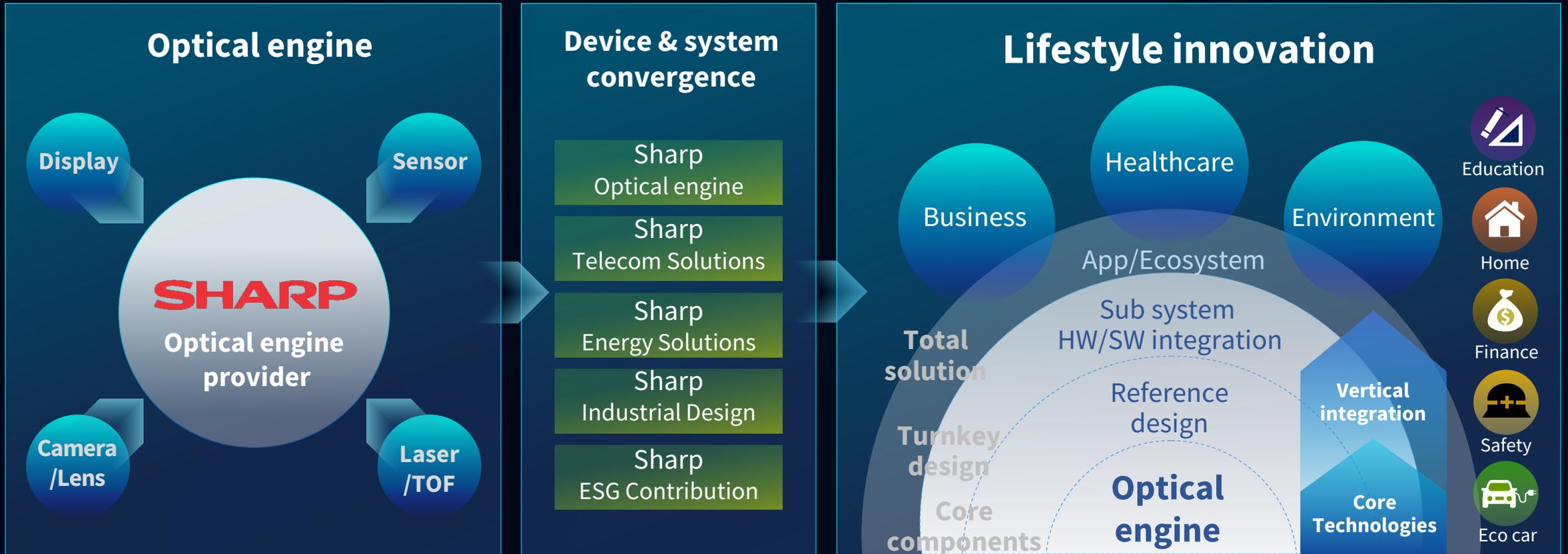


# Device Business Committee

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# Device Business Committee

## Technology Integration bring Lifestyle Innovation



# Device Business Committee

Starting with optical engine solutions, we aim to provide new value

## SHARP optical engine solutions

### Solar system

#### Green innovation

- ePoster system
- Next-gen solar cell (LC-LH)



### Display

#### Smart cabin

- See-through display
- Camera system



### Camera system

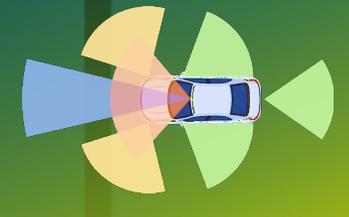
#### Metaverse

- Proximity sensor
- RGB camera
- High-definition display

### Sensing

#### ADAS

- Viewing camera
- Sensing camera
- LiDAR



### Laser

- Polymer lens unit
- Pancake lens



# Device Business Committee

Global development center will accelerate development of optical engine

Development center (Europe)



Development center (USA)



Development center (Japan)

Development center (China)



Development Center (Taiwan)

**Metaverse**



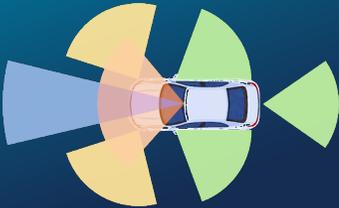
**SDTC SSTC**  
**MCB Kantatsu**

**ePoster**

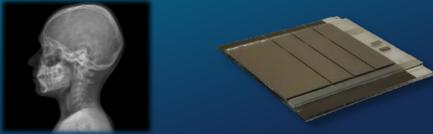


**SDTC EInk**

**ADAS**



**Sensor**



**X-ray sensor**   **Olfactory sensor**

# Establishment of Panel-Semiconductor Research Institute

- 1. We can promote technology development to realize One Sharp spiral strategy, as establishing Panel-Semiconductor Research Institute.**
- 2. We will reduce duplicate costs significantly by converging development, design manufacturing of products**

Develop Next-gen display technology



ePoster



nanoLED

Integrate technology/manufacturing process for panel and semiconductor



Converge development/design of brand products and panel



Promote overseas expansion of engineering and license



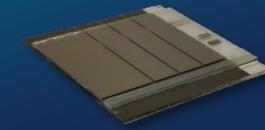
Promote industry shift



Develop new device and new business



X-ray Sensor

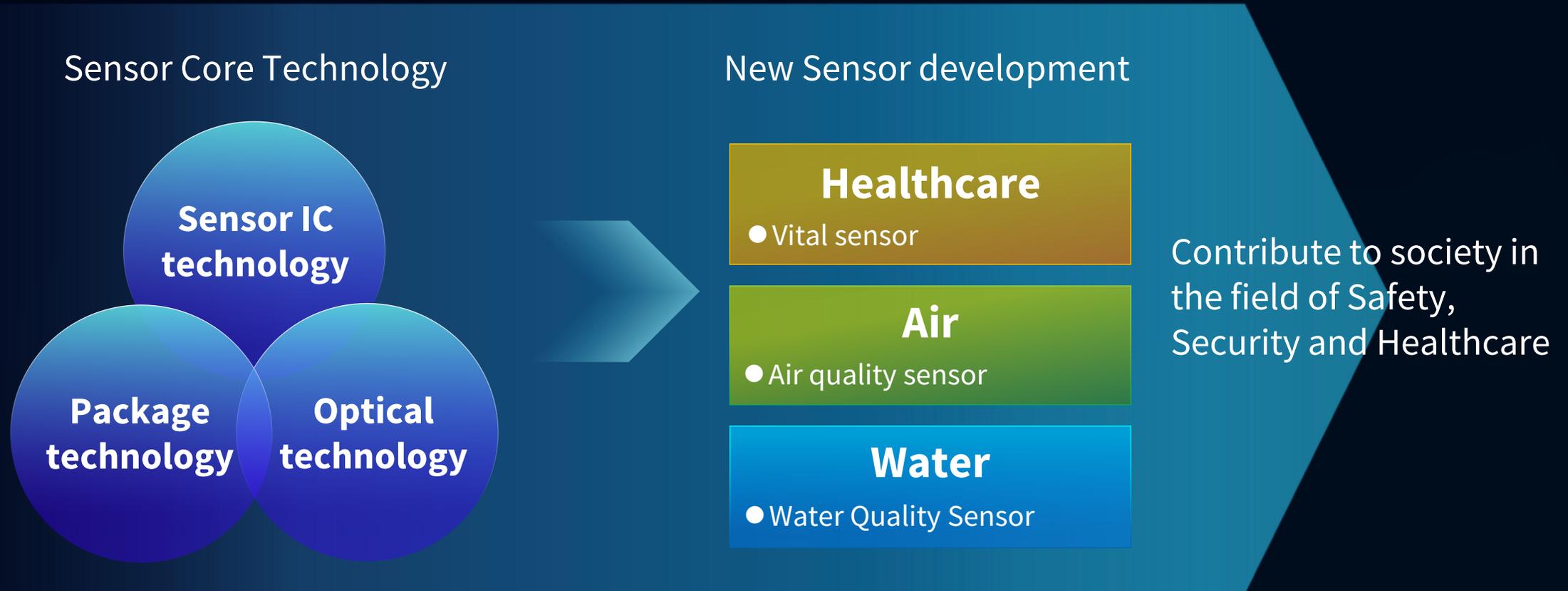


Biosensor

\*IGZO was jointly developed for mass production by Sharp and Semiconductor Energy Laboratory Co., Ltd.

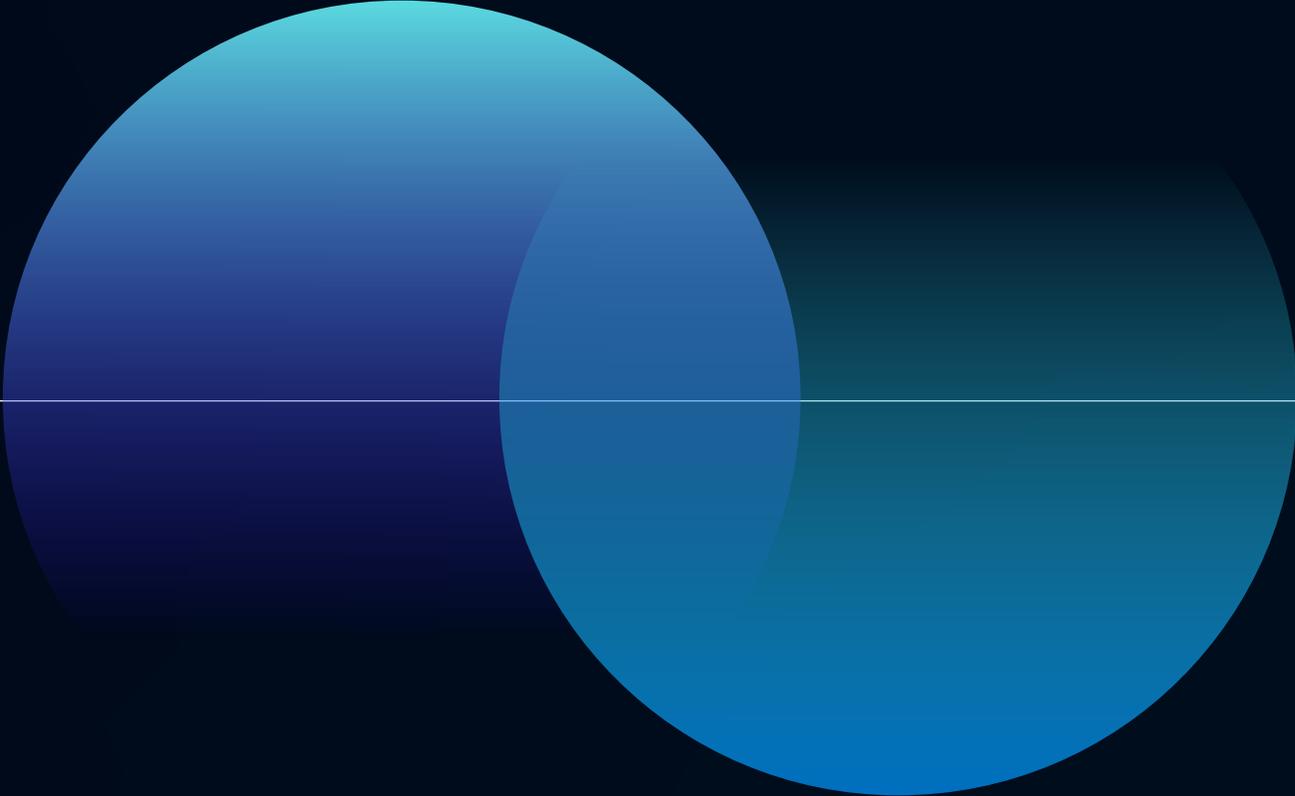
# Device Business Committee

We will accelerate development in new fields by leveraging our sensor device technology as a starting point.



# Innovation Group

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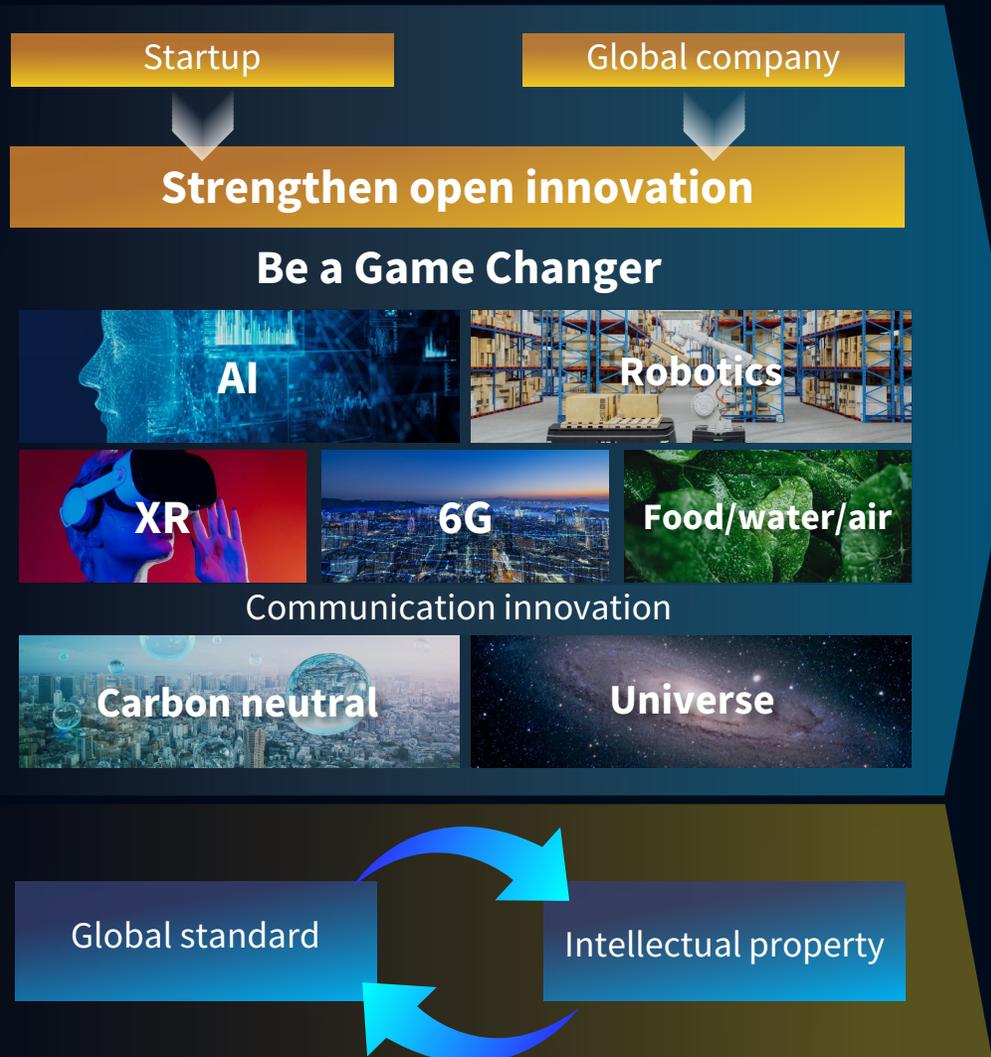


# Future Direction

**8K+5G**  
Ecosystem

- IGZO
- Micro-photonics
- Micro-mechatronics
- LTE•5G
- Functional materials
- PCI
- AIoT PF

**AIoT** WORLD



**SHARP**

# TECH-DAY

2023年(創業 **111** 周年) **11**月 **11**日

November 11, 2023 (111th Anniversary)

東京ビッグサイト 東8ホール 11:00AM

Be a Game Changer