

# OKI Group

Innovation and Technology Strategy Meeting

# Innovation Strategy

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**Chief Innovation Officer**

**Responsible for Innovation Business Development Center**

**November 16, 2023**

**01** Entering New Business Domains

**02** Full Participation Innovation

**03** Creation of Future Businesses (Four Focus Domains)

**04** Summary

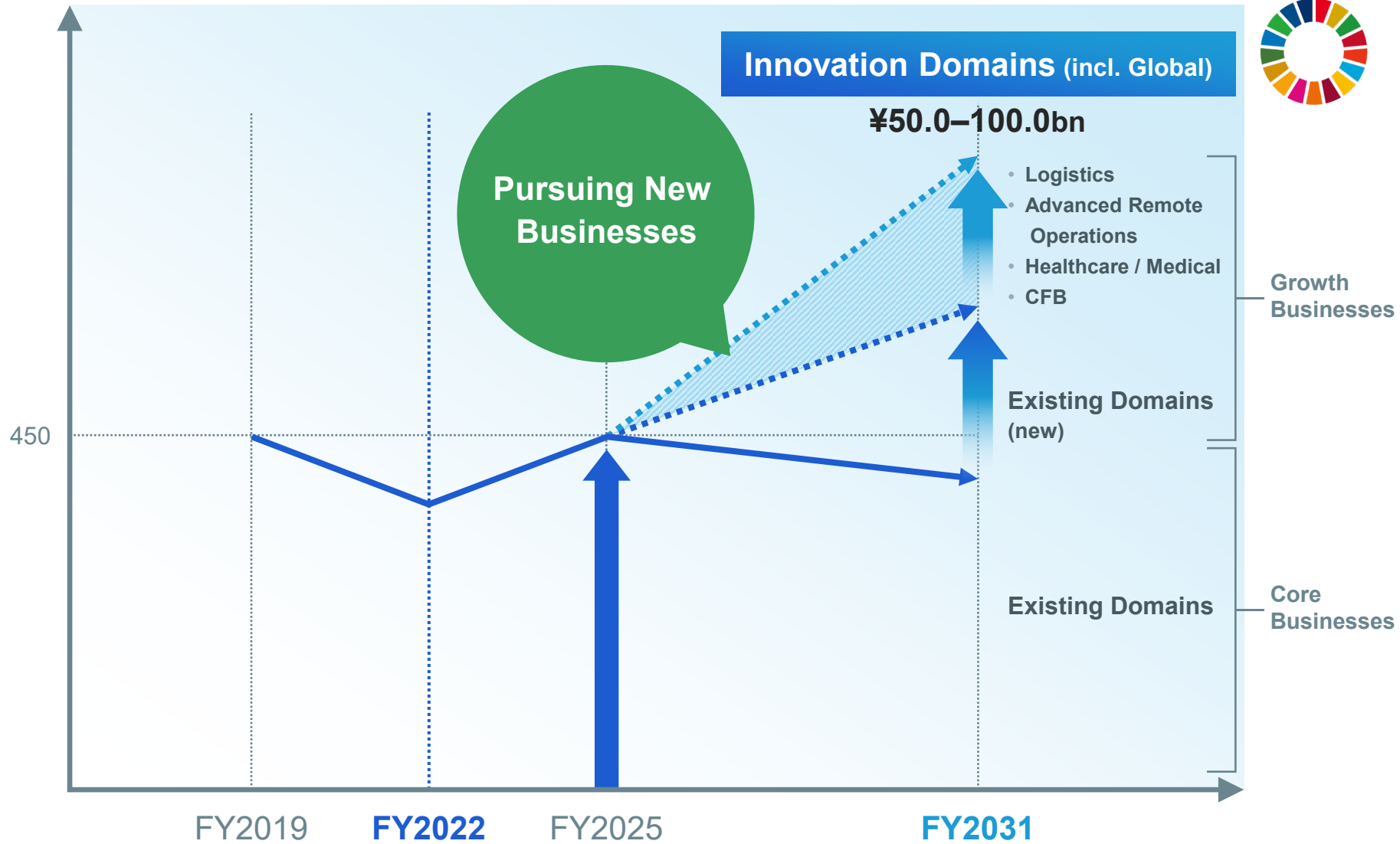
# 01

## **Entering New Business Domains**

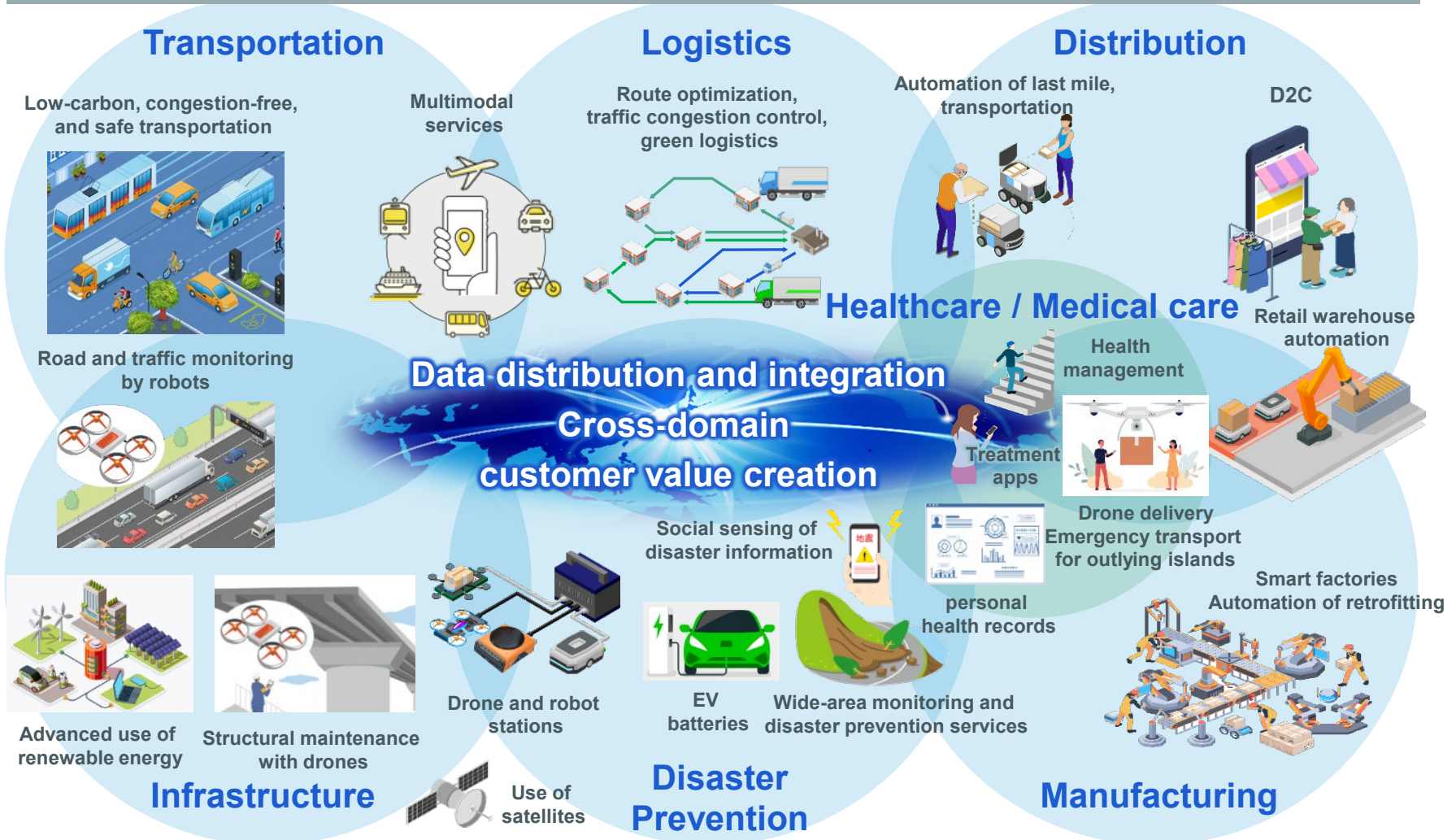
## Social Issues

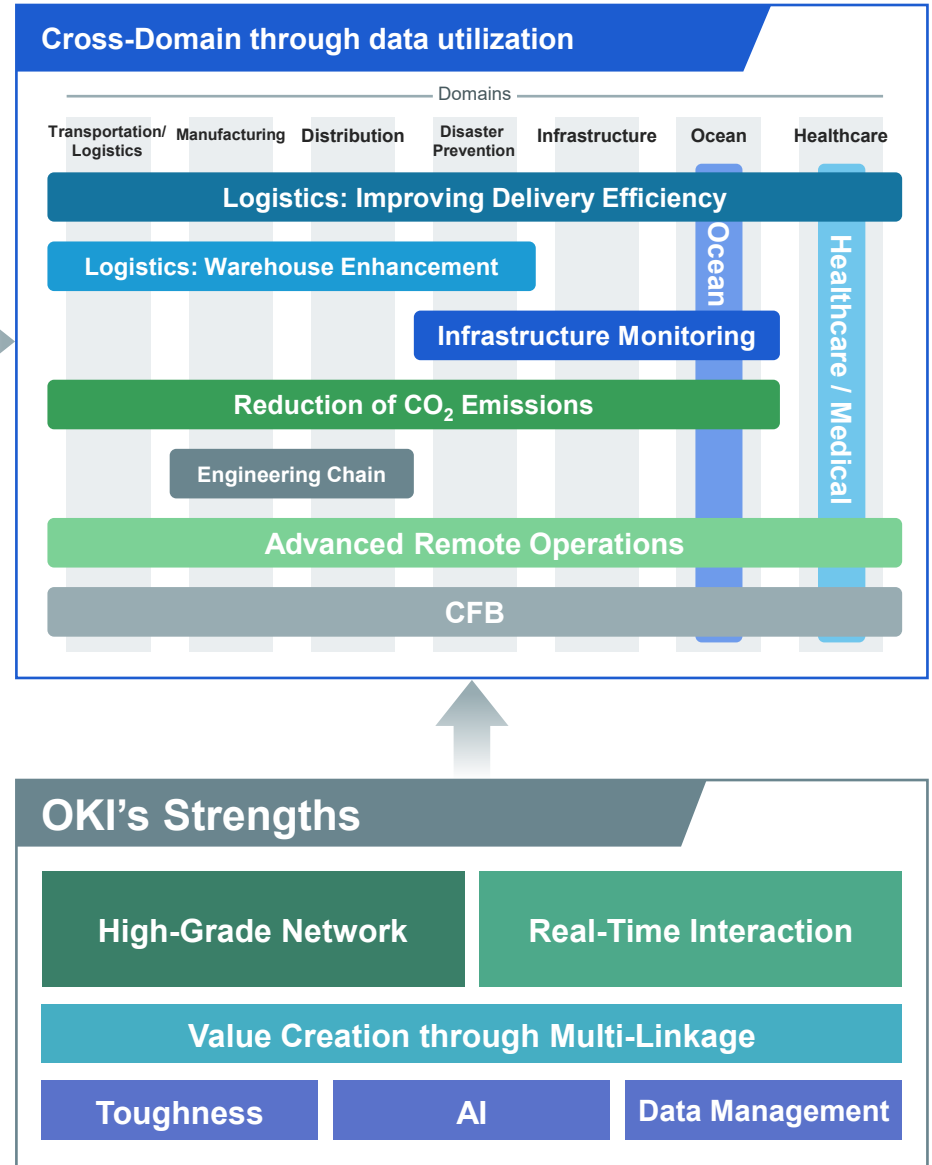
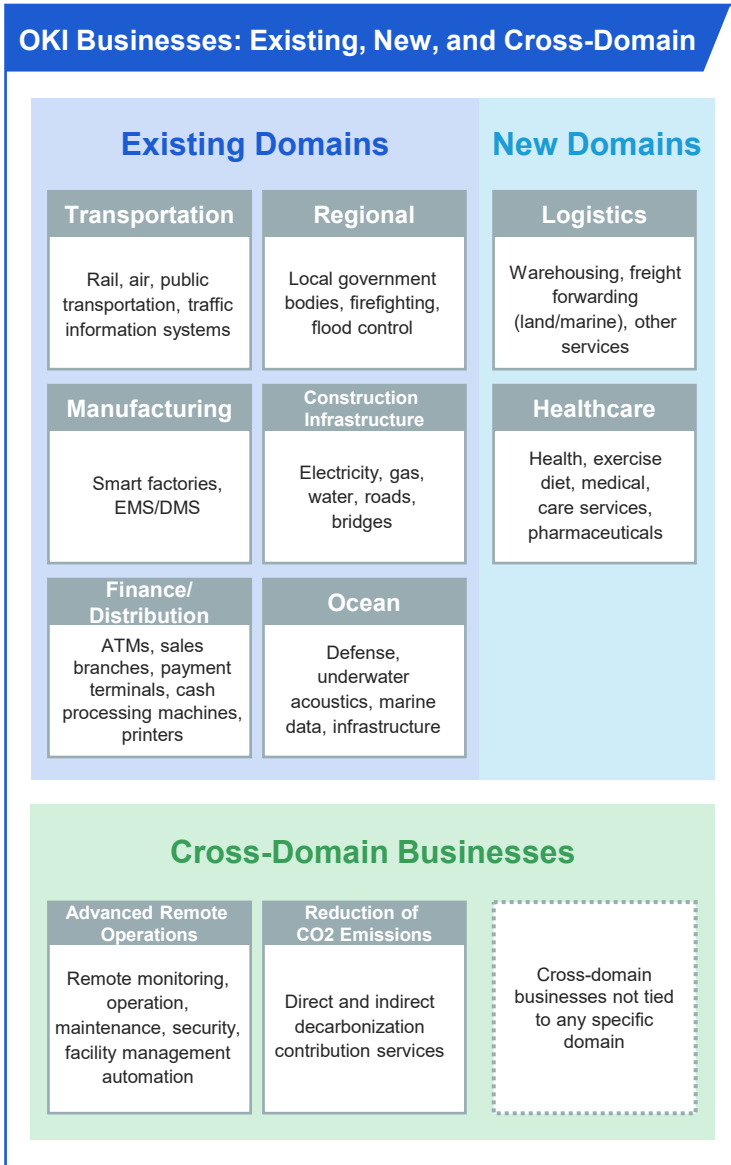


(Billions of yen)



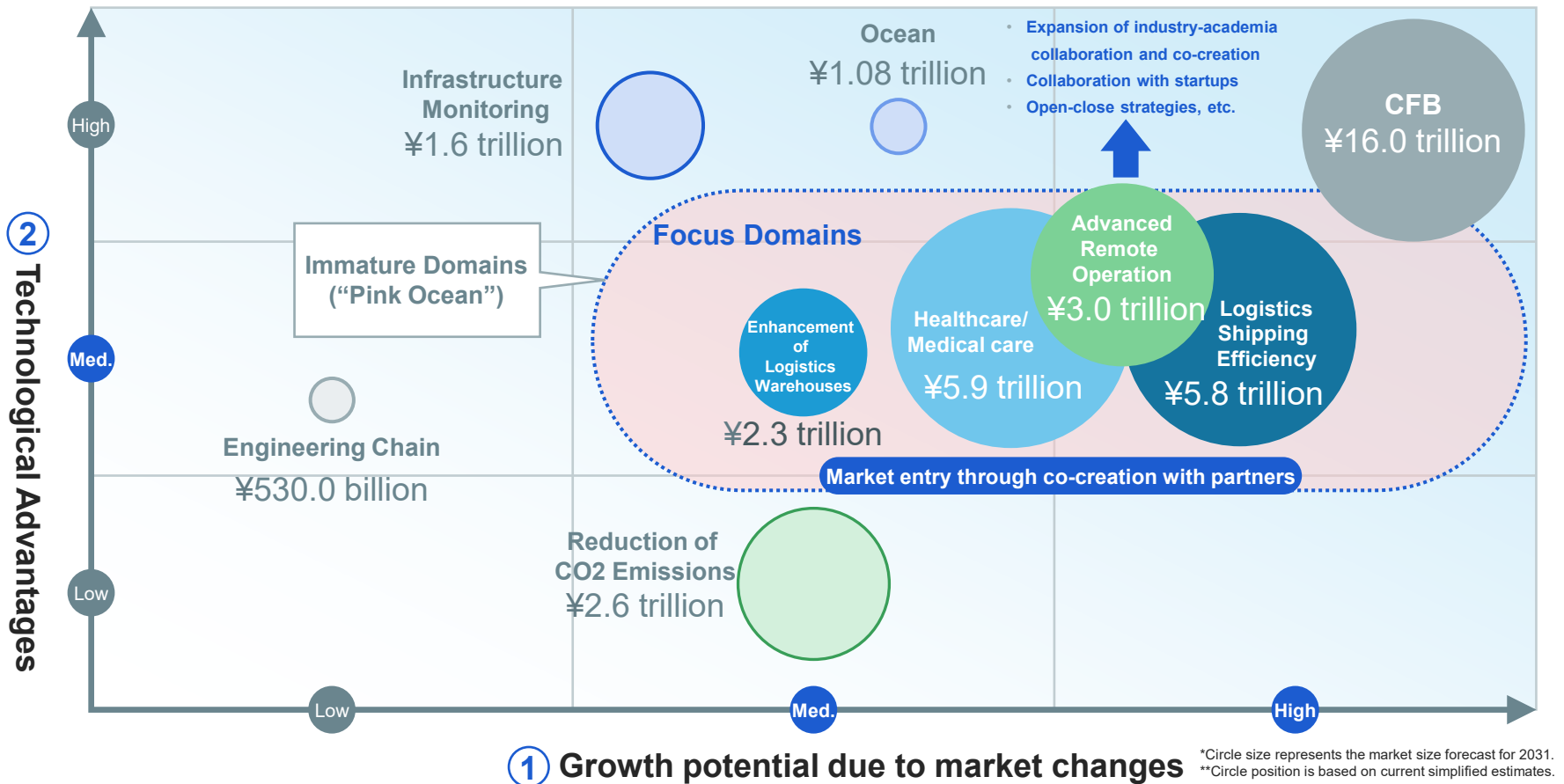
- Creation of customer value across domains and optimization of whole society through data distribution and integration
- Accelerated commercialization of remote operations utilizing a variety of sensors, robots, and mobility to complement labor shortages





- Business creation in four domains (logistics, healthcare/medical care, advanced remote operations, and CFB) where capital will flow in 2031
- Aiming to expand business with an edge platform that leverages “market growth potential X OKI's strengths”

## OKI's Future Business Targets (Four Focus Domains) / Focus Domains for Innovation



02

# Full Participation Innovation



- Strengthen sources of value both externally and within the company

Internal strengthening

Solving social and customer issues

Company-wide innovation activities to promote DX

### Full Participation Innovation

- Yume Pro activities
- IMS(ISO56002) adoption and expansion
- Implementation and globalization

Business model transformation

Edge solutions using AI and IoT

### Edge Platform

- AI Edge Computing
- Data management
- Solutions in each area

Organizational transformation

Productivity strengthening

Creation of new solutions

Competitiveness improvement

Operational process transformation

Enhancement of existing solutions

Strengthen Mono-zukuri infrastructure to become manufacturing platformer

### Strengthening Mono-zukuri infrastructure

- Virtual One Factory
- Portability, smart factories
- Environmental measures (ZEB/ZEF)

Business process transformation

Products and services to help customers DX

### Shift to front-office processing

- New IoT Products
- Business process services**
- Comprehensive Mono-zukuri services
- Recurring/ BPO services

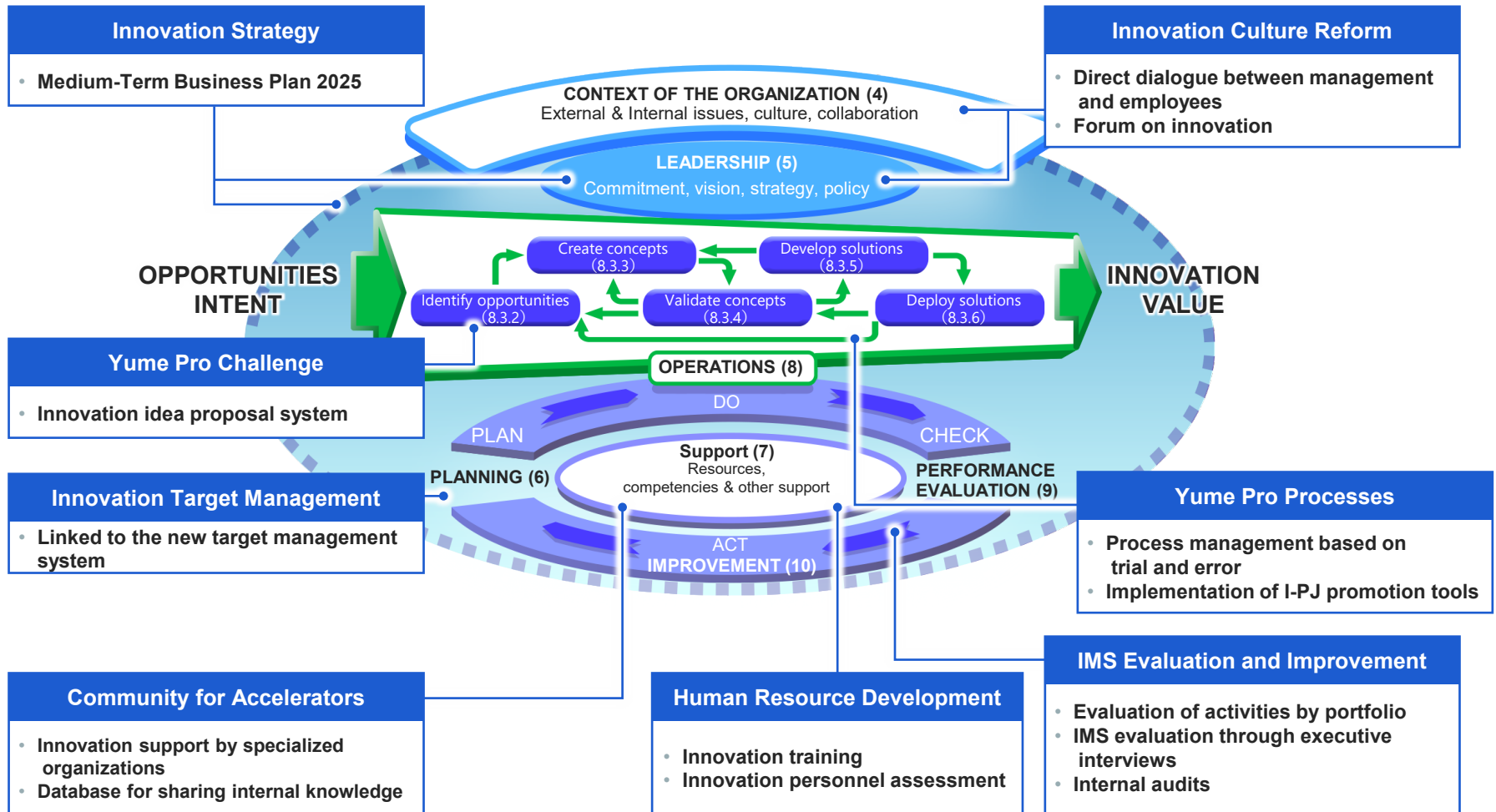


\*Innovation Management System (IMS): A management system that promotes innovation at companies and other organizations.

\*\*\*“Swimmers who can make it to the finish”: A team of strong-willed innovation practitioners who continue to drive the innovation process.

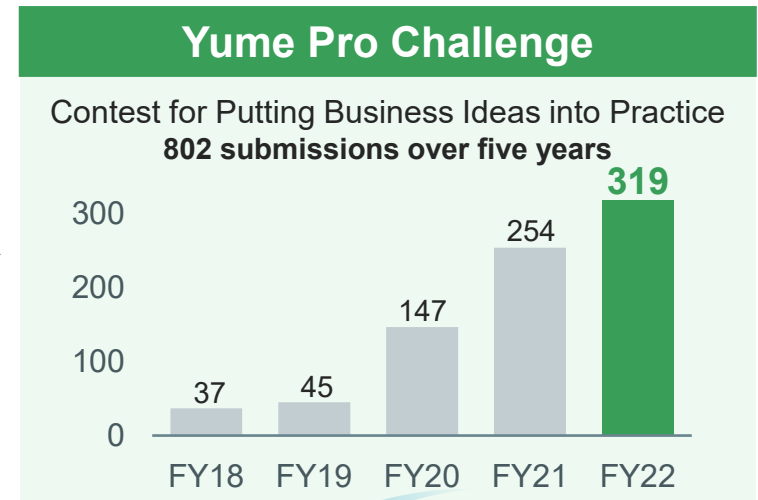
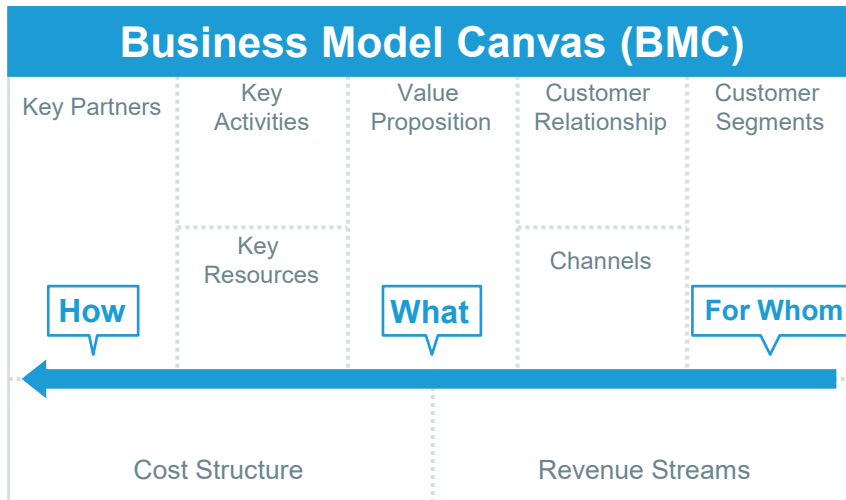
\*\*\*Number of innovations created: Number of companywide innovation projects that have progressed to the solution implementation step.

- Establishment of an innovation management system based on ISO 56002
- All divisions implemented innovation management system based on full participation innovation in FY2023



Source: Japanese Standards Association ISO 56002 Japanese Bilingual Edition, revised based on Fig. 1.

- Concept-Building Process: Pursuit of True Customer Value



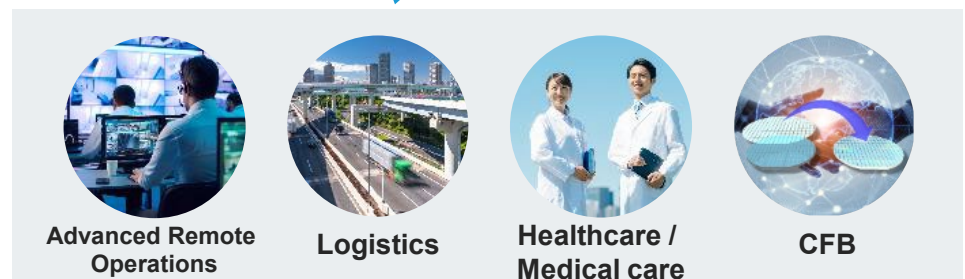
Getting into customer's business scene

Discovering customer's issues (questioning and observation skills)

And repeatedly refine the hypothesis with the customer



Creation of new business domains



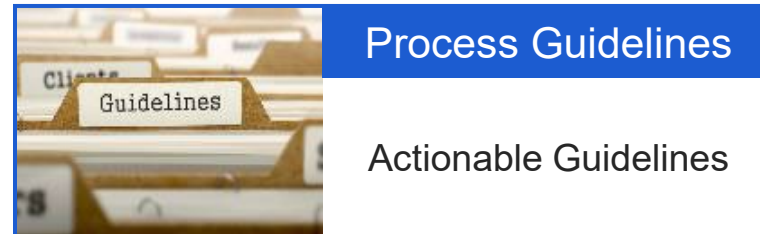
# Three Reinforcement Points to Support "Swimmers Who Can Make It to the Finish"

- Providing ample support for inexperienced teams to clear their objectives without getting distracted

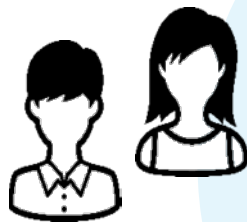
**1** Raising the level of practical ability

**2** Developing Strengths and the Ability to Support Others

**3** Combining individual strengths for team execution



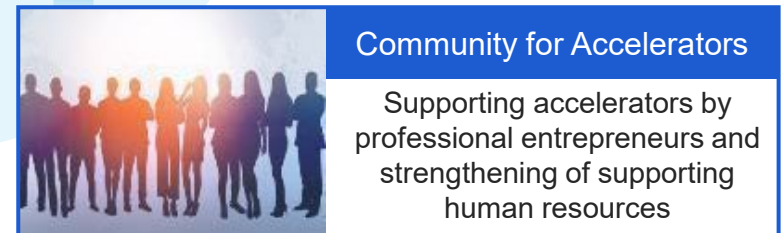
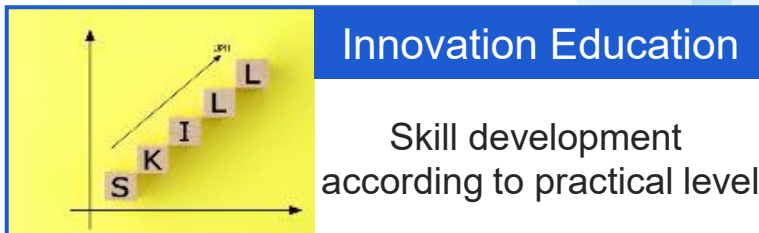
Sharing practical advice and case studies



**Innovators:**  
"Swimmers who can make it to the finish"

Practical skills and education

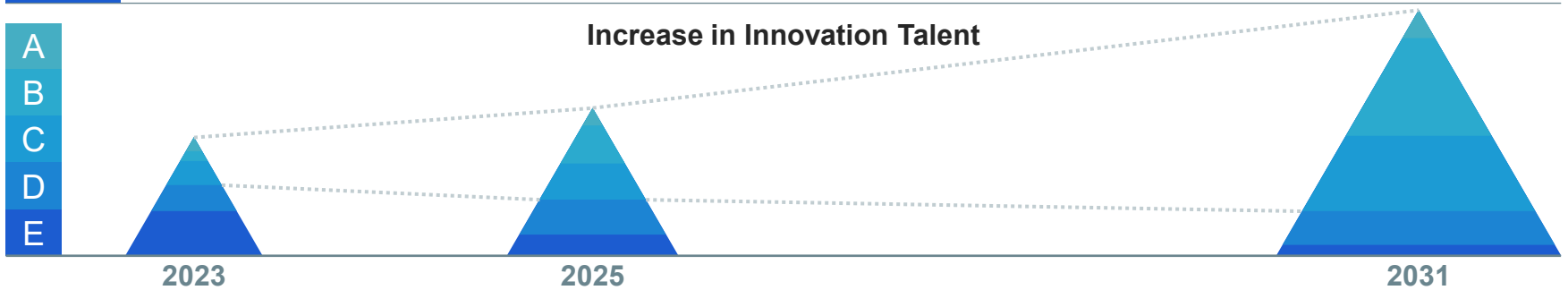
Closely followed advice



• Developing High-Potential Innovation Talent by Category in Community for Accelerators

<b>Strengthening Support Capabilities (ABC)</b>	Improve support skills through professional training and practice ▶ Increase the number of personnel supporting projects
<b>Strengthening Practical Capabilities (DE)</b>	Strengthen practical skills by increasing practical activities ▶ Medium- to long-term development of future core personnel

Category	Estimate of Acceleration Support Steps	Acceleration Level	Utilization/Training Plan	Target Number of Talent			
				FY23	FY24	FY25	FY31
A	50% or more	Mentoring for business projects	Business Project Support	3	5	10	15
B	20–50%	Yume Pro Challenge award Support for business projects	Supporting Yume Pro Challenge award-winning projects (continuously for one year)	10	15	30	70
C	10–20%	Support for high-ranking Yume Pro Challenge submissions/ business projects	Participation in external acceleration support training programs Facilitation of co-creation workshops				
D	5–10%	Support for projects that meet Yume Pro Challenge screening criteria	Facilitation of practical workshops Yume Pro Challenge Accompanying Assistance	20	30	50	80
E	5% or less	Annual submission to Yume Pro Challenge Criteria met	Submission to Yume Pro Challenge Participation in practical/co-creation workshops				



# 03

## **Creation of Future Businesses**

**From Edge Platform to Four Focus Domains**

- Leveraging OKI's strengths and know-how to solve social issues in focused areas

Safe and convenient  
social infrastructure

Conservation of  
global environment

Job satisfaction and  
productivity enhancement

Ocean



Social infrastructure



Manufacturing



Visualizing, analyzing,  
and  
predicting on-site data  
**Edge platform**





- Innovation business development: Growth scenarios and global expansion with a focus on our vision for the future

Safe and convenient social infrastructure



Conservation of global environment



Job satisfaction and productivity enhancement



Global expansion

Cloud integration

**Logistics**

Enhance logistics operations with real-time automation and overall supply chain optimization

**Healthcare / Medical care**

Sensing and data utilization for social wellbeing



**Advanced Remote Operations**

Real-time integration of people and edge devices for remote operation solutions coordinating different tasks

Edge platform

Toughness  
AI  
Data management



High-grade network

Data utilization

Real-time interaction

Edge devices

**CFB\***

CFB technology for bonding dissimilar materials to create new displays and devices

\*Crystal Film Bonding: Semiconductor bonding technology developed in the LED printer business

Yume Pro: Innovation Management System

**Customer Value**

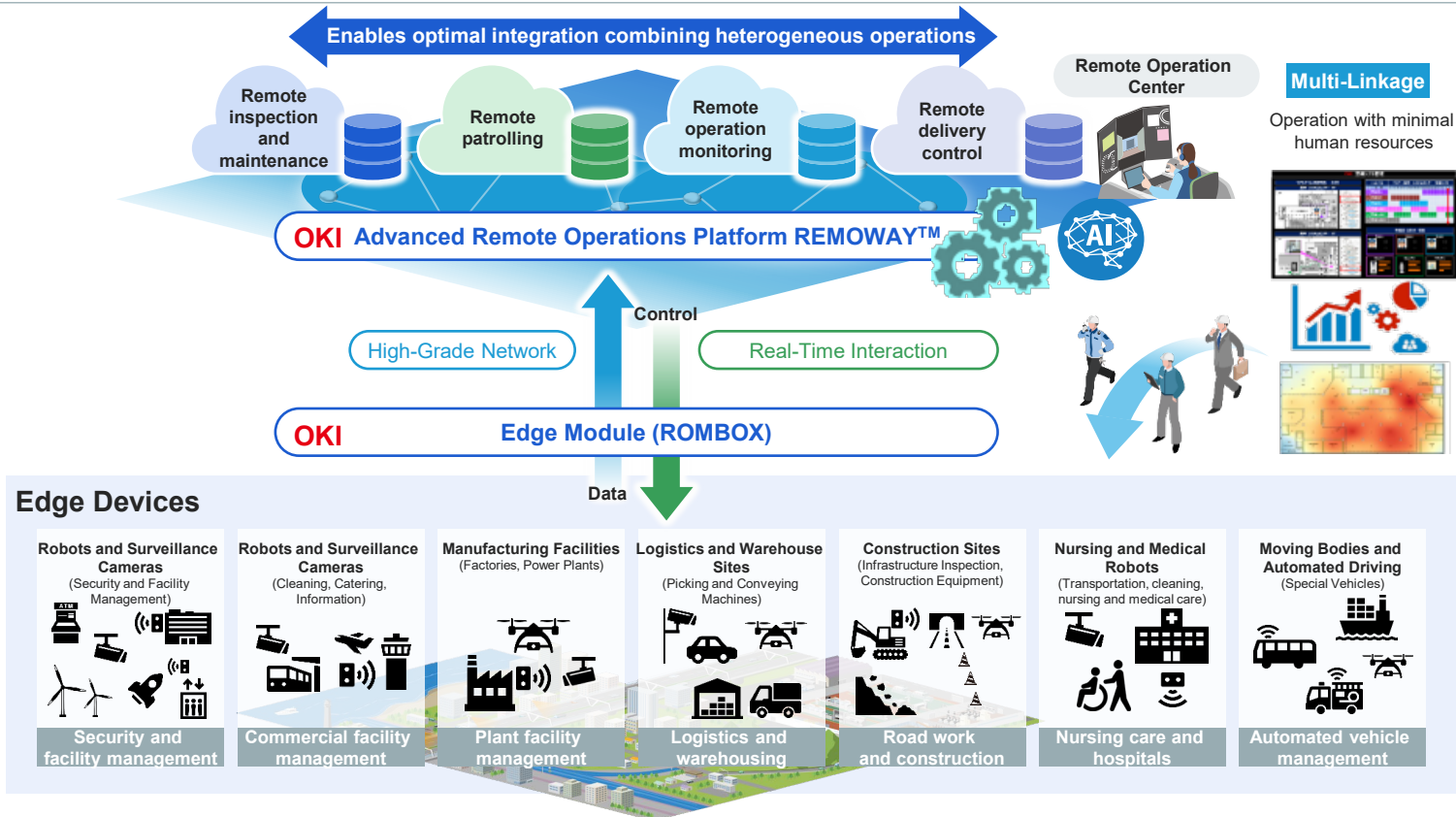
1. Remote inspection/maintenance/patrolling/operation monitoring/delivery control, and rush services to save manpower, increase efficiency, and ensure quality
2. Service expansion through integrated operation of heterogeneous operations and improved efficiency

**OKI's Strategy**

- Realization of advanced remote operations on the strength of multi-linkage based on high-grade networks and real-time control, as well as know-how in call center (communication function) operations and maintenance services
- Realization of on-site automation and integrated operation of heterogeneous operations with advanced remote operations platforms and edge modules supporting multiple vendors

**Advanced Remote Operations**

Service image



## Phase 1 (to FY2025)

Automatic patrol / transport and task coordination

## Phase 2 (to FY2028)

On-site automation and remote monitoring control

## Phase 3 (to FY2031)

Heterogeneous sites and multi-linkage

**Security / Facility Management, Manufacturing / Factory Automation**

**OKI's Strengths**

- Inter-operation collaboration
- Highly reliable wireless networks
- Multi-device integration

**Commercial Facilities / Warehouses, Road Construction**

**OKI's Strengths**

- Inter-operation collaboration
- Creation of products and services with environmentally resistant edge devices

**Nursing Care / Hospitals, Automated Vehicles**

**OKI's Strengths**

- Infrastructure for uninterrupted connection of edge data from different industries in real time

- Total optimization of operations is essential due to industrywide human resource shortages and wage hikes
- OKI's edge platform unifies management of vendor platforms and integrates operational domains

## Unified Management

- ① Real-time interaction
- ② Uninterrupted networks
- ③ 1:N Multi-linkage

## OKI Edge Platform

- |         |   |
|---------|---|
| Phase 1 | Security, Facility Management, Manufacturing/FA                     |
| Phase 2 | Commercial Facilities, Transportation/Warehouses, Road Construction |
| Phase 3 | Nursing Care/Hospitals and Automated Vehicles                       |

### Platform Linkage

Operational Domain Integration

### Vendors

#### Business System Vendors

- Business operations platform
- Robot platform

#### General Contractors

- Infrastructure platform (facility management)

#### Robot Vendors

- Delivery/Transportation robots
- Robot platform

- Communications infrastructure platform (networks/robotics)

#### Security Robots

- Robot platform

#### Cleaning Robots

- Robot platform

#### Catering Robots

- Robot platform

### Device Linkage

### Systems Integrators

#### IT Vendors

- Business operations platform
- Robot platform (security/customer service)

#### Robot Vendors

- Robot platform (cleaning, catering, customer service)

Dedicated platform with multiple devices

Separate Management

<p><b>Customer Value</b></p>	<ol style="list-style-type: none"> <li>1. Improvement of efficiency of branch line transportation and warehousing operations and of transportation, and automation of warehousing operations.</li> <li>2. Improvement of efficiency of the entire logistics supply chain.</li> </ol>
<p><b>OKI's Strategy</b></p>	<ul style="list-style-type: none"> <li>• Expand application <b>from branch line to trunk line transportation</b> with “loading x delivery route optimization” based on real-time AI sensing</li> <li>• Optimize supply chains through warehouse integration platform linkage and data accumulation, analysis, and utilization by edge platform</li> <li>• <b>Start with on-site problems of small and medium-sized delivery companies, then expand to provide services to major operators by building up results</b></li> </ul>
<p><b>Logistics Warehouses</b></p> <p>Service image</p>	

## Phase 1 (to FY2025)

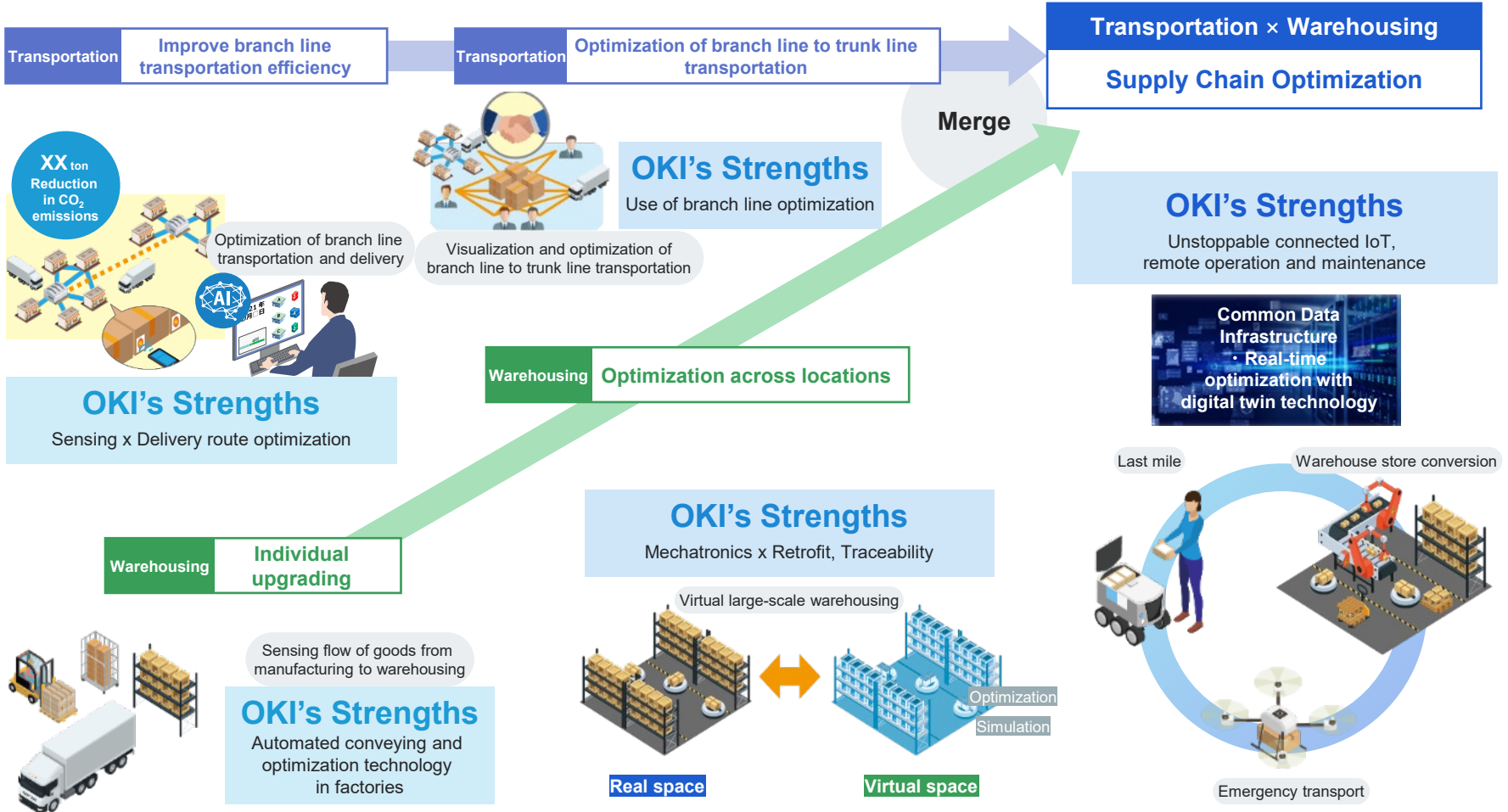
Real-time sensing to improve branch line transportation efficiency

## Phase 2 (to FY2028)

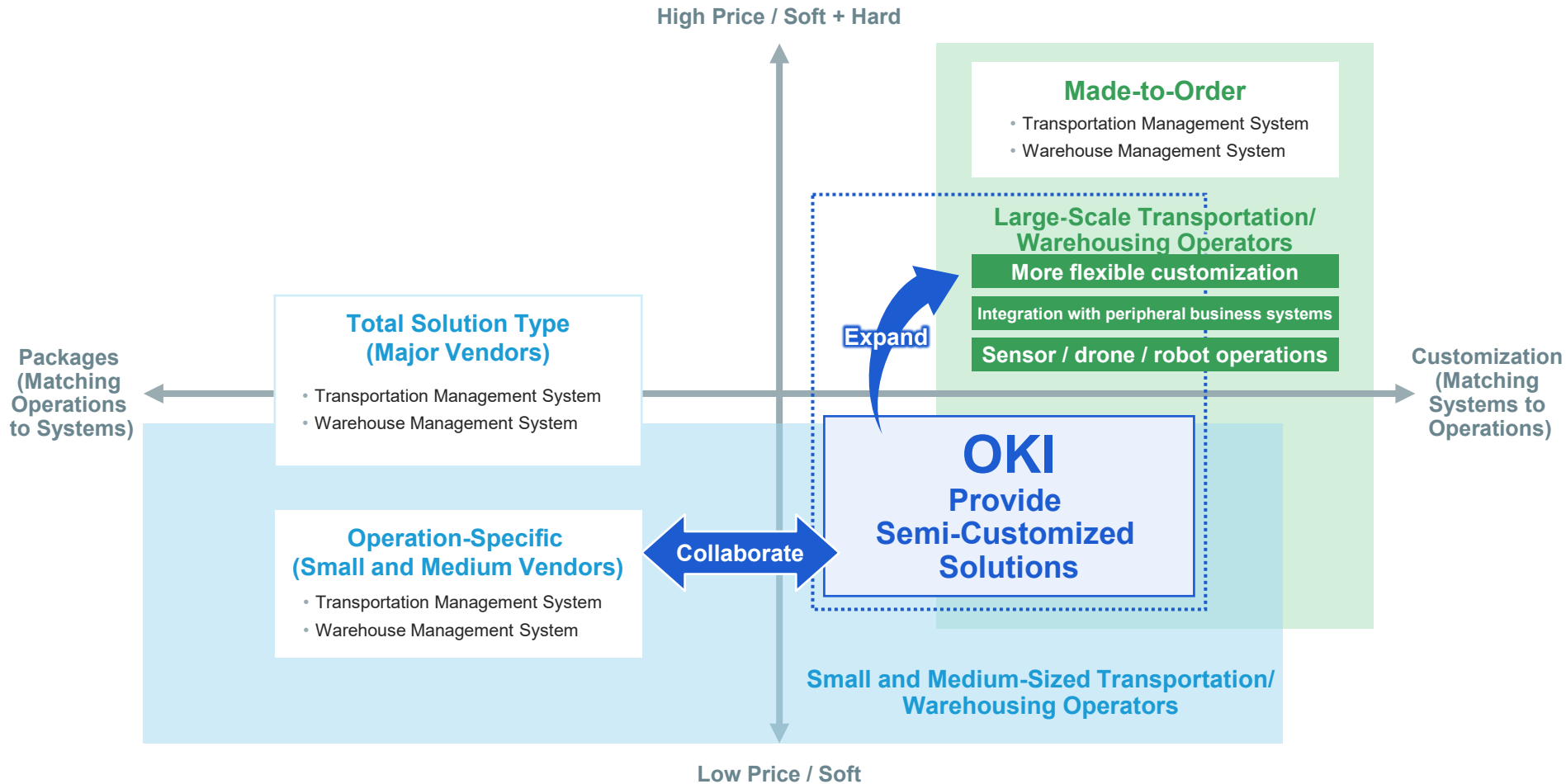
Branch line joint delivery/  
Improving transportation efficiency through matching and other means

## Phase 3 (to FY2031)

Optimization of the entire supply chain through a common data infrastructure



- Providing semi-customized TMS/WMS solutions through collaboration with operation-specific vendors, based on OKI's proprietary functions (split delivery, real-time processing) and operational know-how for improving factory efficiency
- Expanding business from small, medium to large operators with a product strategy that focuses on standardization

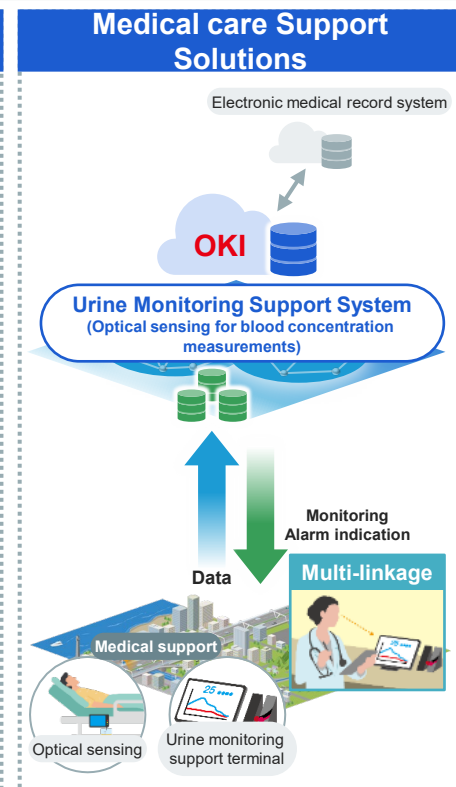
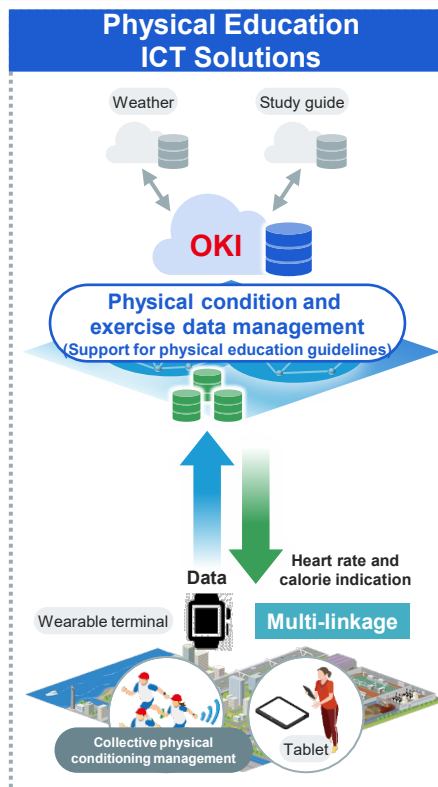
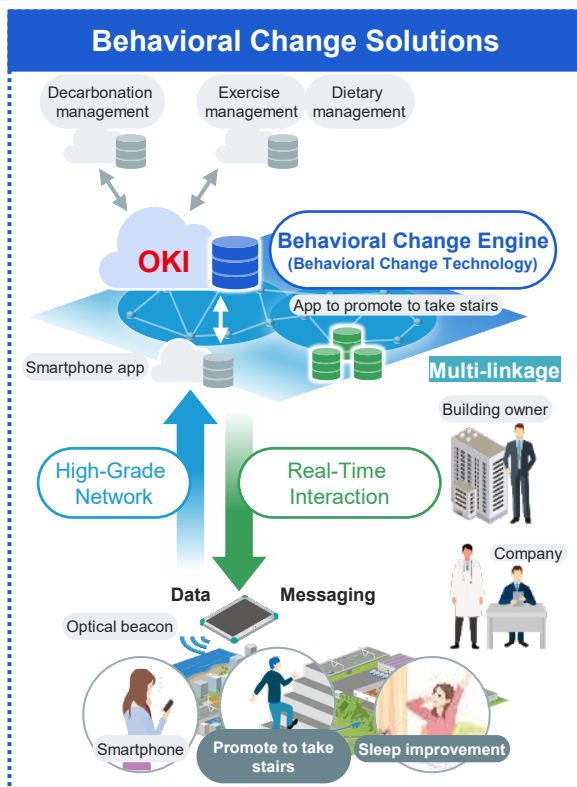


<b>Customer Value</b>	<ol style="list-style-type: none"> <li>1. Health Management Companies: <b>Support for Health Management</b></li> <li>2. Companies, schools, insurance providers: <b>Reduction of disease risk</b> for employees, students, and policyholders</li> <li>3. Lifestyle, medical, and nursing care support: <b>Improving the health and lives</b> of patients, care users, and consumers</li> </ol>
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<b>OKI's Strategy</b>	<ul style="list-style-type: none"> <li>• Leveraging the strengths of the edge platform to realize a behavioral change engine, physical condition and operational data management, and urine monitoring support system</li> <li>• Provide <b>step-by-step expansion from the healthcare domain to medical care support solutions triggered by behavioral change and vital sensors</b></li> </ul>
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**Healthcare/ Medical care**

Service image





## Phase 1 (to FY2025)

Lifestyle improvement support for health management companies

## Phase 2 (to FY2028)

Disease prevention support for organizations and insurance companies

## Phase 3 (to FY2031)

Lifestyle, medical care, and nursing care support for medical and nursing care providers and general consumers

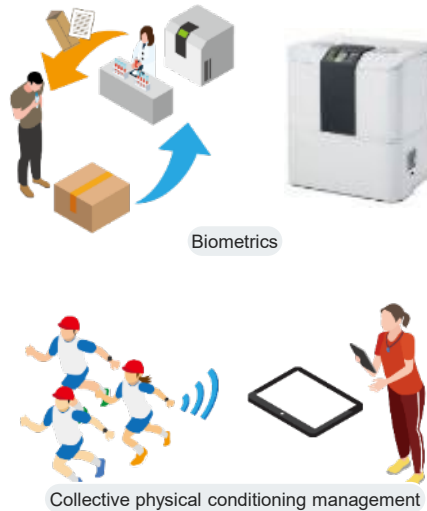
### Health Promotion Services for Workers



#### OKI's Strengths

- Co-creation with construction/ real estate companies
- Behavioral change technology and medical evidence

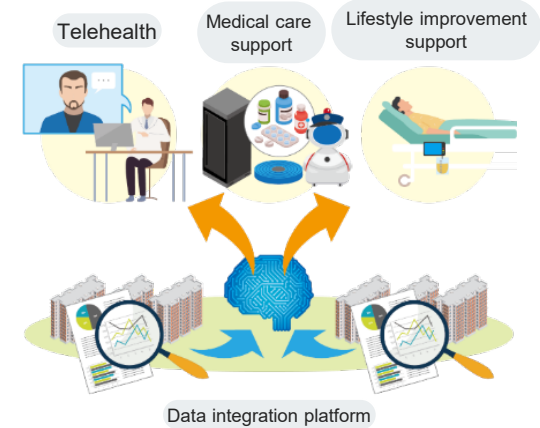
### Testing and Health Support Services



#### OKI's Strengths

- Relationships with the insurance industry/testing equipment manufacturers
- Optical biosensors, mechatronics, And vital sensing technology

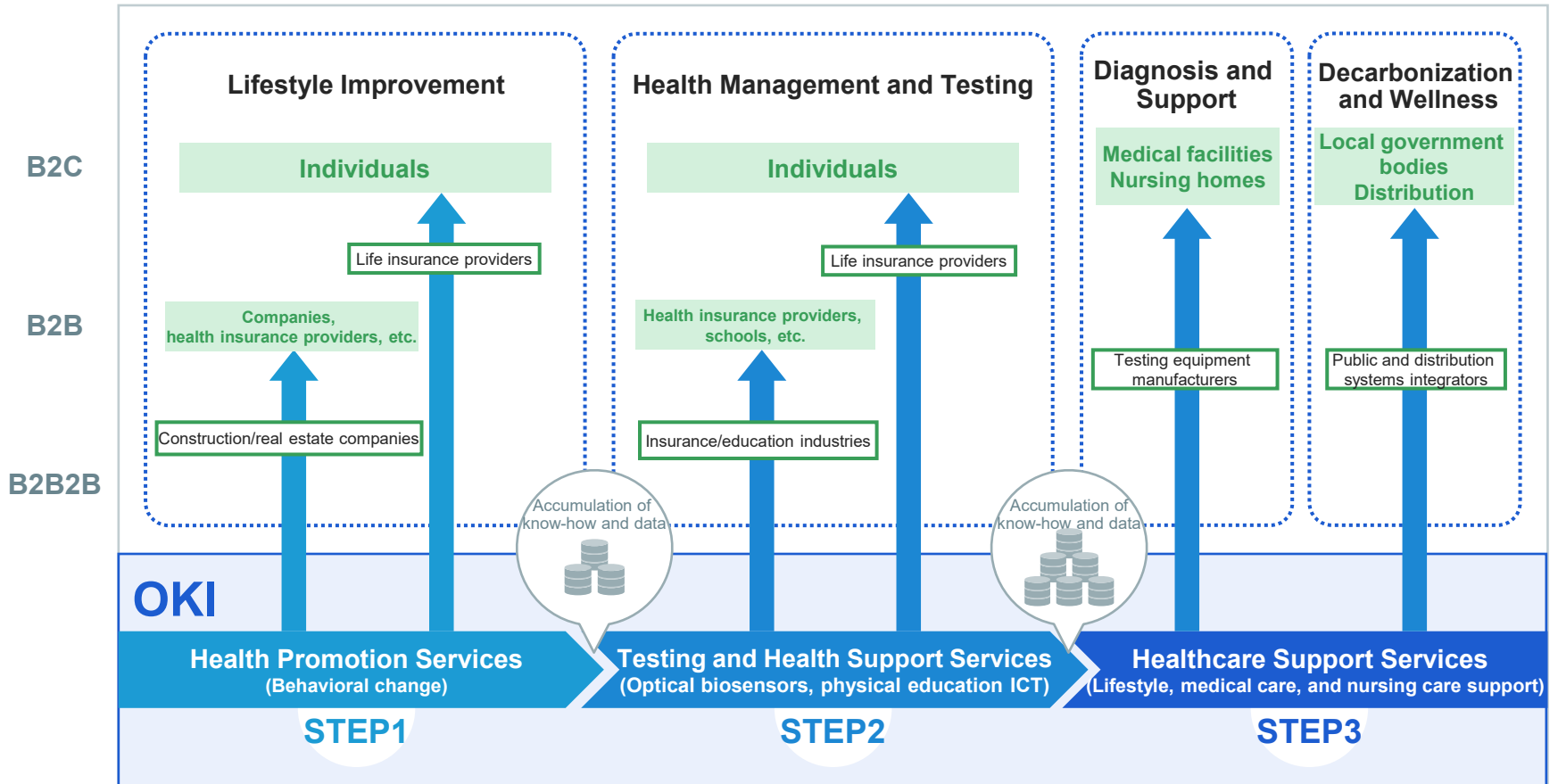
### Healthcare Support Services



#### OKI's Strengths

- Relationships with public and distribution systems integrators and servicers
- Experience in AI/data analytics and contract manufacturing

- Entering the healthcare service business with co-creation partners based on cutting-edge technologies (behavioral change, optical biosensors) and connecting technologies (networks, IoT).
- Accumulate business know-how and data through the provision of services, and increase value provided in the delivery of medical care, nursing care, and in people's daily lives.



Legend:  
 Co-creation partners (OKI assumptions)

Health promotion and disease prevention

Prevention and prediction

Medical and nursing care

Lifestyle improvement



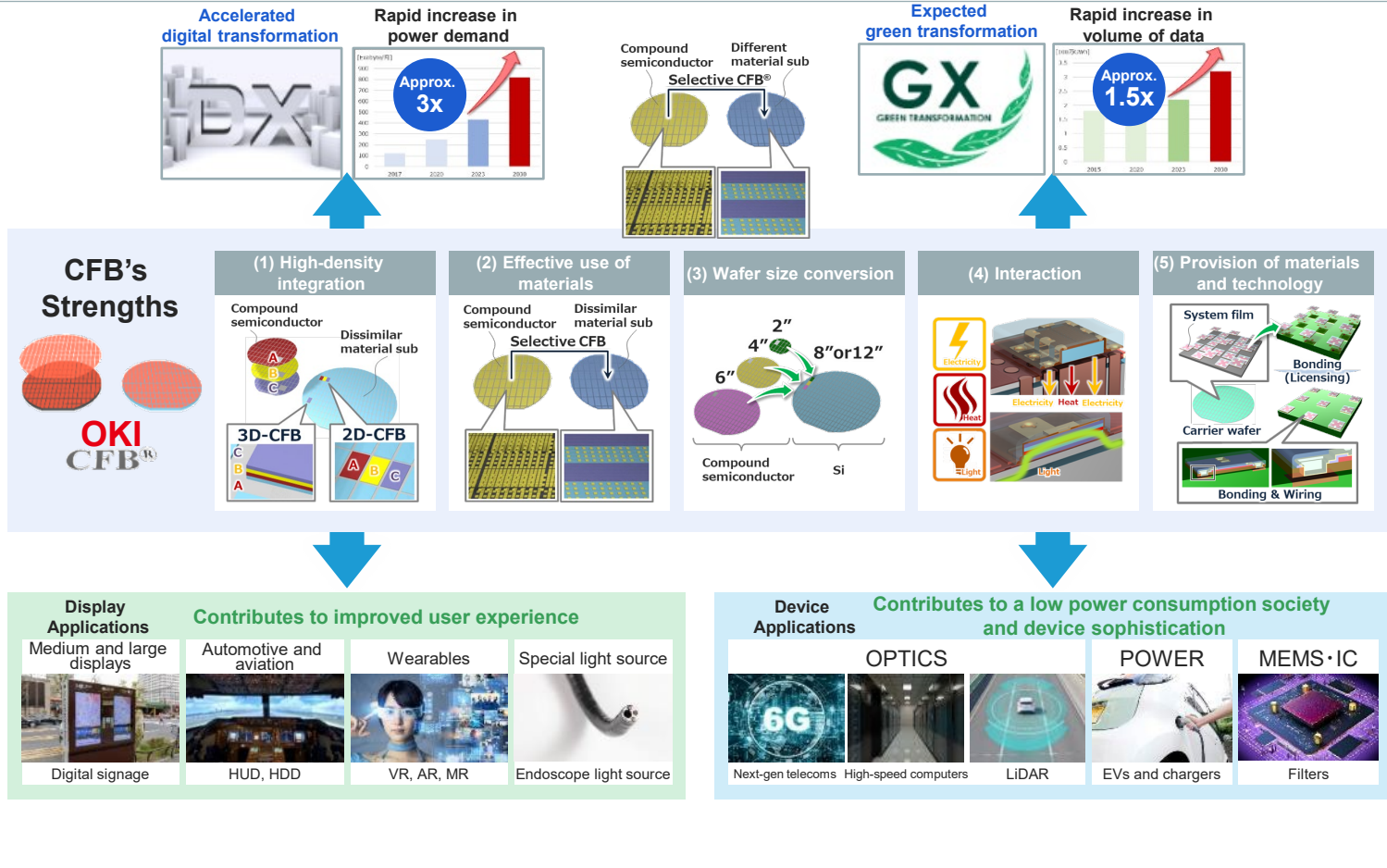
## Customer Value

1. Realization of next-generation displays that enhance the user experience.
2. Low power consumption (contribution to "green transformation"), which helps to alleviate the situation of tightening supply and increasing demand for power, stemming from the rapid increase in the volume of data due to digital transformation.

## OKI's Strategy

- Develop an original micro-LED display by applying CFB semiconductor bonding technology cultivated in the LED printer business
- Gradually improve power consumption and sophistication of OPTICS, POWER and MEMS with semiconductor device composite technology

**CFB**  
Service image



### Phase 1 (to FY2025)

Collaboration with specific customers,  
entry into specific markets

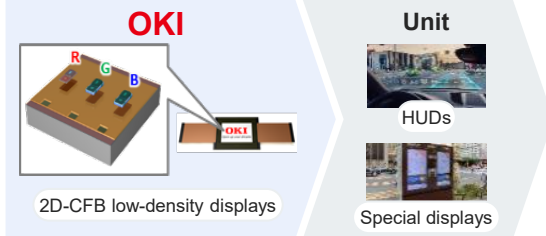
### Phase 2 (to FY2028)

Entry into high performance  
and post-process market

### Phase 3 (to FY2031)

Expand by offering  
provided materials  
and mounting technology

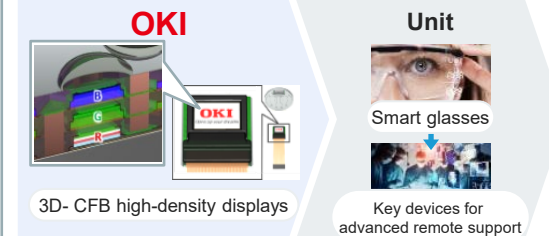
Aviation, Automotive HUD, Outdoor, and  
Specialty Display Markets



#### OKI's Strengths

Track record in mass production of  
micro-LEDs and CFB

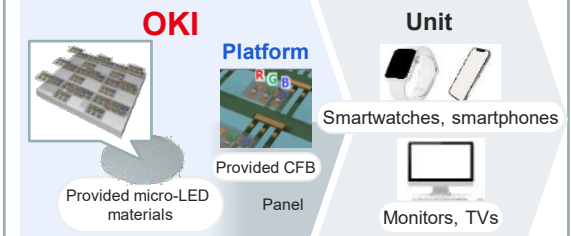
Market for High-Brightness Full-Color Displays  
for Use with Smart Glasses



#### OKI's Strengths

Track record in mass production of micro-LEDs & CFB  
Proprietary 3D-CFB technology

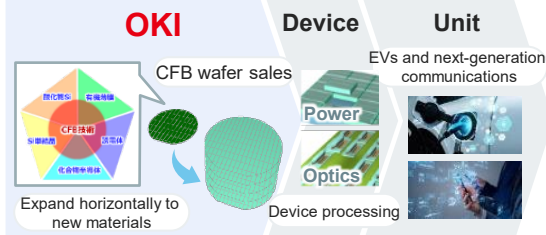
Commodity Markets for Items  
Such as Smartwatches and Smartphones



#### OKI's Strengths

Provided micro-LED materials and mounting  
Manufacturing Platform

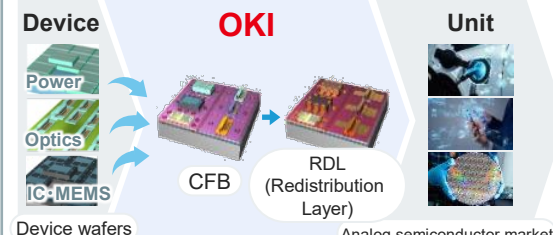
Market for EV power and Next-Generation  
Communications (Photoelectric Fusion)



#### OKI's Strengths

Track record in mass production of CFB  
Compound semiconductor expertise and infrastructure

Analog Semiconductor Front-End  
and Back-End Markets



#### OKI's Strengths

Track record in mass production of CFB wafers  
Collaboration with device manufacturers

Analog Device Chiplet Market



#### OKI's Strengths

Provided functional film materials and mounting  
Manufacturing platform

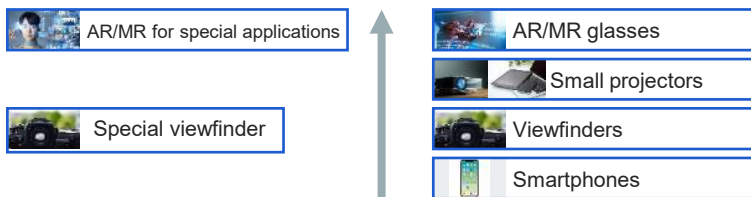
## Display Applications

Enter the low-density, B2B market before expanding into the high-density, B2C domain

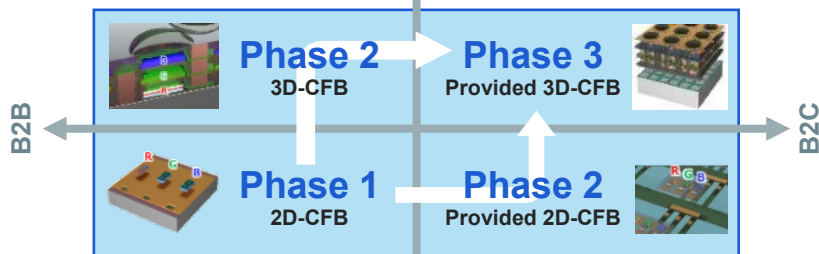
Aim to scale micro-LEDs with provided materials and licensing

Aiming for global expansion

High Density



### Key technology



Low Density

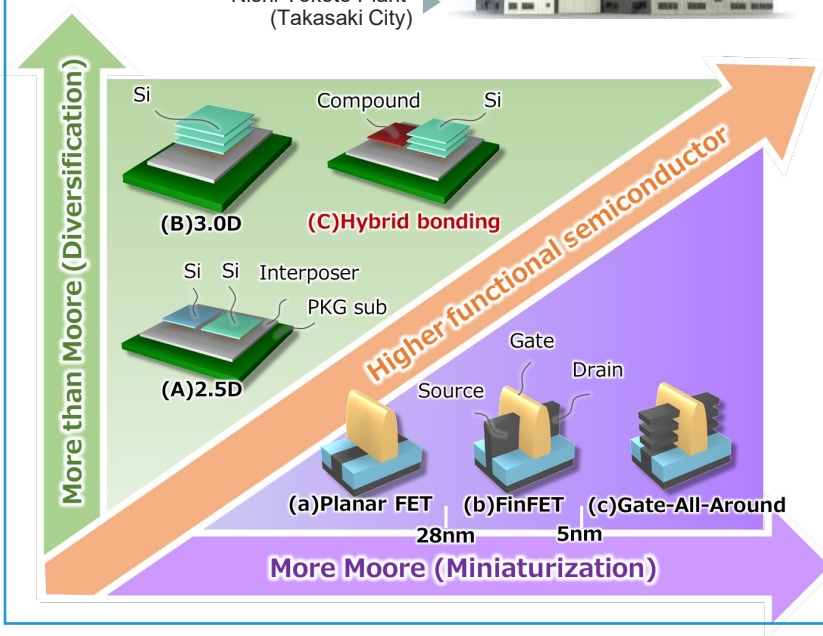
## Device Applications

Contributing to higher performance of semiconductor devices through compounding by using CFB

Aiming for scaling of composites with provided materials and licensing

- Contribute to higher performance of semiconductor devices through compounding by utilizing CFB
- Leverage OKI's compound semiconductor infrastructure and know-how

Nishi Yokote Plant (Takasaki City)



Transformation to Full-Scale Implementation of New Business Creation and Global Expansion  
We aim to achieve a ¥50.0–100.0 billion business by 2031.

Safe and convenient social infrastructure

Conservation of global environment

Job satisfaction and productivity enhancement



Global expansion

2031

¥50.0–100.0 billion

New Business Creation

Innovation Business Development Center



Advanced Remote Operations



Logistics



Healthcare / Medical care

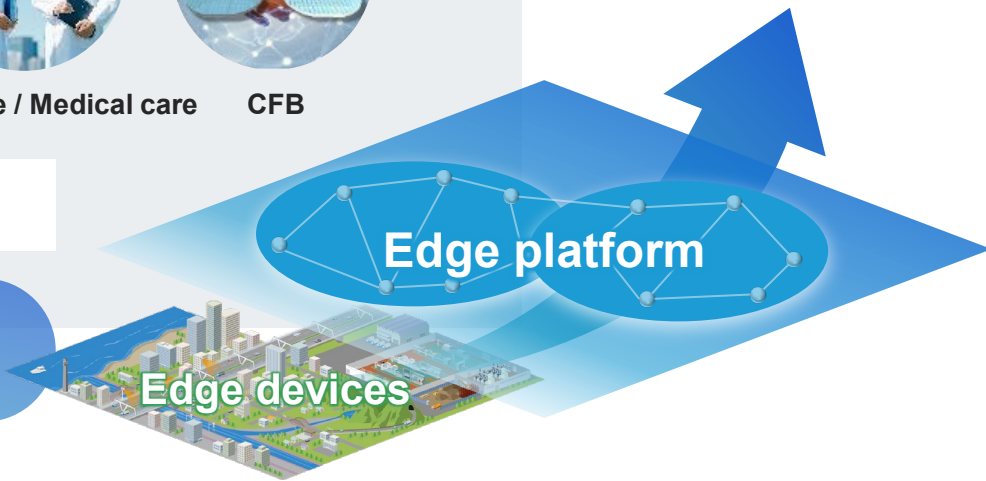
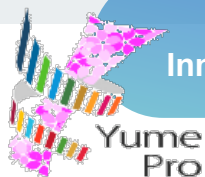


CFB

Issues

Resource allocation according to sales growth  
Action and management concerned with solving on-site problems

IMS: Yume Pro  
Innovation Management System



**OKI** *Open up your dreams*



Delivering OK! to your life.