



Technology Strategy

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Senior Executive Officer, Responsible for Technologies

Core (imaging) technology built up over 150 years

Expansion from core (imaging) technology to Imaging IoT technology

Human capital, intellectual property, R&D expenses


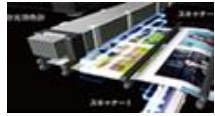



Core (Imaging) Technology Built up Over 150 Years

Using our proprietary imaging technology, we have responded to our clients' desire to "see" as they changed with the times, which has led to the creation of high value-added products.

Roots of core technologies

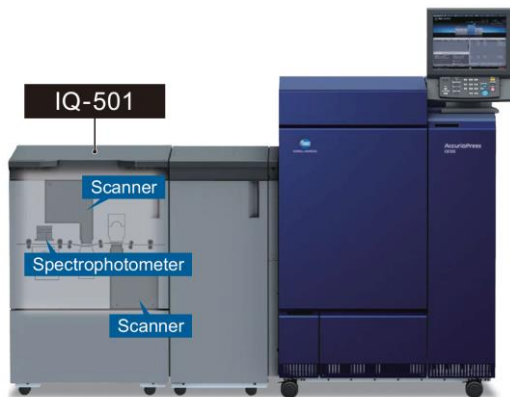


Inside Core Technologies

	Materials Nano-fabrication
Inkjet head	Inkjet technology
	Imaging Optics
Intelligent quality Optimizer IQ501	Technology to optimize images
	Materials Nano-fabrication
New resin film SANUQI	Film/material technology
	Imaging Optics
Display measuring instrument	Optical measuring technology
	Imaging Materials
Digital X-ray flat panel detector	Image formation technology

【Providing value】 We brought together imaging technologies to speed up all processes involved in commercial printing with no special skills required

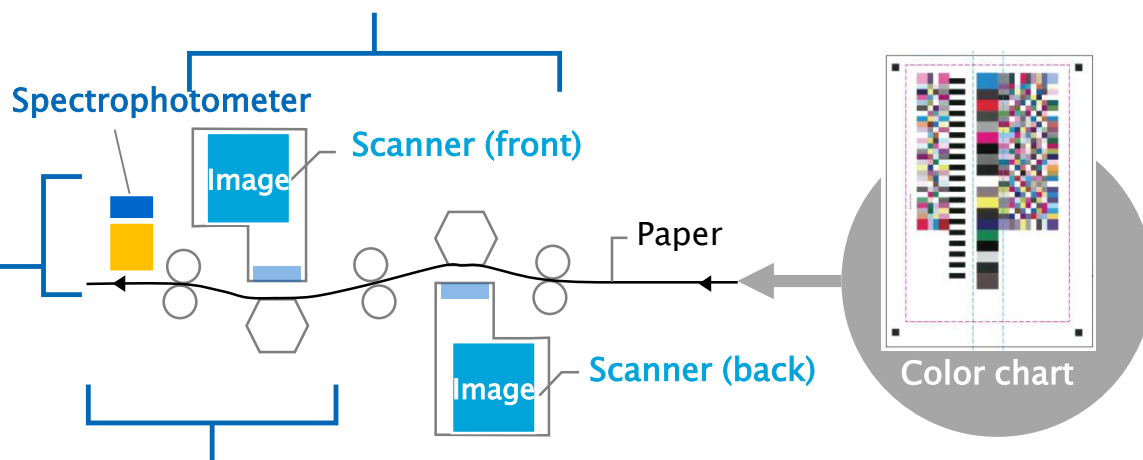
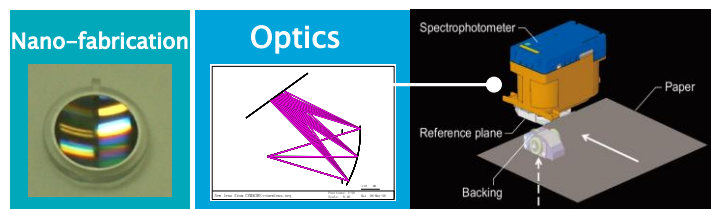
Overview of IQ-501 technology



Unique technology **3**

Real-time front-to-back correction technology

- High-speed feedback control for registration correction (algorithm + loading control)



Unique technology **1** Spectrophotometer

Unique technology **2** Hybrid color measurement technology

- Industry's top color measurement technology
- Color correction algorithm in scanner using spectrophotometer

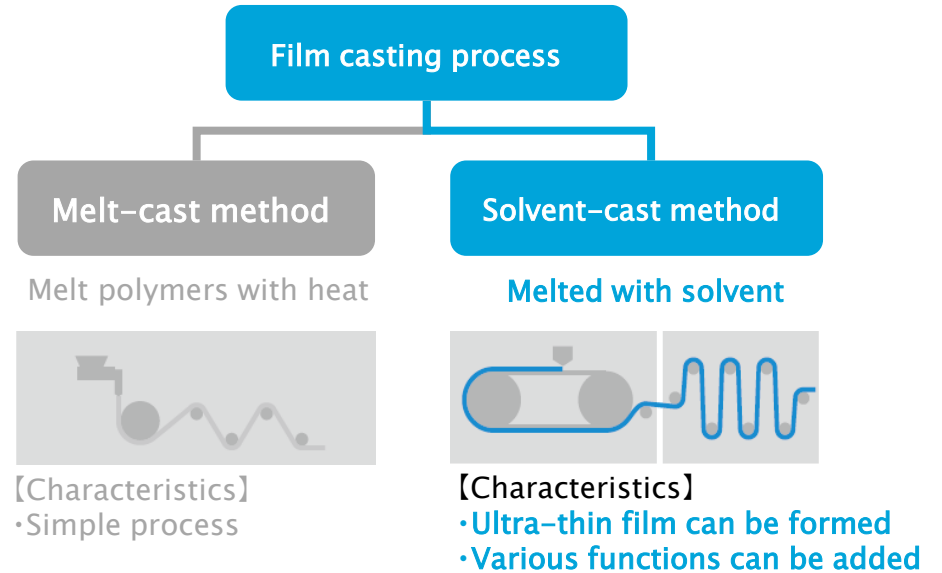
The IQ-501 is equipped with these technologies inline so that it can provide high-quality printing without stopping the process.

【Providing value】Bringing together film/material technology to create a high-performance film variation by our foreseeing customer needs

Overview of technology for new resin film SANUQI®

Market changes	Client needs	Functions/ value provided
Larger TVs 	Want high-contrast displays	<ul style="list-style-type: none"> Refractive index control Phase difference control Optics
Flexible displays 	Wants flexible displays	<ul style="list-style-type: none"> Resistance to folding Ultra-thin film (<10μm) Nano-fabrication
	Want stable production with little loss	<ul style="list-style-type: none"> Water resistant Low friction Materials





Unique technology 1

Film casting technology

- Thickness and optical characteristics control by controlling drying and stretching process
- Technology for producing ultra-wide film

Unique technology 2

Material designing technology

- Combining with high molecular polymers and additives to add wide range of functions

Core (imaging) technology built up over
150 years

**Expansion from core (imaging) technology
to Imaging IoT technology**

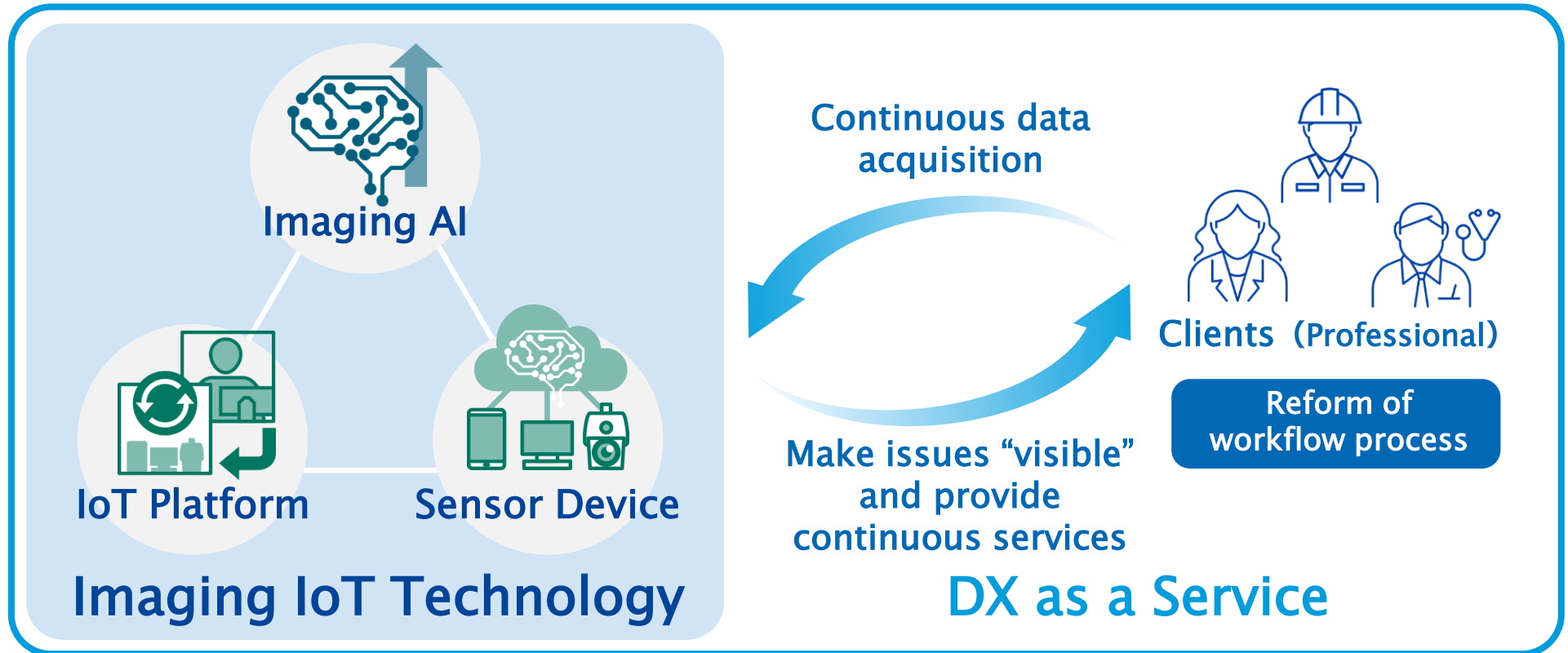
Human capital, intellectual property,
R&D expenses

What is Imaging IoT Technology?

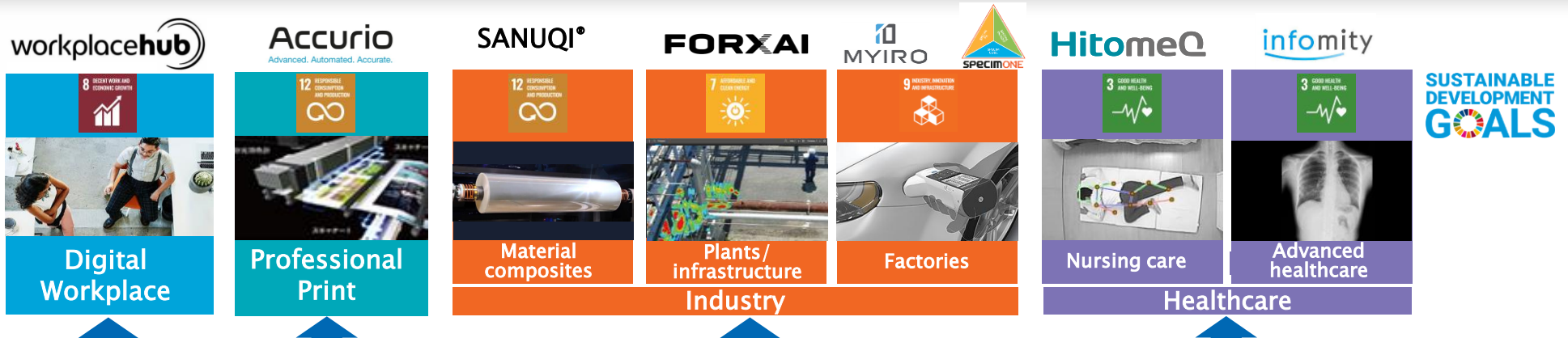
Imaging IoT technology is a tool that can transform our model for providing value (DX as a Service) on a continuous basis.

Our imaging IoT technology

A three-pillar technology that combines our unique sensor devices and/or other companies' sensor devices with cutting-edge imaging AI technology to provide customer value on IoT Platform.



Wide Variety of Services Using Imaging IoT Technology



③ IoT Platform



② Imaging AI



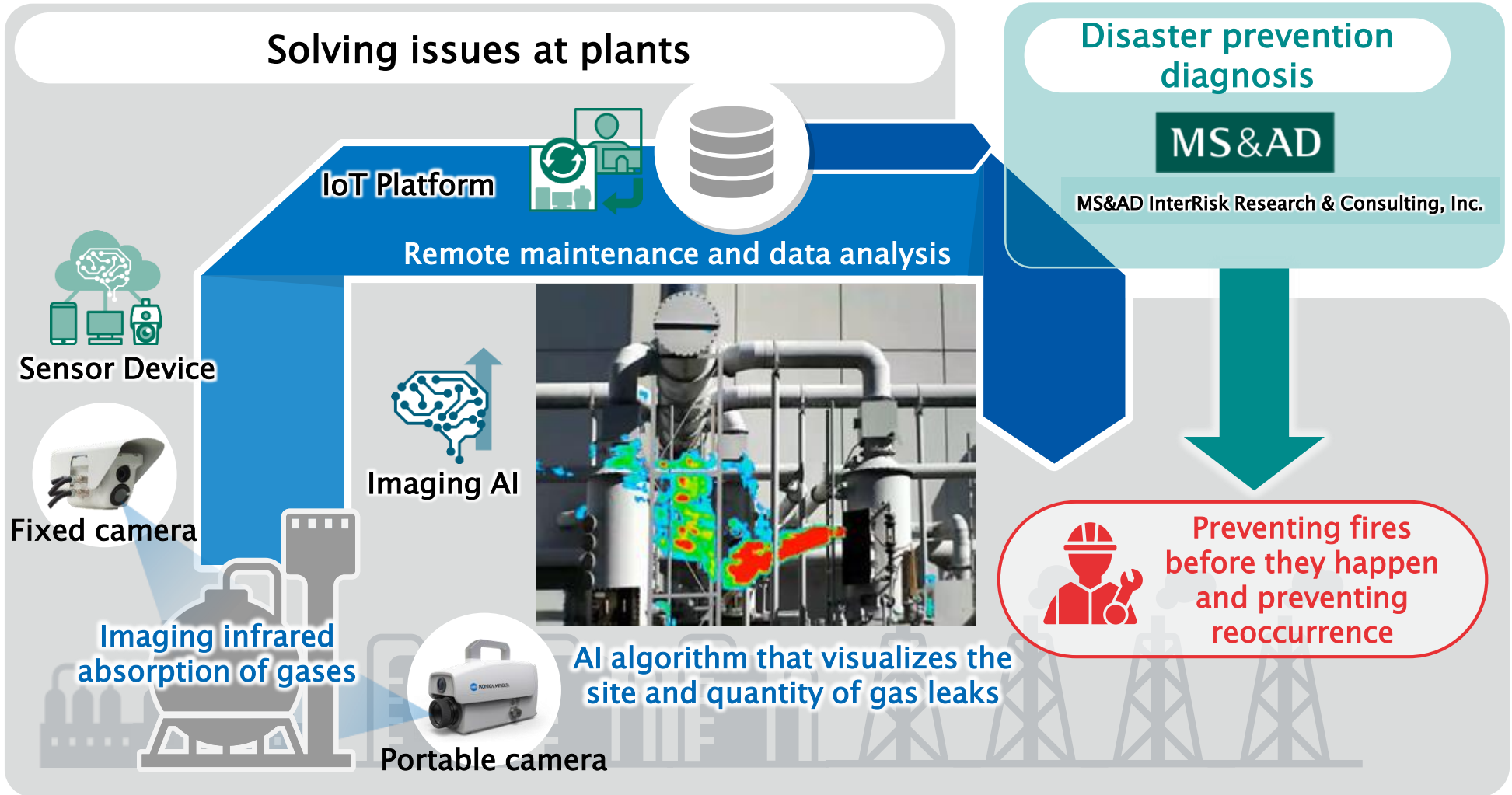
① Sensor Device



FORXAI™

Value Creation Using Imaging IoT Technology





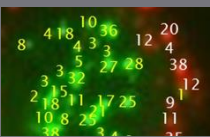
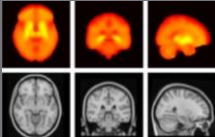
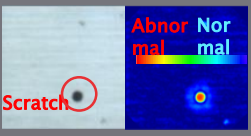

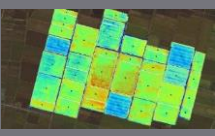
Offering a disaster prevention diagnosis service in a collaboration between our three-pillared Imaging IoT technology and MS&AD InterRisk Research & Consulting, Inc.



Reinforcing Imaging AI

- Top in the genre technologically in three priority areas (human behavior, advanced healthcare, inspections)
- Collaboration with technology partners and quickly offering the solutions customers need

Konica Minolta

Human behavior	 Posture estimation	 Fall detection	 Recognition of human attributes
	 Dynamic digital radiography	 Classification of cancer cells	 Imaging biomarkers
	 Defect identification	 Defect classification	 Image connection

Technology partners

 Facial recognition	 Vehicle type detection	 Fire detection
 Number reading	 X-ray diagnostic imaging of chest	 Rule-type test
 Atypical ledger reading	 3D measurement and recognition	 Monocular depth estimation

Image recognition algorithms

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Specializing in areas where we can utilize our strengths



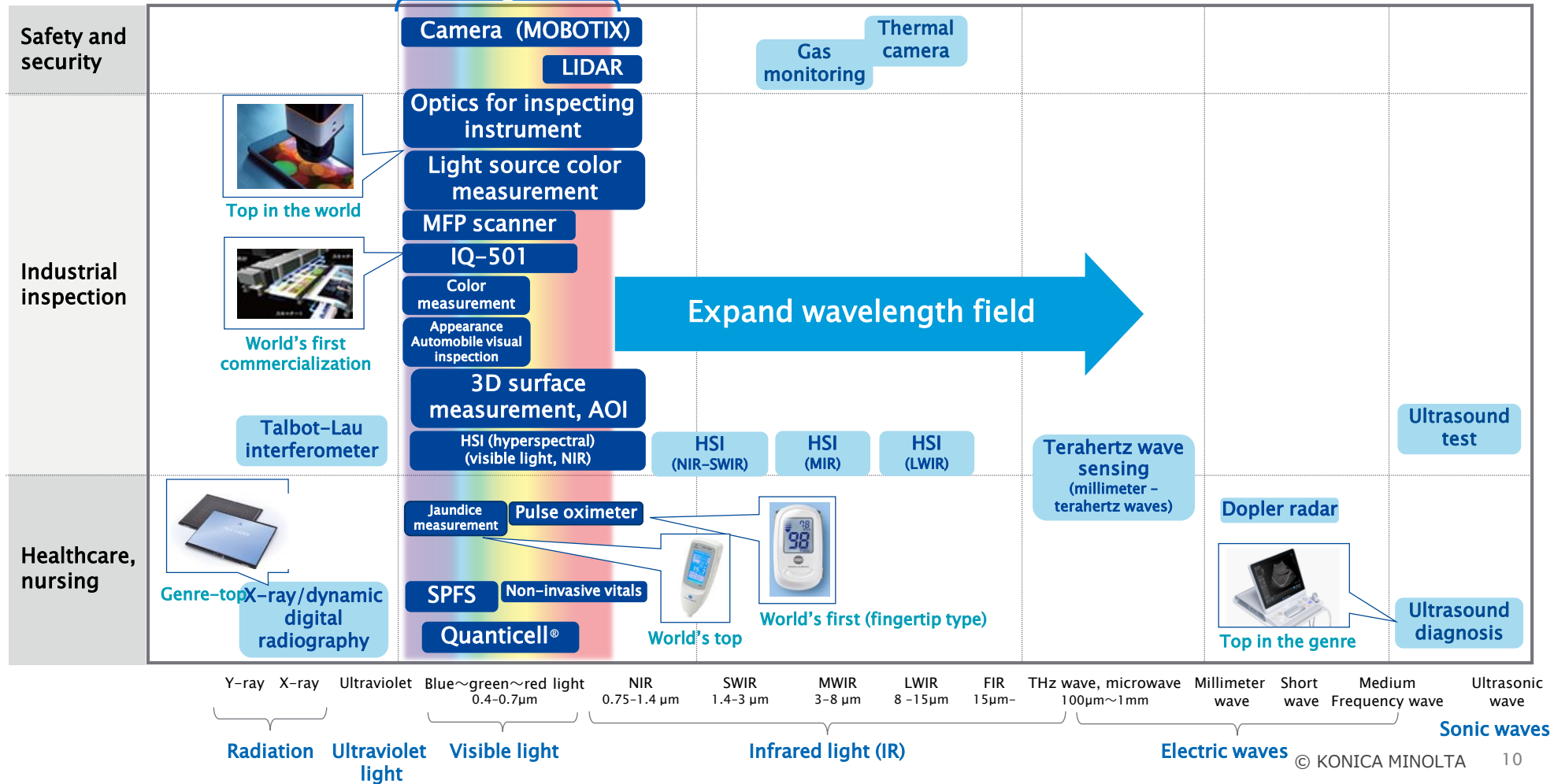
Technology partners

Rapidly incorporate cutting-edge technology outside of our own areas of strength

Reinforcing Sensor Devices

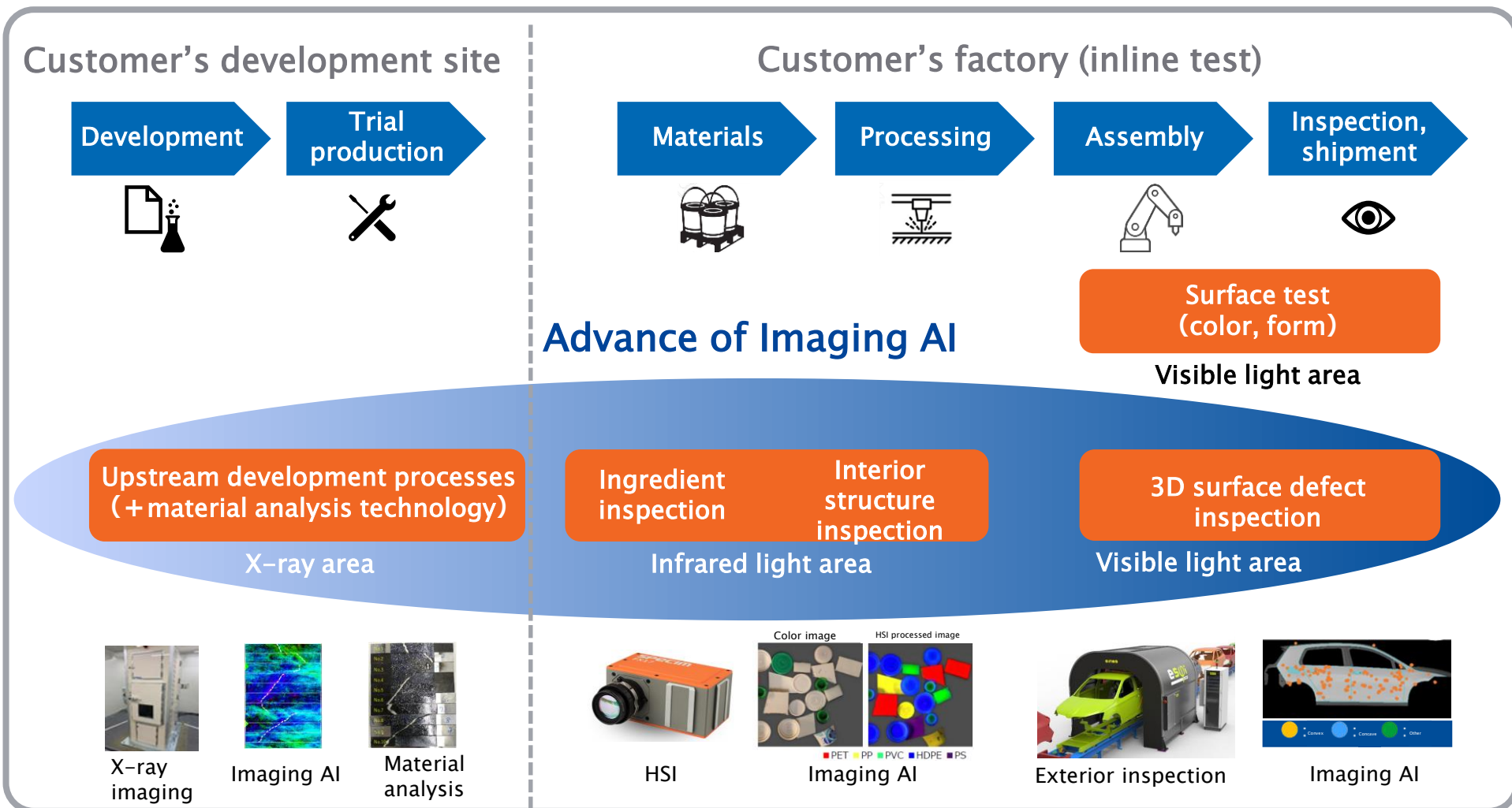
- Expand business: Expand wavelength field beyond visible light
- Technological advances: As Imaging AI advances, the potential areas that visualize the invisible expand.

Areas in which Konica Minolta has competitive advantage



Expand Business in Industry Field

- Expanding wavelength makes it possible to examine not only the surface of an object, but the inner structure and its composition.
- Further business opportunities by utilizing material analysis technology built up over 150 years



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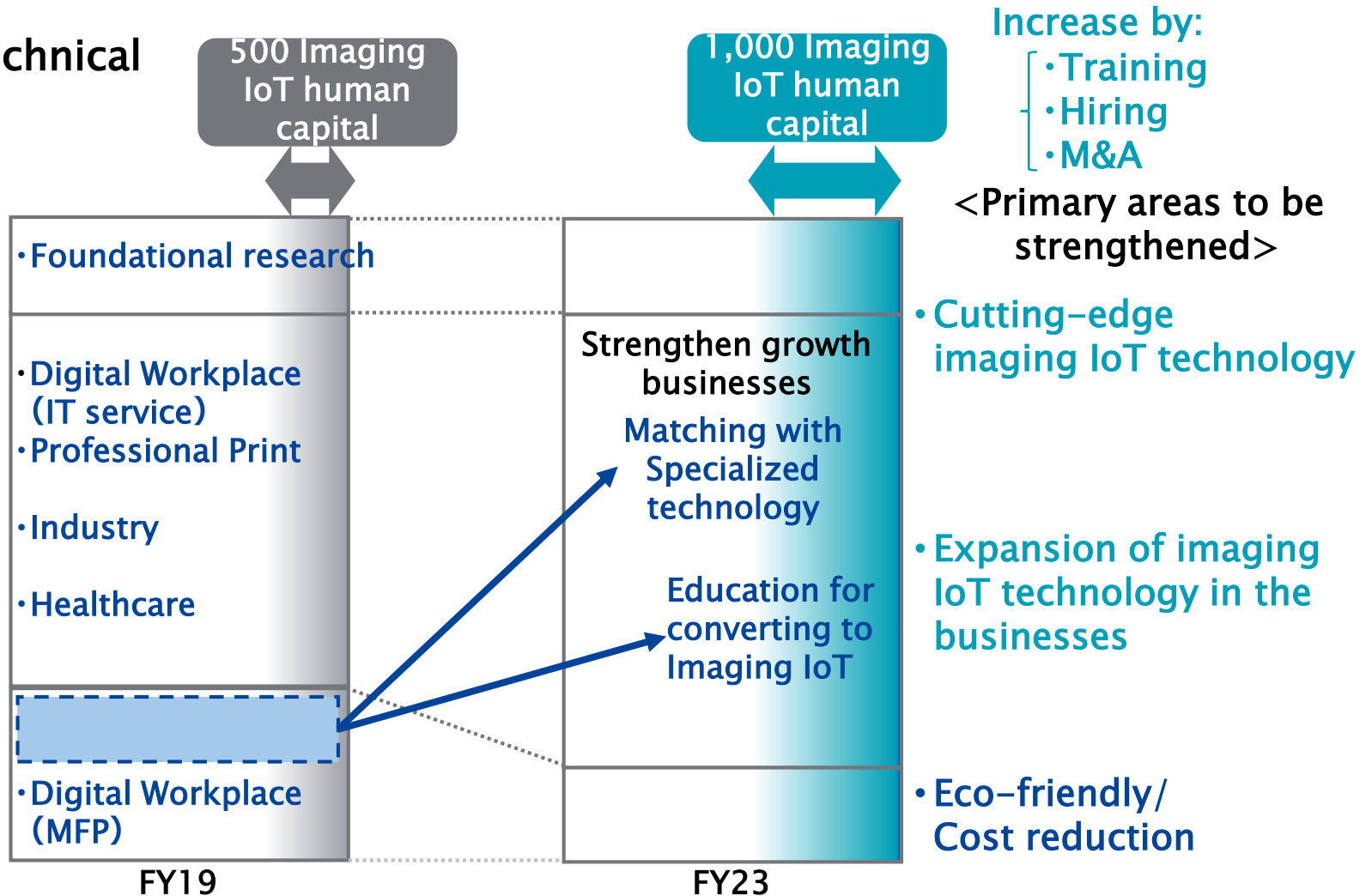
Expansion from core (imaging) technology to Imaging IoT technology

Human capital, intellectual property, R&D expenses

Transformation of Technical Human Capital

- Shift MFP R&D human capital to reinforce growth businesses
- Increase Imaging IoT human capital from 500 in FY19 to 1,000 in FY23

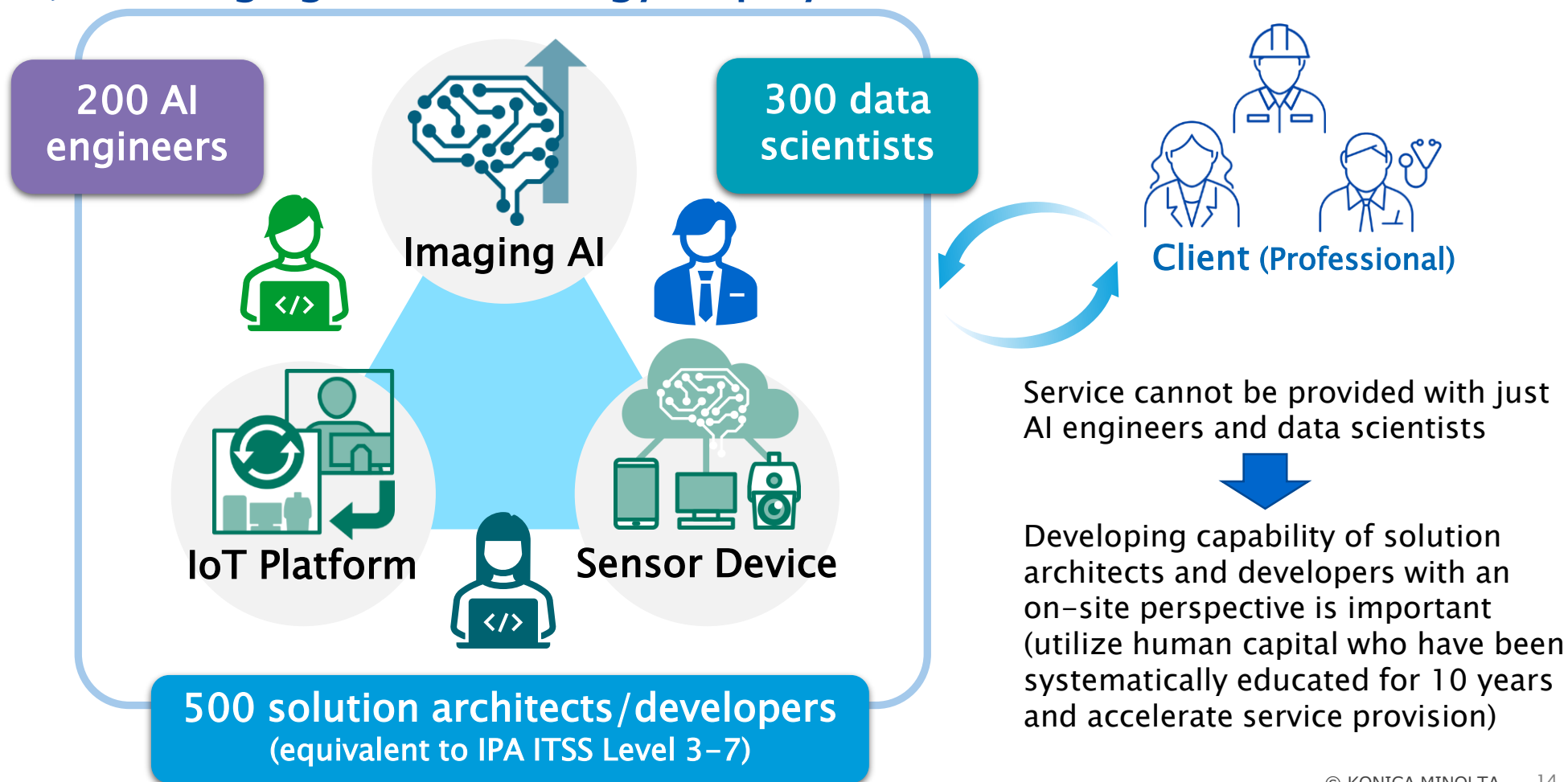
Breakdown of technical human capital



Imaging IoT Human Capital Needed to Provide DX as a Service

Not only reinforce AI engineers and data scientists, but also reinforce solution human capital needed to provide Konica Minolta's core technology and manufacturing capability as DX as a Service

1,000 Imaging IoT Technology Employees (FY23)



Intellectual property protecting Konica Minolta's unique core technology and intellectual property strategy supporting the development of growth businesses

Current intellectual property

[Scale of intellectual property]

One of the leading Japanese companies in terms of intellectual property

	Japan	US
Number of patents held	11,757	6,722
Ranking by number of patents	19th	24th

[Quality of intellectual property]

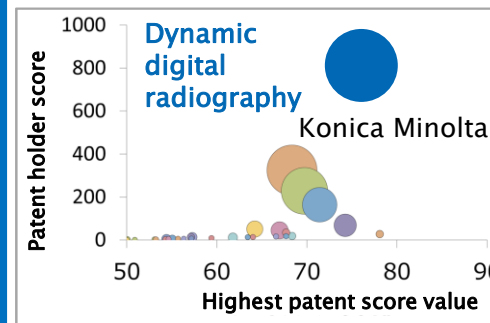
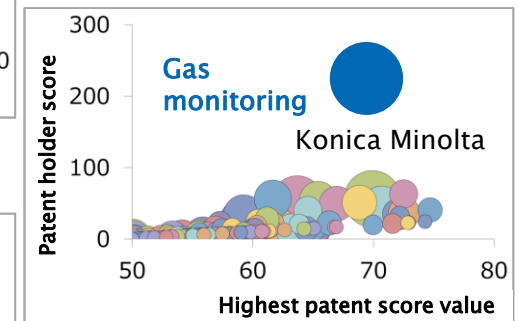
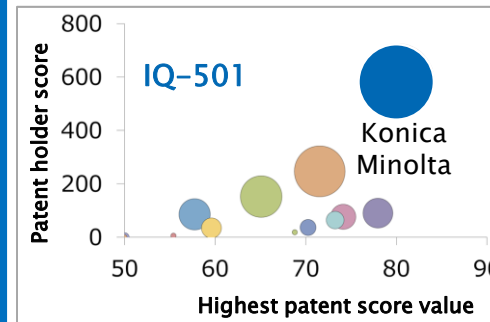
In the top five for ability to block other companies in precision equipment industry for seventh year in a row

Ranking	Company name	Number of patents	Ranking	Company name	Number of patents
1	Canon	7,505	6	Olympus	2,541
2	Seiko Epson	4,528	7	Fuji Xerox	2,155
3	Ricoh	4,155	8	Nikon	1,789
4	Konica Minolta	3,595	9	Toppan Printing	1,464
5	Dai Nippon Printing	2,615	10	Tokyo Electron	851

Patent Result Co., Ltd., Precision Equipment category, 2019 rankings for ability to lead other companies

Intellectual property strategy going forward

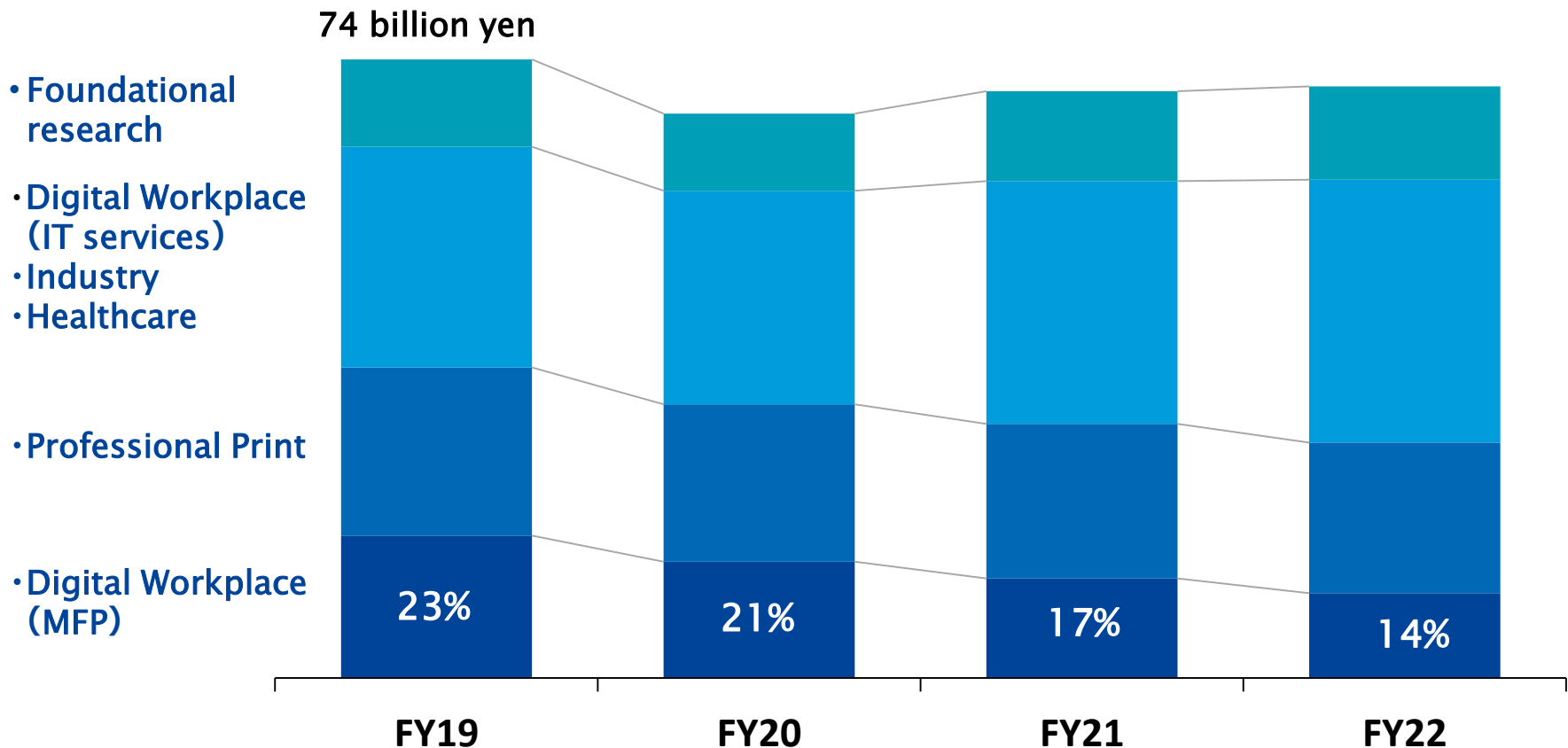
Genre-top of intellectual property in imaging IoT technology (particularly Sensor Device × Imaging AI)



Prepared by Konica Minolta using "Biz Cruncher" by Patent Result Co., Ltd.

R&D Expenses

- In FY20, R&D expenses were narrowed down due to the impact of COVID-19, but will be increased from FY21 to ensure sustainable growth.
- R&D expenses raised by narrowing down MFP development will be invested in prior area with a focus on growth in digital workplace, industry, and healthcare (accelerating conversion of business portfolio).





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