OLYMPUS Technology Strategy for ICT-AI Platform

OLYMPUS ICT-AI Platform Strategy

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Customer Value by ICT/AI utilization

- **Olympus’ medical devices for Early Detection and Minimally Invasive Treatment**
- **Improving Outcomes**
- **Reducing Cost of Care**
- **Enhancing Patient Experience**
- **Increasing Clinician Satisfaction**

Customer value to be provided by ICT and AI
Challenges for Healthcare Professionals in Japan

Proportion of hospitals in the red: 60%

Proportion of doctors who worked overtime over 960 hours per year: 51.8%

Source:
- e-stat: The 21st Medical Economic Survey (Survey of medical institutions)
- MHLW The 19th Study Group documentation for the doctor's work style reform

Negative spiral

- Chronic shortage of personnel
- Increase overtime hours
- Medical man-hours enlargement
- Increased per person workload

Improvement of HCP working environment is necessary to sustain the medical care quality for the future.
Endoscopic Inspection Workflow

- Insertion
- Diagnosis
- Therapy
- Reporting
- Endoscope Reprocessing
- Inspection Preparation
Enhancing Workflow Efficiency with ICT and AI

ICT reduces stress/loads in preparation

Inspection Preparation

Endoscopy Reprocessing
- ICT improves efficiency & quality in cleaning & disinfection

Insertion
- AI supports insertion through navigation*

Reporting
- ICT realizes semi-automated reporting
- ICT supports efficient & effective treatment

Diagnosis
- AI assists diagnosis by providing more information*

Therapy

*Technology not yet approved under the Act on Pharmaceuticals and Medical Devices
Solutions for Improving Customer Workflows

- Reduce downtime with monitoring of devices’ operation status
- Support appropriate use of and optimal investment in devices through analysis of device usage data
- Utilize AI to support Detection and diagnosis*
- Utilize ICT to enable more efficient device use and maintenance
- Enhance workflow efficiency by semi-automating reports

*Technology not yet approved under the Act on Pharmaceuticals and Medical Devices

Effective use of devices and optimal investment

Reducing workload on healthcare professionals
Objectives of OLYMPUS ICT-AI: Improve Customer Workflow and Satisfaction

Endoscopy Intelligent System

OLYMPUS AI Server in Surgery

Intelligent Sensing for Inspection

Inspection Preparation
- Cleaning and Disinfection
- Insertion
- Diagnosis
- Reporting
- Therapy

Advanced Imaging
- Image Navigation
- Voice Control
- AR/VR
- AI Based SI & Protocol Tracking
- Active Energy Control

Multi-modal Inspection Data Analysis
1-1: ABCD
2-1: D04M
3: ...

Digital Imaging Sensing
- Inspection Evidence and Effectiveness Data Analysis
- Evidence-based Machine Inspection

Support for Human Inspection

Intelligent Sensing for Inspection
- Evidence
- Based on Machine Inspection

Evidence-based Machine Inspection

Support for Human Inspection

Intelligent Sensing for Inspection
- Evidence
- Based on Machine Inspection

Evidence-based Machine Inspection

Support for Human Inspection
MedPresence: Remote clinical-support solution (Rolled out in U.S.)

- **Operation Room**
- **Physician’s Office**
- **Hospital**
- **Remote Location**

MedPresence: Fundamental Technology of Medical ICT-AI Platform

MedPresence: Remote clinical-support solution (Rolled out in U.S.)
ICT-AI Platform - Medical

Expand MedPresence and build platform for inter-device links, data collection, and AI services

Physical Space

Medical Devices

Endoscopy
- Endoscope video camera
- Disinfection/cleaning device
- Other

Surgical
- HF generator
- Insufflation device
- Other

On premises Gateway

ICT Platform

Data collection / conversion / transmission

Olympus Medical Cloud Gateway

Cloud Gateway

Solution

Storage

Device log
Error log
Video
Etc.

Upload Data

Customer Data
Internal Data

Solution

Remote monitoring/maintenance
Support for proper use of devices
AI services* (exam/diagnosis support, etc.)
AI learning environment
Creation of examination reports

*Technology not yet approved under the Act on Pharmaceuticals and Medical Devices

Cyber Space
ICT-AI Platform – Industrial

Expand Olympus Scientific Cloud and build platform for inter-device links, data collection, and AI services

Physical Space

- Industrial Inspection Devices
  - NDT Device
  - ANI Device
  - RVI Device
  - Industrial Microscope

Industrial ICT Platform

- Device Data
- Communication Gateway
- Network Manager
- IoT Gateway

Cyber Space

- Cloud
- Microsoft Azure

Solutions

- Remote monitoring/maintenance
- Predictive Maintenance
- Fleet Management
- AI services (inspection support)
- Reporting

Industrial locations

- Device Data
- Error Log
- Movie/Image
- Firmware

Cloud Gateway

- Storage
  - Device log
  - Error log
  - Video
  - Etc.

Internal Data

Customer Data

Latest Firmware

Uploaded Data

Customer Data
ICT-AI Platform: Consolidate Current Business Model

Value added Solution with ICT-AI
Customer Workflow improvement

Sales contracts
Maintenance contracts

AI services
(examination support, etc.)
Support proper use of devices
Support creation of reports
Remote monitoring / maintenance
Predictive maintenance
Optimal investment in devices

Current business model
Accelerate the solution development with customers and technology partners to improve the customer value, utilizing Olympus ICT-AI Platform

Specialists in Hospital /Healthcare, Industry, Life Science, and Research