



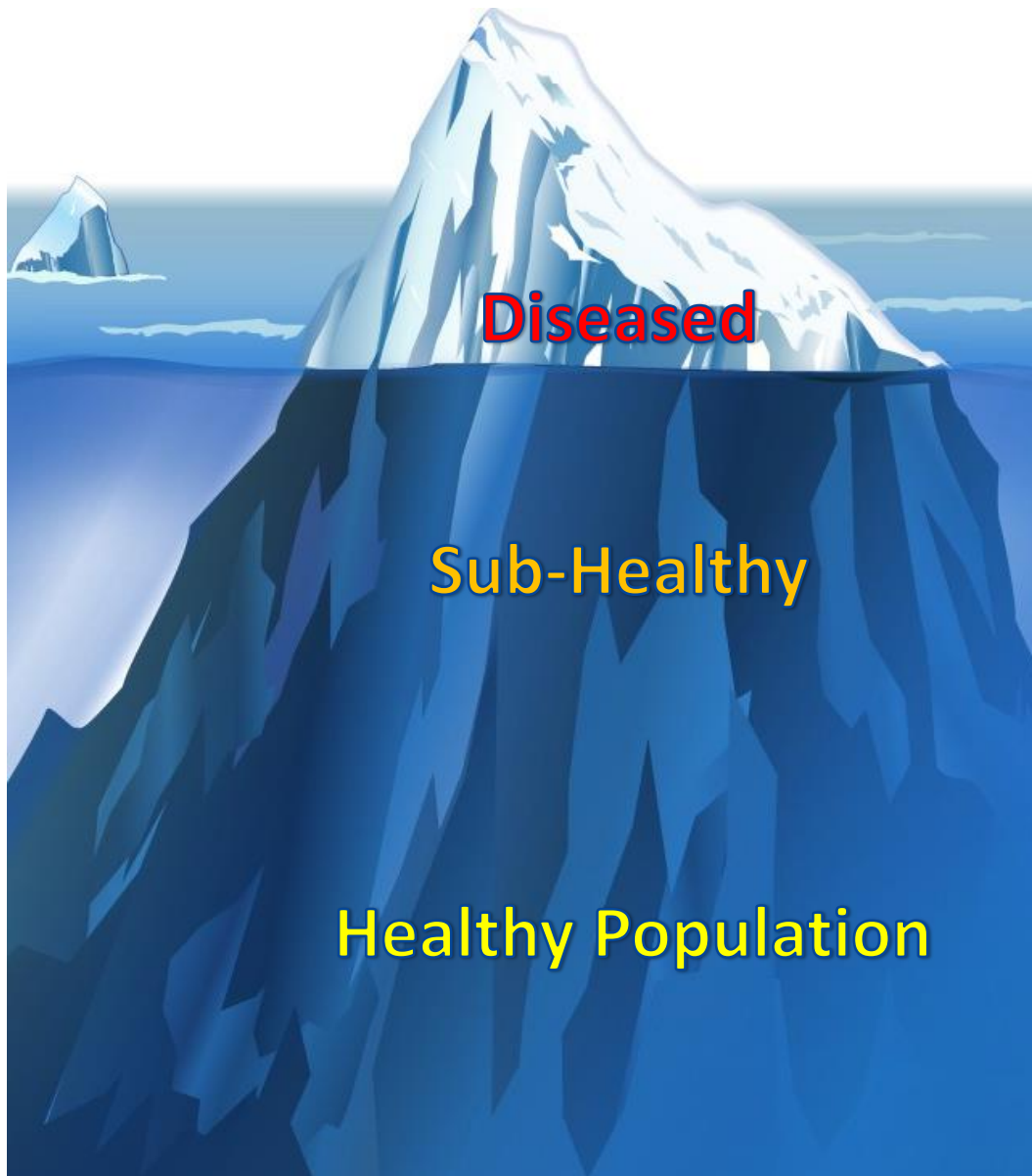
The Ecosystem of Taiwan Healthcare Industry



Chung-Liang Chien, Ph.D.
Professor, National Taiwan University
CEO, Institute for Biotechnology and
Medicine Industry (IBMI)

2025.04.06

Precision Medicine and Precision Health



【Precision Medicine】

Precision Diagnosis : NGS, Liquid Biopsy, Medical AI, POC devices , Digital Imaging Equipment *etc.*

Precision Treatment : Targeted Therapy, Cell Therapy, Immunotherapy, Surgical Robot, *etc.*

Medical Care: Smart Hospital, Smart healthcare, *etc.*

【Precision Health】

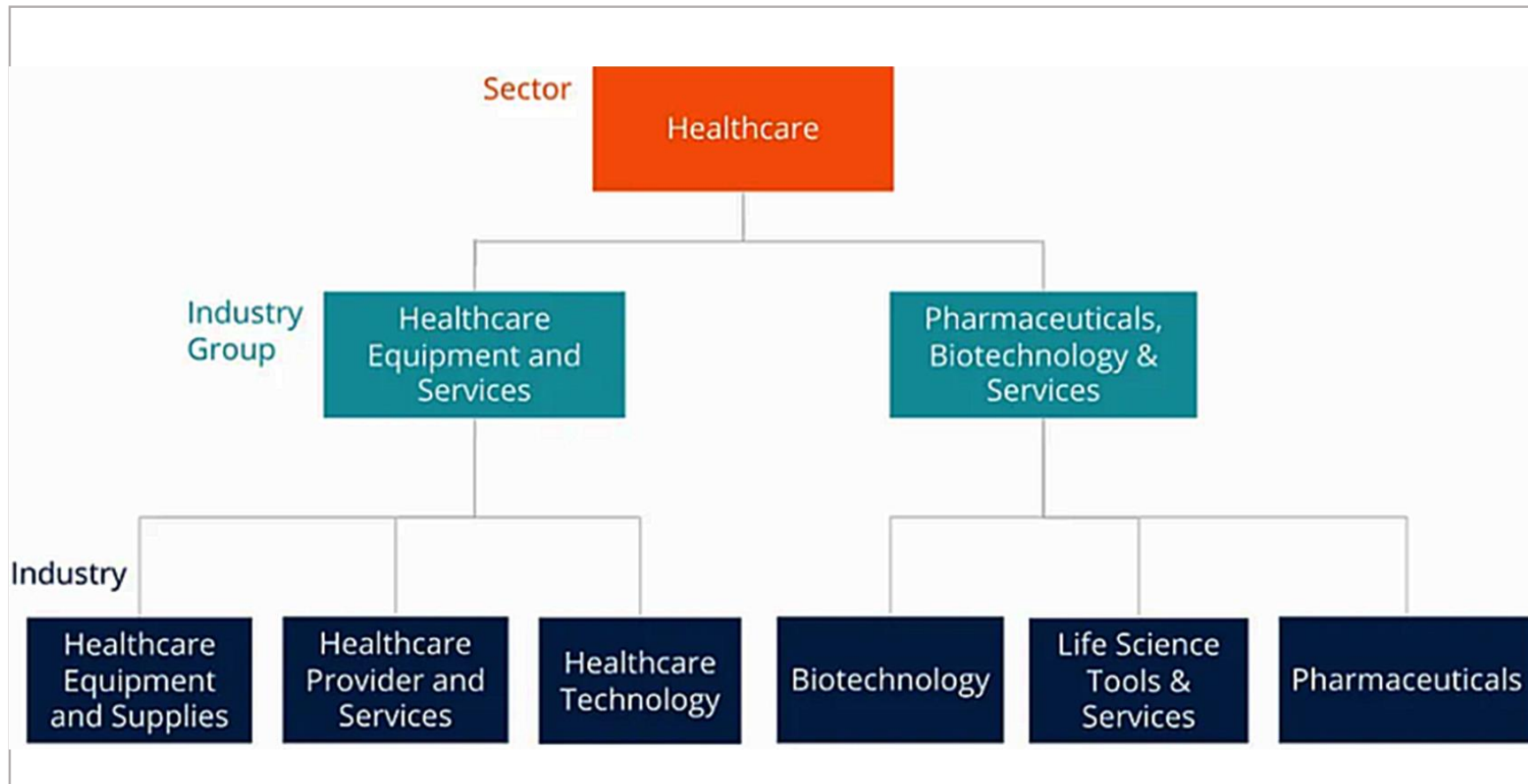
Risk Assessment : Genetic risk, Behavioral Patterns, family history *etc.*

Precision Prevention : Personalized Health Check 、 AI for Early Detection, Home Screening, Tele Health Consulting Services *etc.*

Health Promotion: Lifestyle, Environmental Adjustments, Personalized Diet, Sport and Exercise, Microbiota, Homecare and Wearable Devices, Health Management, *etc.*

Healthcare sector by GICS definition

- ❑ The healthcare sector includes the following subsections, as per Global Industry Classification Standard (GICS)



Global Markets:

- International Healthcare
- Bio-pharmaceutical
- Medical device
- Regenerative medicine
- Smart healthcare
- Precision medicine
- Sports medicine

ABOUT TAIWAN

Goal: Keep Healthy without the need of Long Term Care



Population
23.3 million



Area
36,197 km²



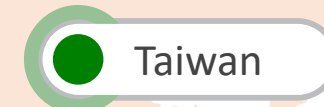
GDP & GDP/capita
761.4 billion & 32,756 (USD)



Life Expectancy & Healthy Life Expectancy
80.9 & 73.3 years (7.6 years unhealthy)

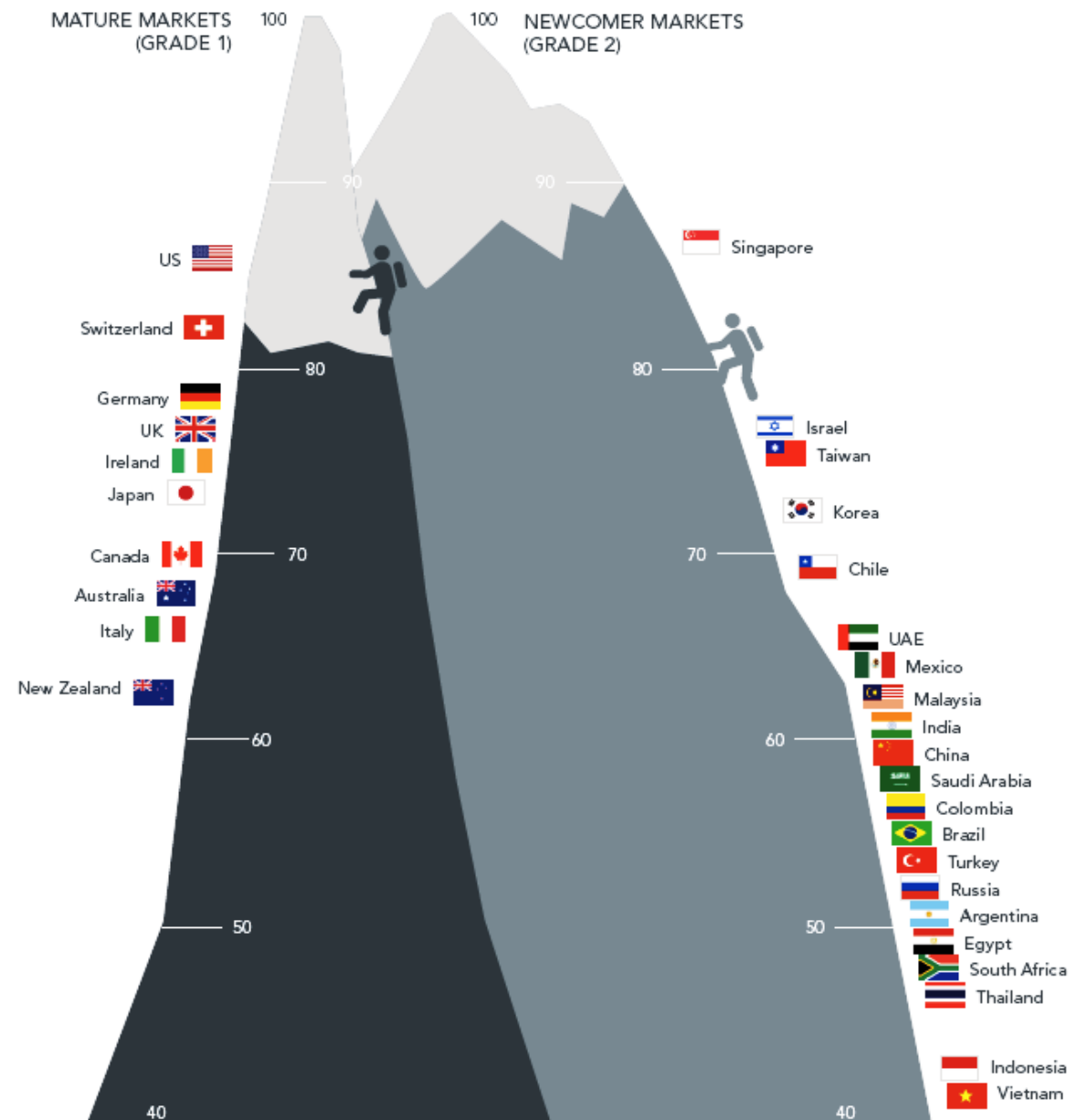


Physicians Ratio
2.23 per 1,000 Population



Taiwan Core Competences

- Taiwan ranks 3rd in the newcomer markets
- World-class quality of medicine and talent
- The best healthcare system and big data
- High quality clinical trials and R&D capacity
- Well-established research infrastructure
- ICT supply chain, talent and manufacturing
- AI and 5G R&D in national level



Source compiled by IBMI, RBMP (2021)

Medical Innovation by cross-industry collaborations



Key drivers of Taiwan's
healthcare industry

Bio + ICT

Advanced Medical Care



High Quality R&D and MFG



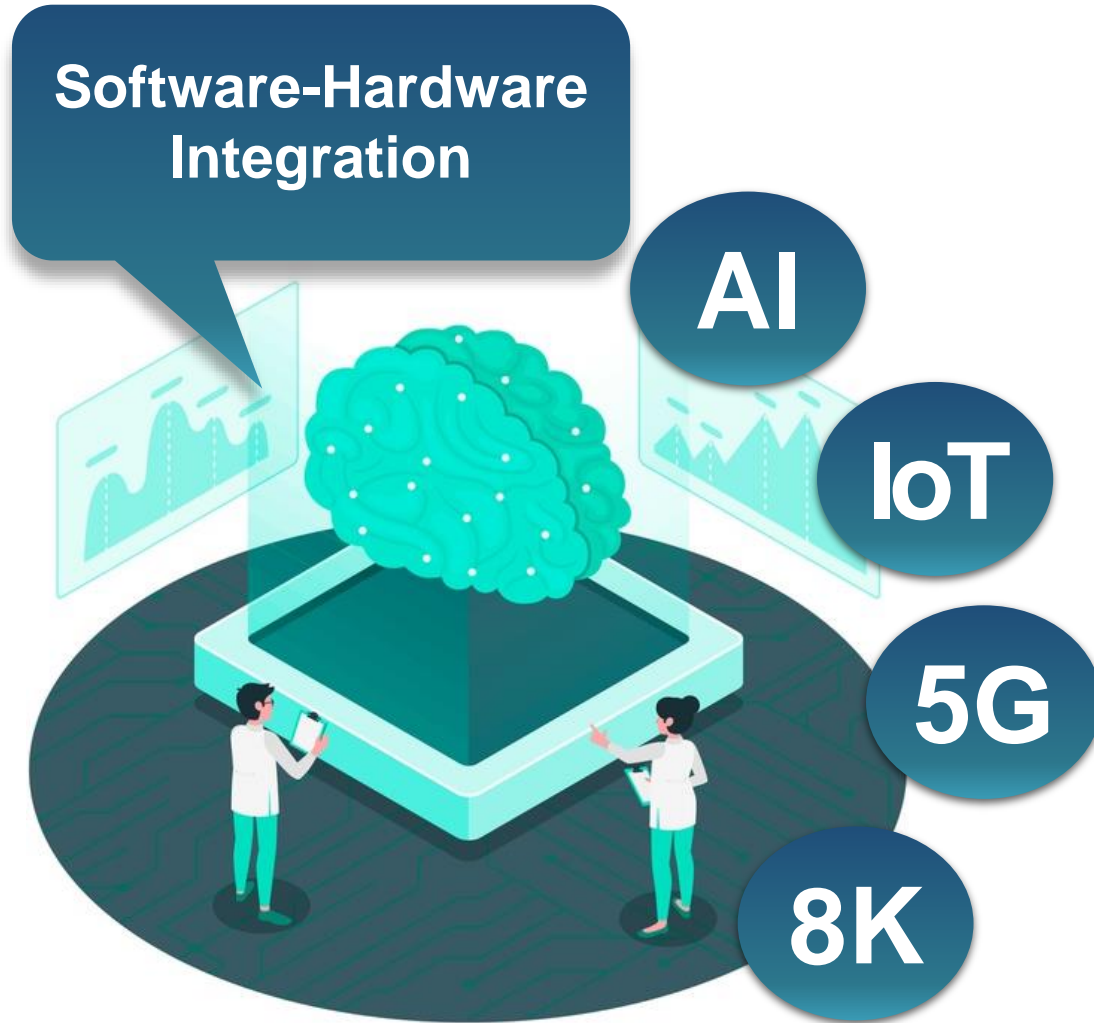
Strong ICT and Elec. Tech.



Taiwan ICT companies setting foot in healthcare

	Mobile health	Medical equipment	Smart hospital	Gene/cell therapy	Biomedicine	
Companies	<div>acerCOMPAL</div> <div>FOXCONN</div> <div>Quanta ComputerTULhtc</div> <div>ASUSCoretronic</div> <div>LEADTEKMITAC</div>	<div>BenQ</div> <div>Qisda</div> <div>K LASER TECHNOLOGY INC</div> <div>LARGANLITEON</div> <div>wistroFOXLINK</div> <div>DELTA</div> <div>RITEK</div>	<div>wistron</div> <div>Quantia Computer</div> <div>MITAC</div> <div>BenQ</div> <div>Qisdahtc</div> <div>ADVANTECH</div> <div>iEi GROUP</div> <div>威強電集團</div> <div>英業達Inventec</div> <div>a value Technology Inc.</div>	<div>FOXCONN</div> <div>acer</div> <div>MetaTech</div> <div>COMPA</div> <div>英業達Inventec</div> <div>wistron</div>	<div>UMC</div> <div>Powerchip</div> <div>力晶科技</div> <div>MEDIA/TEK</div> <div>REALTEK</div> <div>TUL</div> <div>LEADTEK</div>	
Product pipelines	<div>■Telehealth</div> <div>■IoT solutions</div> <div>■Wearables</div> <div>■Health management</div>	<div>■X ray / ultrasound</div> <div>■Micro CT</div> <div>■Surgical / service robots</div> <div>■Capsule endoscopy</div> <div>■Hemodialyzer</div> <div>■Molecular pathology</div> <div>■Vital sign monitor</div>	<div>■Smart ward/operating room</div> <div>■Surgical VR</div> <div>■AI solution</div> <div>■HMS</div> <div>■EMR / EHR</div> <div>■Medical display</div>	<div>■DNA sequencer</div> <div>■DNA microarray</div> <div>■Protein & genetic testing</div> <div>■CTC system</div> <div>■Cellular therapy</div>	<div>■AI chip</div> <div>■Biochip for gene sequencing</div> <div>■RF & Wireless chip</div> <div>■Biosensor</div> <div>■Display component</div> <div>■Organic semiconductor</div>	
Areas of application	<div>IoT</div>	<div>5G</div>	<div>AI</div>	<div>VR</div> <div>AR</div>	<div>CLOUD COMPUTING</div>	<div>BLOCKCHAIN</div>

Game-Changing Technology in Healthcare



Taiwan houses global players and supply-chain partners in the following areas:

- **Software hardware integration**
- **AI** chip making, AI computing & servers
- **IoT** sensors and components
- **8K** display and 8K image technology
- **5G** telecommunication chips and peripherals

Cross-industry cooperation at a glance



- 1) AI medical platform
- 2) Telemedicine / remote care
- 3) AI-assisted arrhythmia diagnosis
- 4) AIoT device/equipment



- 1) Genome database for Chinese
- 2) Medical wearables
- 3) Epidemic management products
- 4) Proton therapy / 8K medical imaging



- 1) Innovative devices / AI diagnostics
- 2) Health & chronic disease management
- 3) Medical imaging for animals
- 4) Cell therapy / AIoT solutions



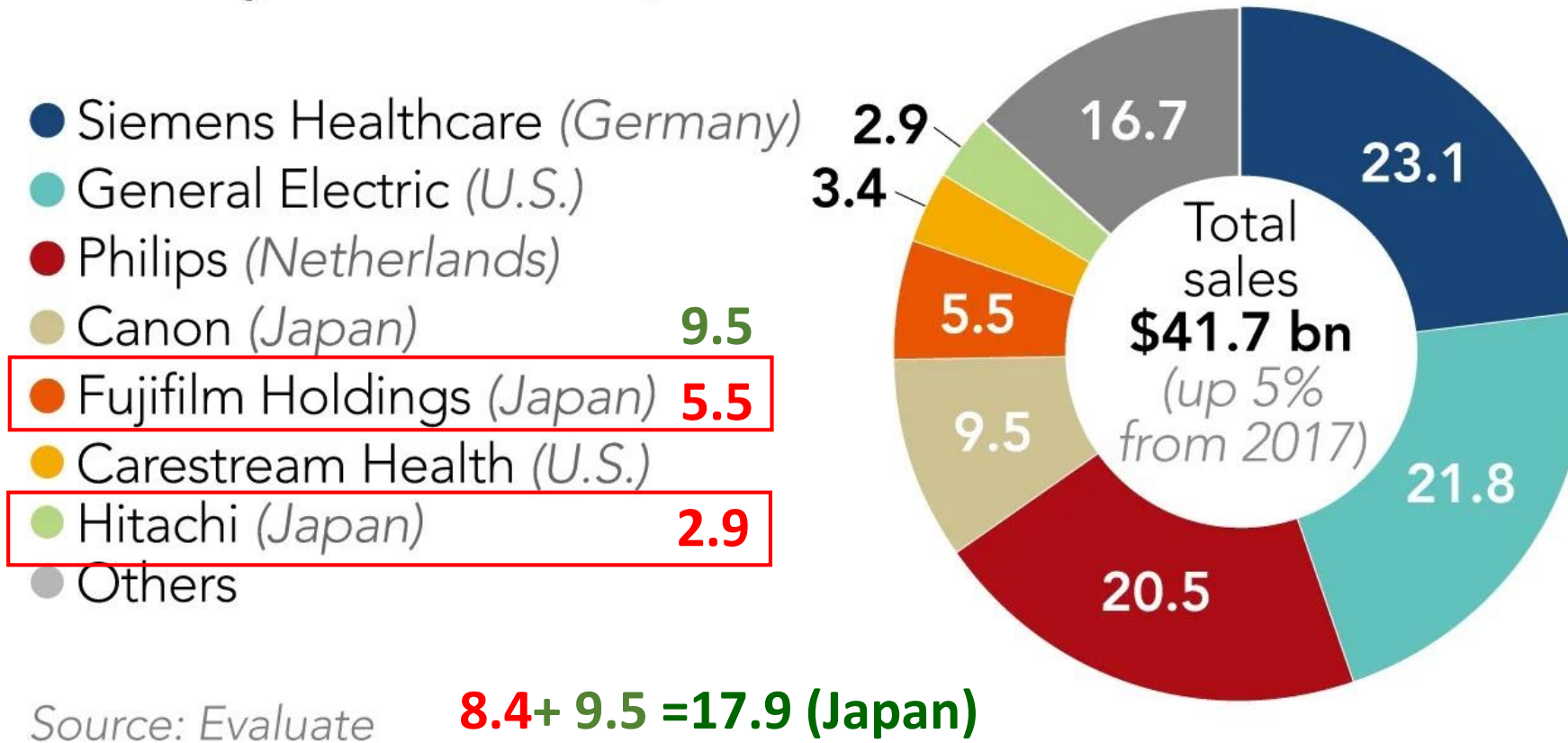
- 1) Miniaturization of medical equipment
- 2) Exoskeleton / assistive devices
- 3) AI dialysis / medical AI imaging
- 4) Digital pathology / health management



- 1) Telehealth / IoT products
- 2) Auto detection of CTC
- 3) Data integration of sports health
- 4) AI-assisted detection of disease

Fujifilm Healthcare acquires Hitachi Diagnostic Imaging in 2021

Diagnostic imaging equipment global market share by sales (2018, in percent)



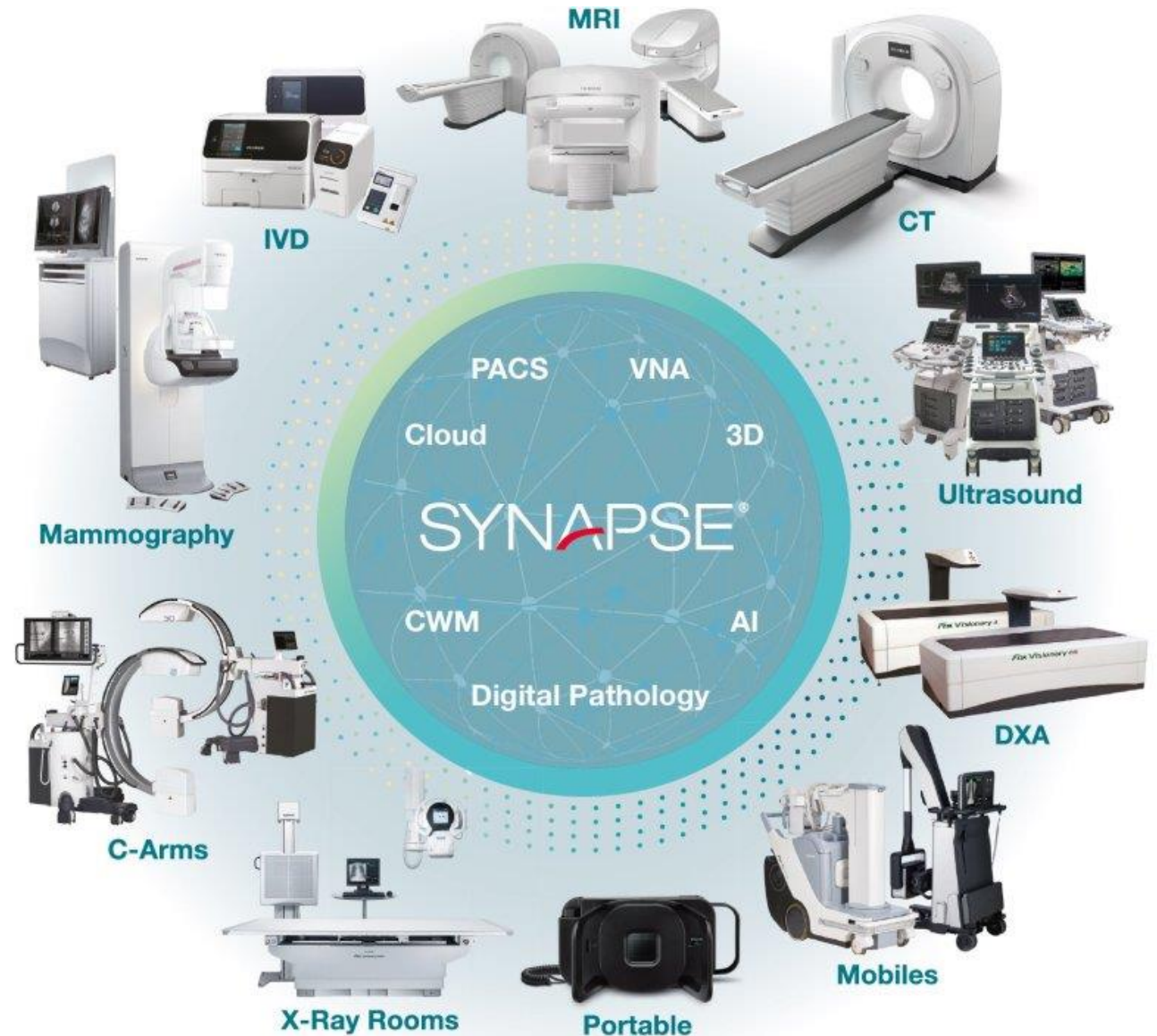
Fujifilm Healthcare presented a complete and integrated portfolio of diagnostic products and services, including CT, MRI, X-ray, AI, PACS, endoscopy and ultrasound systems.

Fujifilm “One-Stop” solution partner for the Healthcare systems



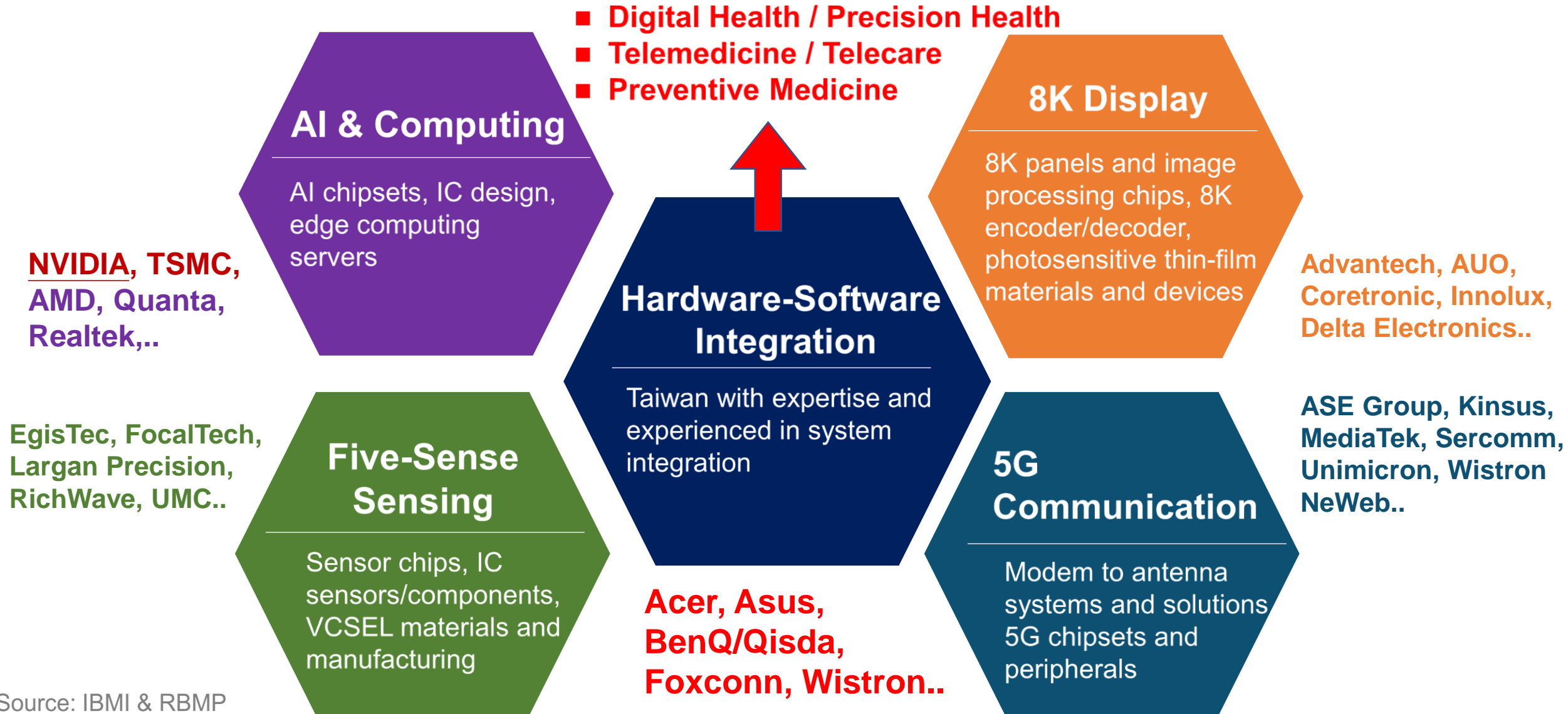
Fujifilm has a wide range of products including diagnostic X-ray imaging equipment, ultrasound systems, endoscopy, in vitro diagnostics, CT, MRI, and by positioning medical informatics as an open platform, the company can offer a wide variety of solutions to healthcare systems.

Image source: Fujifilm



Taiwan Industry Overview

Market Players and Focus Areas



Source: IBMI & RBMP

Taiwan Industry Overview

Successful Solutions

Acer



VeriSee DR

- The AI-powered software is designed to detect diabetic retinopathy (DR) by analysing retinal images.
- Approved in Taiwan, Thailand and Indonesia, VeriSee DR requires no internet connection, can be customised and seamlessly integrated into clinical workflow.

TeleMed for Home Care & Point of Care

- The solution provides a non-contact outpatient service which simulates the workflow in clinical practice for patients and clinicians.
- It is intended to improve efficiency and quality of telecare/remote care/long-term care and enhance the pandemic prevention measures.



Taiwan Industry Overview

Successful Solutions

Asus

全球首創 **MRI腫瘤分類及乳癌復發預測系統**




- 非侵入式
免除切片 0痛苦
- 節省93%檢驗時程
即早治療
- 精準腫瘤分類
輔助醫生治療規劃
- 乳癌復發風險預測
低風險患者免化療之苦

MRI Tumour Classification and **Breast Cancer** Reoccurrence Prediction System

The software analyses 3D images during a screening breast MRI, assisting radiologists recognise the location of tumours, classify them as well as evaluating recurrence risk with PAM50 (Prediction analysis of microarray 50).

EndoAim **AI** Endoscopy Lesion Detection System

The software is intended to assist clinicians to analyse polyps during a colonoscopy and classify them into non-adenoma or adenoma.

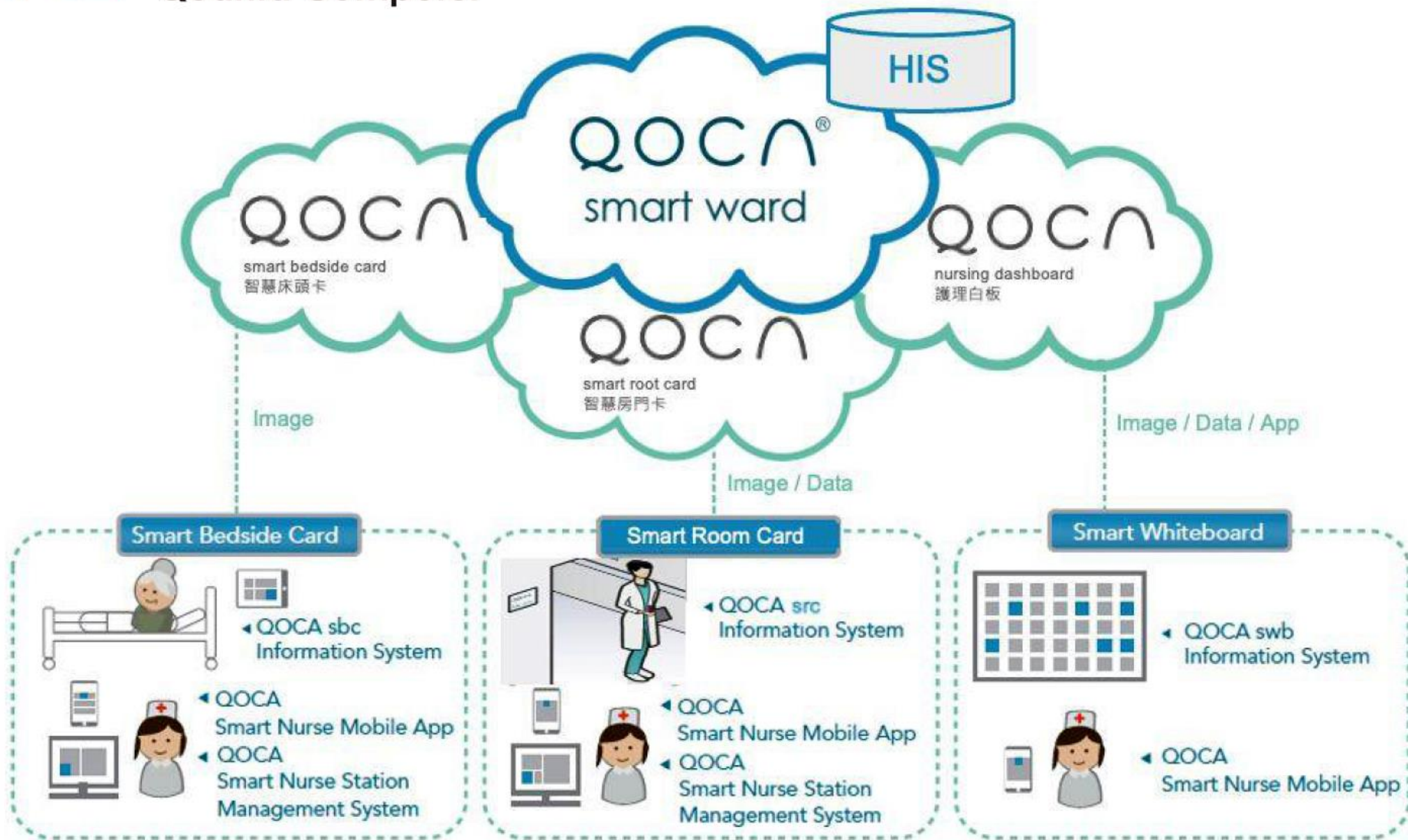


- 即時警示
病灶不遺漏
- 超過90%精準度
降低誤判
- 即時息肉分類
提供診斷參考

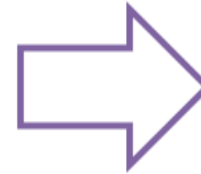
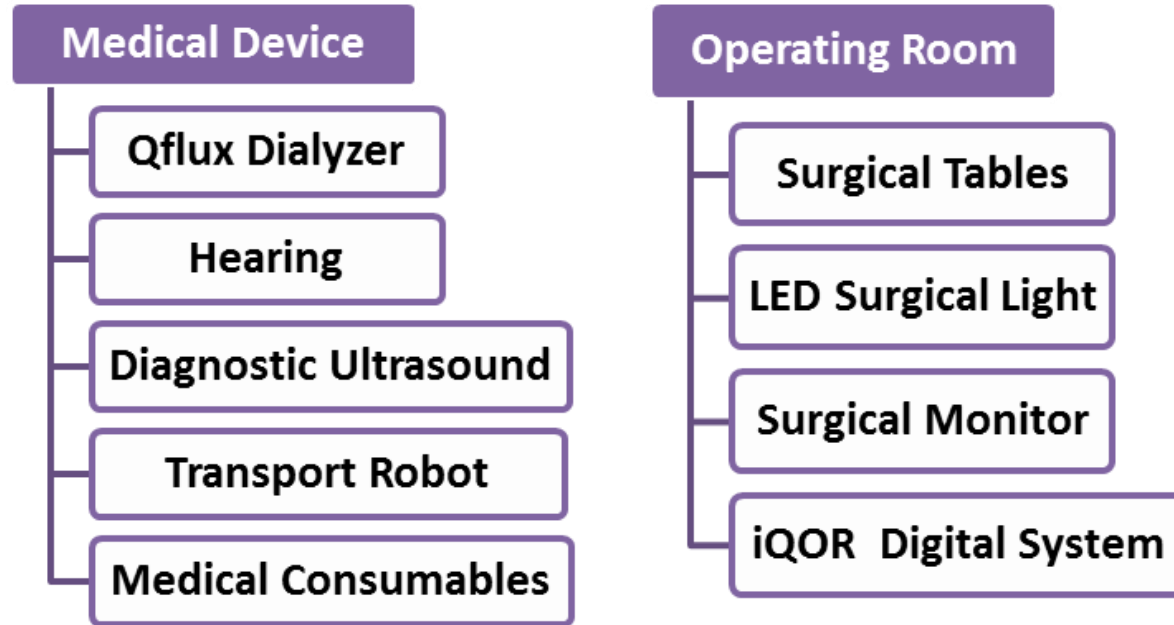


廣達電腦
Quanta Computer

QOCN®



Featured Products



Solutions

Smart Operation Room



ODM / OEM of
Medical Device

Other Smart Healthcare Solutions

Fitness System

Smart Wearables

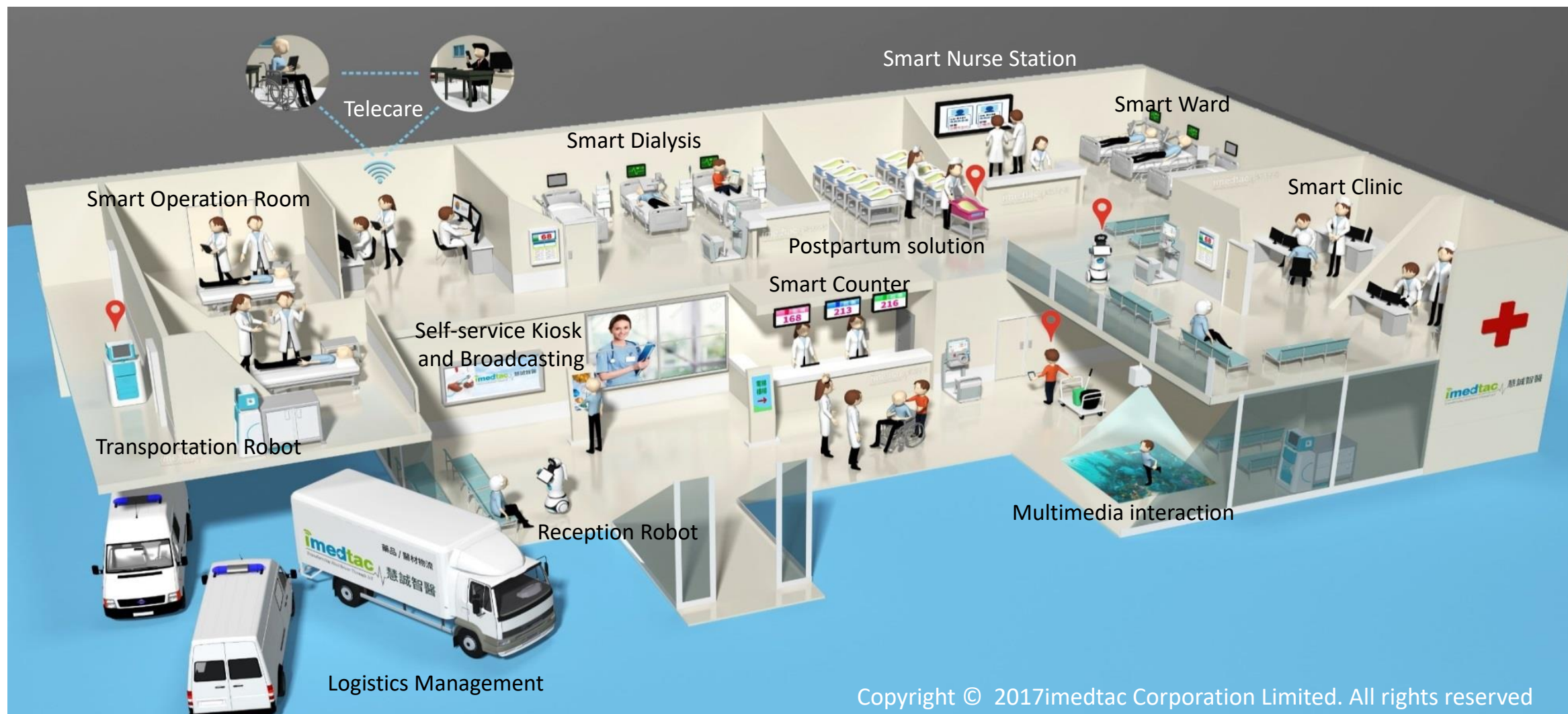
Smart Ward

Health Management System

Long-Term Care Monitoring Solution

Integrated Solutions in Smart Hospital

Modularize IoT for Hospital and Healthcare Application by **imedtac** 慧誠智醫



Copyright © 2017imedtac Corporation Limited. All rights reserved

Smart Ward: Bedside Infotainment System

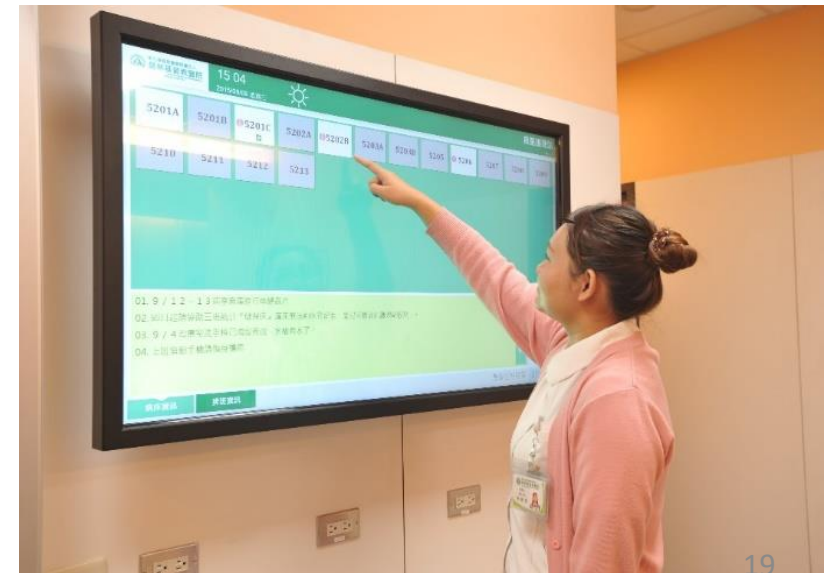
- ◆ Interactive environment
- ◆ Disclosure real-time information
- ◆ Treatment schedule



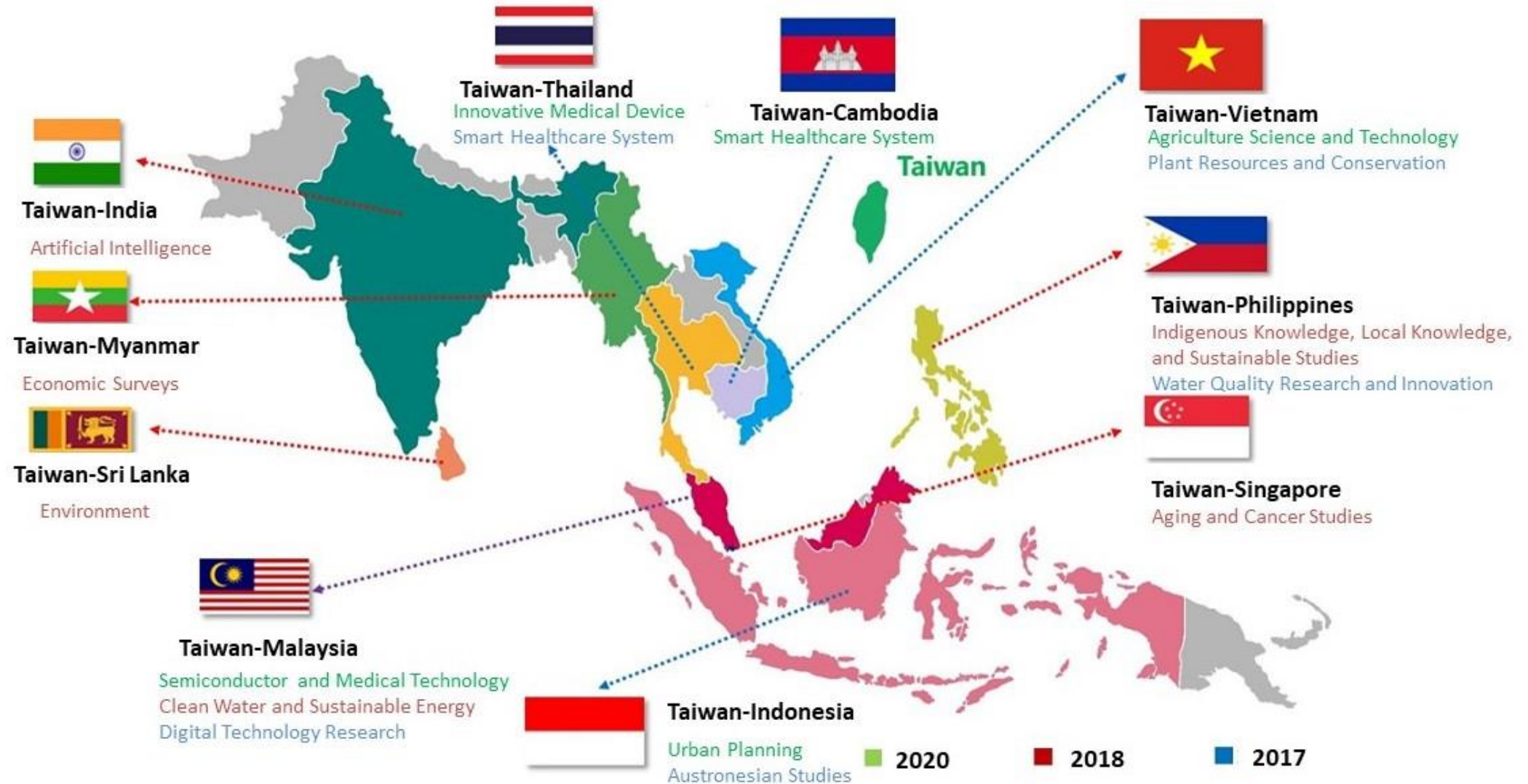
Smart Nurse Station: Nurse Dashboard

Improvement Nurse Care Quality and Work Flow

- Nurse dash board (No paper works)
- Real time patient information (location, activity, schedule)
- Real time nursing shifting
- Central nurse control panel
- Schedule, Work Flow, and Education



New Southbound Policy Strengthens Taiwan's Collaboration with Southeast Asian Country



Taiwan offer Total solutions to assist Asia countries to build smart hospitals or improve hospital management effectiveness.

A key initiative: The 1 County 1 Center (1C1C) Project



► One medical center from Taiwan to serve as the focal point for cooperation with one partner country

New Southbound Policy: Medical and Health Cooperation

Thailand Medical Industry Visit in 2022

Sept. 5-8, 2022

(Chunghwa Telecom, Imedtac, Huede Technology, Insight Medical Solutions)



Thonburi Hospital



ThaiBIO Association



HFSA



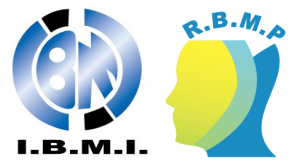
MedPark Hospital



TCCLS

New Southbound Policy: Medical and Health Cooperation

Malaysian Medical Industry Visit in 2022



Oct. 11-14, 2022

(Wistron, Advantech, YungShin, Stemcyte; Orient EuroPharma, etc.)



APHM(馬來西亞私立醫院協會)



Gleneagles Hospital Kuala Lumpur



Prince Court Medical Centre



Subang Jaya Medical Centre



Pantai Hospital Kuala Lumpur



IHH Healthcare



8th Healthcare[®] EXPO · TAIWAN X Healthcare[®] B2B *Best Products to Best Buyers*

Healthcare+ B2B Meetup Forum

Chairpersons from **28** overseas biomedical industry and hospital associations sharing firsthand insights !

Unlock Powerful Business Opportunities in **18** Countries

Germany, Poland, Czech Republic, Hungary, Brazil, Chile, Ecuador,
Oman, Middle East, Turkey, Japan, Thailand, Philippines, Malaysia,
India, Indonesia, Texas, Australia

December 5-6
TaiNEX1, Taipei, Taiwan

Hospital Collaboration Networking

Hospital Collaboration Networking 12/05 16:00-17:30 | Room 402

Advised by: Ministry of Health and Welfare
Organized by: IBMI, RBMP



Industries / Associations	Speaker
Guest Speech	
The Polish Association of Private Hospitals	Andrzej Sokołowski, President
Thailand Private Hospital Association	Paiboon Eksaengsri, President
The Association of Private Hospitals of Malaysia	Datuk Dr Kuljit Singh, President
Philippine Hospital Association	Jose, Jr. P. Santiago, President
Private Hospitals Association of the Philippines	Jose Rene de Grano, President,
Myanmar Private Hospitals' Association	Aye Aye San, President
Networking	

Branding Taiwan



0406ICEP

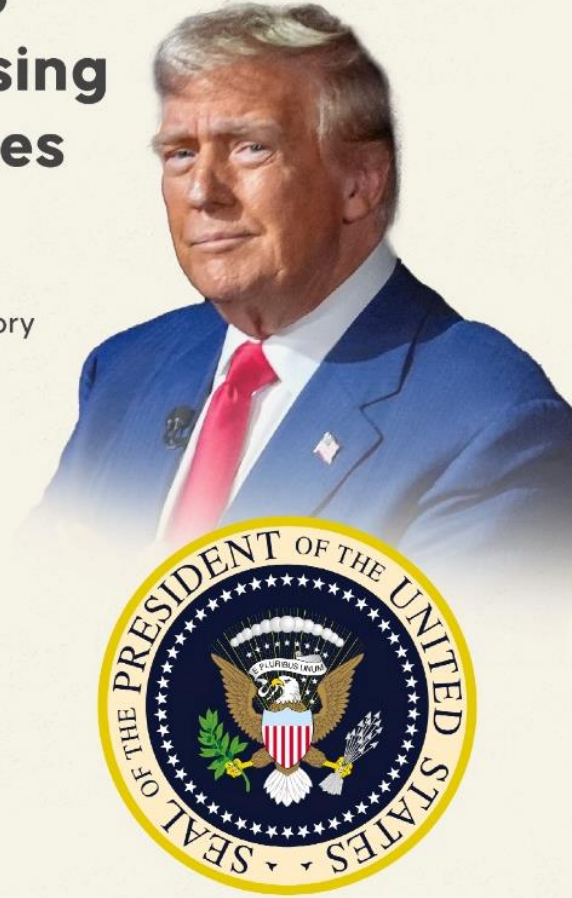


Thank you for your attention

US President Donald Trump signs executive order imposing reciprocal tariffs on countries worldwide

'We will supercharge our domestic industrial base. We will pry open foreign markets and break down foreign trade barriers,' president says

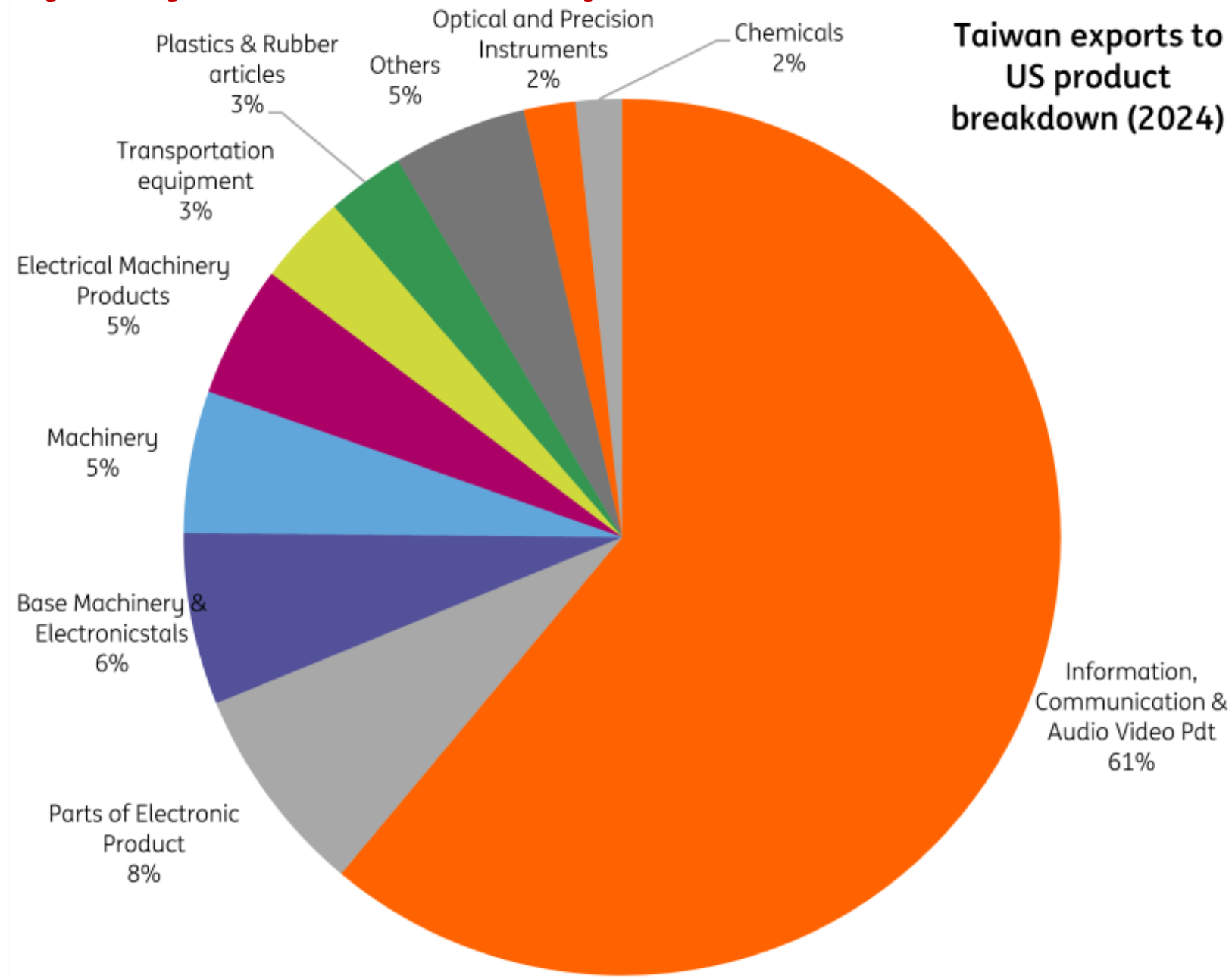
CHINA	34%
TAIWAN	32%
SOUTH AFRICA	30%
INDIA	26%
SOUTH KOREA	25%
JAPAN	24%
EUROPEAN UNION	20%
ISRAEL	17%



Türkiye is among the nations that will face a 10% tariff alongside the UK, Kenya, Iceland, Panama, Ethiopia, Lebanon, Togo and others

A minimum baseline tariff of 10% **will be imposed on all countries except Canada and Mexico**

The vast majority of Taiwan's exports to the US are tech-related

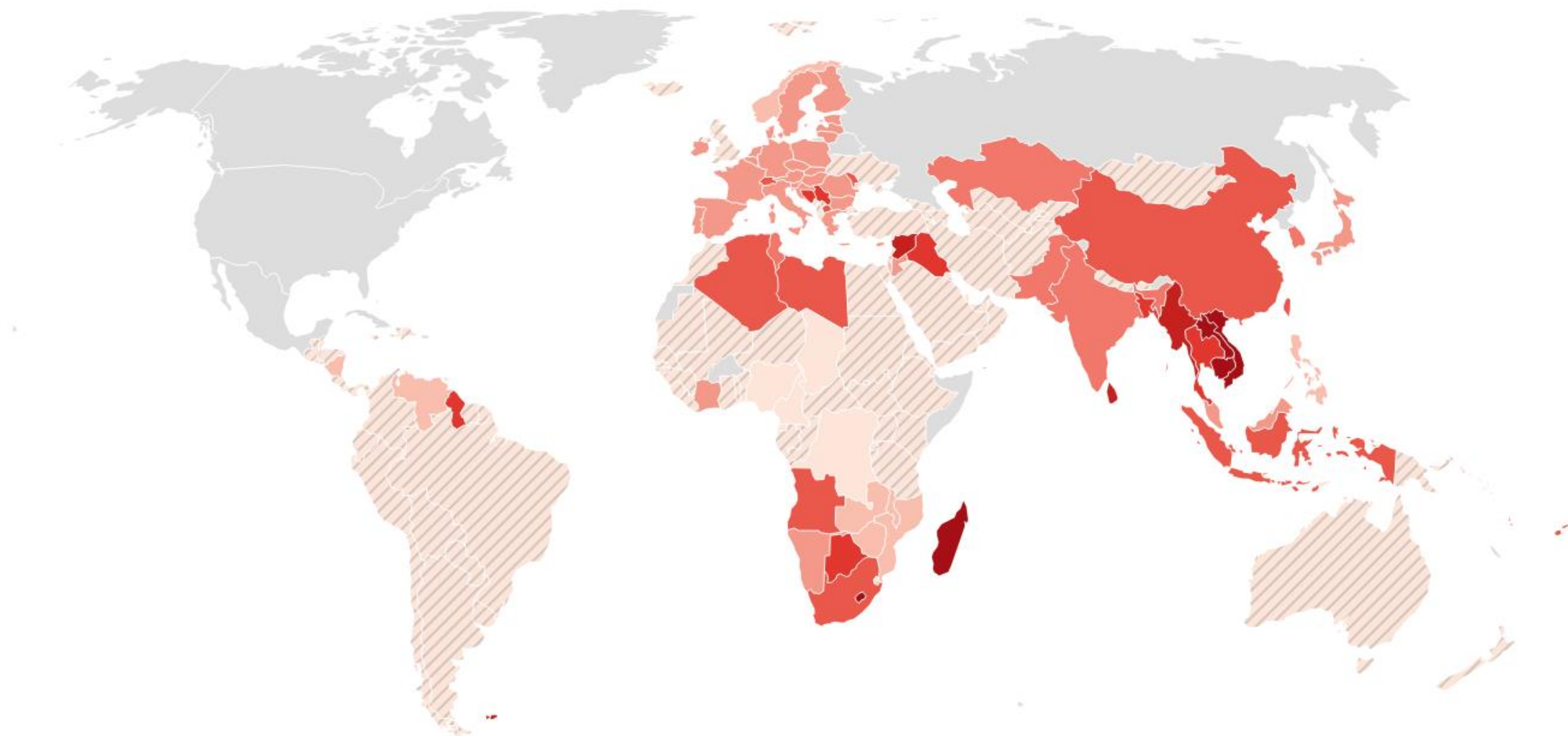


Who is hit hardest by proposed US tariffs?

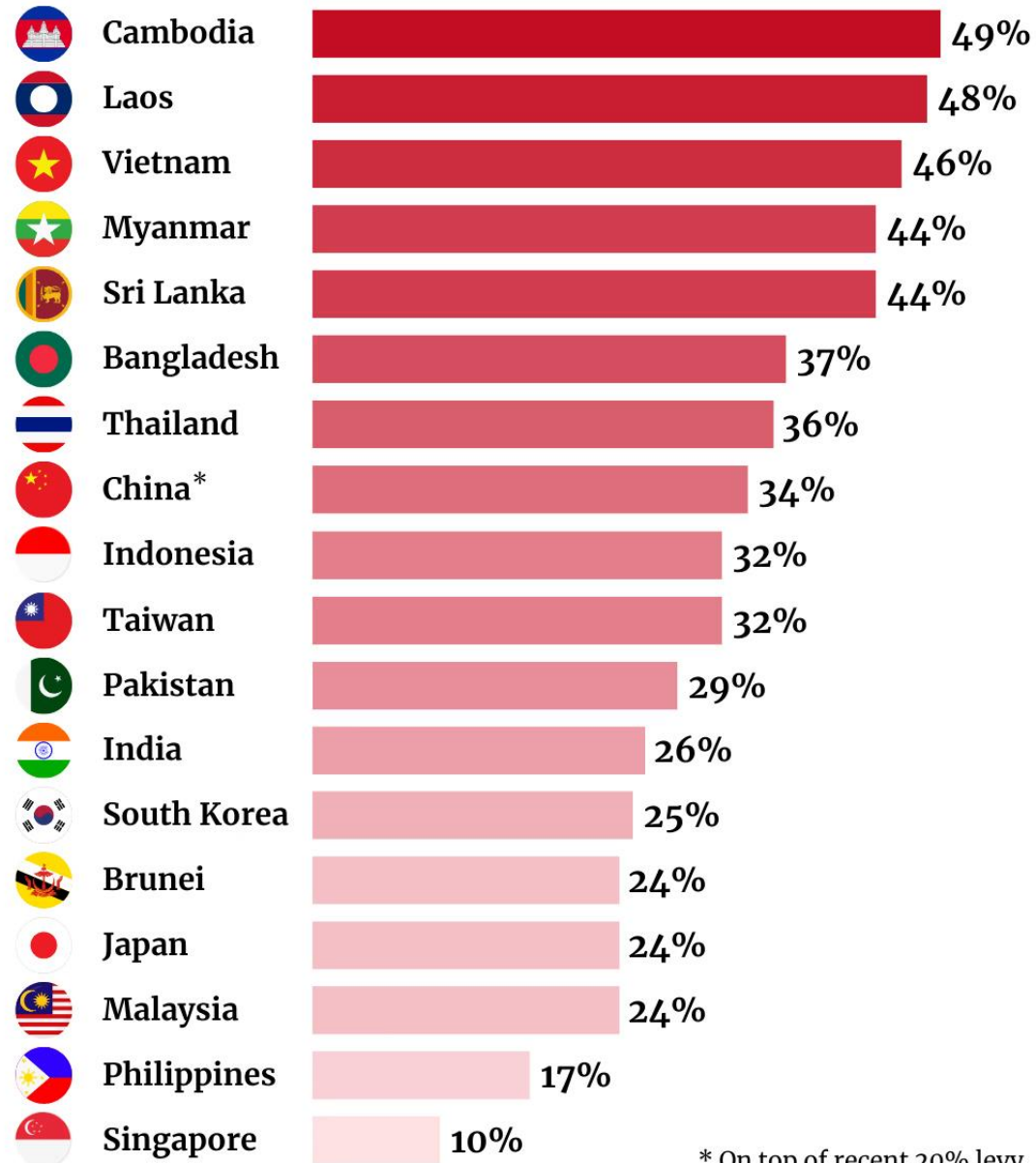
Reciprocal tariffs (%)



▨ Countries with 10% reciprocal tariffs



New tariffs imposed by the US on selected trading partners: Asia



* On top of recent 20% levy

- Vietnam 46%
- Myanmar 44%
- Thailand 36%
- **Taiwan 32%**
- Indonesia 32%
- India 26%
- Malaysia 24%
- Philippines 17%

- Japan 24%
- South Korea 25%

Drugmakers fear Trump tariffs will drive up manufacturing costs, hurt medicine access

This poses a range of concerns, set out below:

WTO Violation: According to the WTO's 1994 Pharma Agreement, the majority of pharmaceutical products, and the substances used to produce them are exempt from tariffs. The Agreement was signed by Canada, the European Union, Japan, China, Norway, Switzerland, the United Kingdom and the United States. If Trump imposes tariffs on pharmaceuticals, this could amount to a violation of World Trade Organization rules.

Increased Costs and Prices: Tariffs will lead to higher costs for the importer, as noted above, and can lead to higher prices which are often borne by the end consumer. This is of significant relevance given that many pharmaceuticals are an essential need. Since pharmaceutical products often involve ingredients sourced from other countries, these increased costs could make medications more expensive, affecting hospitals and patients alike.

Supply Chain Disruptions: The highly complex and global nature of pharmaceutical supply chains means that tariffs could cause significant disruptions. Most pharmaceutical products are the result of an internationally connected supply chain and sourcing materials may become more difficult and expensive, ultimately increasing, existing drug shortage problems.

Manufacturing Location Strategies: Trump's stated aim of tariffs is to bolster US domestic production and coerce companies to relocate their manufacturing operations to the US. While this could reduce dependency on foreign suppliers, it may also lead to higher production costs and longer timelines for drug availability. The timescale for relocation could prove extensive given the highly regulated landscape, and it is not clear in all cases – even considering the tariffs – whether domestic production would prove cheaper than the vast economies of scale in other countries, such as China and India.

The types of medical devices most affected by tariffs

- **Medical Imaging Equipment:** Devices such as MRI machines, CT scanners, and X-ray machines are heavily impacted due to their reliance on imported components.
- **Surgical Instruments:** Many surgical tools and instruments are imported, and tariffs can significantly increase their costs.
- **Diagnostic Equipment:** Devices used for diagnostics, including blood analyzers and other laboratory equipment, are also affected.
- **Electronic Medical Devices:** This category includes devices like pacemakers, defibrillators, and other electronic health monitoring equipment.
- **Personal Protective Equipment (PPE):** Items such as gloves, masks, and gowns, which are crucial for healthcare workers, face increased costs due to tariffs.

These tariffs can lead to higher costs for healthcare providers and potentially impact the availability of these essential devices.