Celebrating
Hearts & Minds
of Healthcare Quality

SingHealth Duke-NUS
Quality & Innovation Day 2021

SingHealth DukeNUS
ACADEMIC MEDICAL CENTRE
Institute for
Patient Safety & Quality

DIGITAL TRANSFORMATION OF HEALTHCARE FOR A SMART NATION

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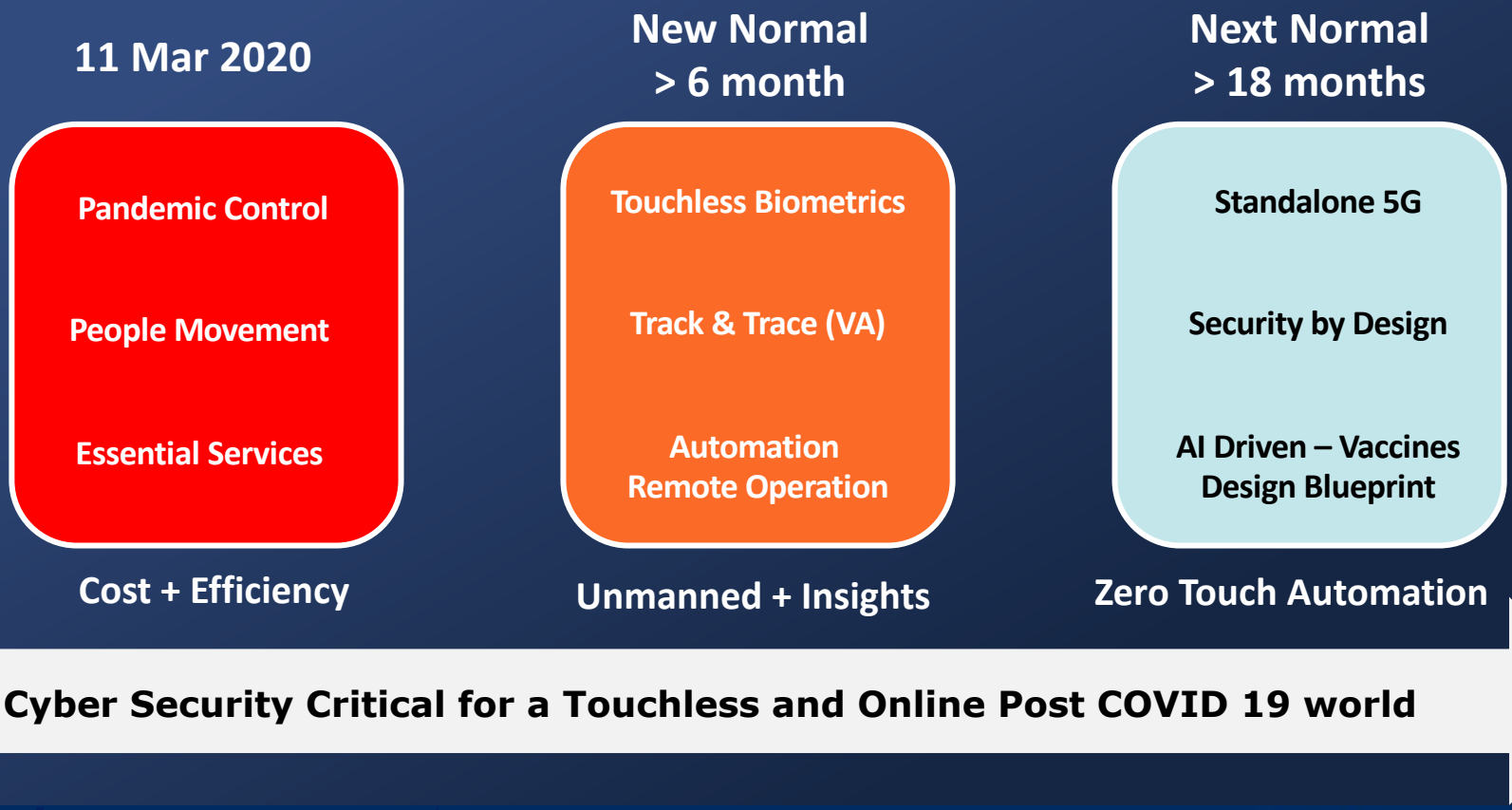
NEC Asia-Pacific

Post COVID 19 world: Accelerating DT of Healthcare in the Next Normal



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The Future of Healthcare Technology is NOW…

https://www.youtube.com/watch?v=d5QRRBsrWeQ

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NEC Multi-modal Biometrics ID device (Face and Iris)

Tokyo, May 14, 2020 - NEC Corporation (NEC; TSE: 6701) today announced the development of a multimodal biometric authentication terminal incorporating face and iris recognition technologies that have been recognized as the world's No.1 (*1) in benchmark tests for identification technologies conducted by the U.S. National Institute of Standards and Technology (NIST), and are core technologies of NEC's multimodal biometric authentication brand, "Bio-IDiom"(*2).

This reinforces NEC's ability to provide high levels of authentication accuracy and convenience for users throughout a wide range of environments.

Successfully recognizes individuals wearing face masks

The application of multimodal biometric identification technology utilizing face and iris information enables touchless identification of individuals to be achieved, even when gloves and face masks are worn or when both hands are occupied with baggage.

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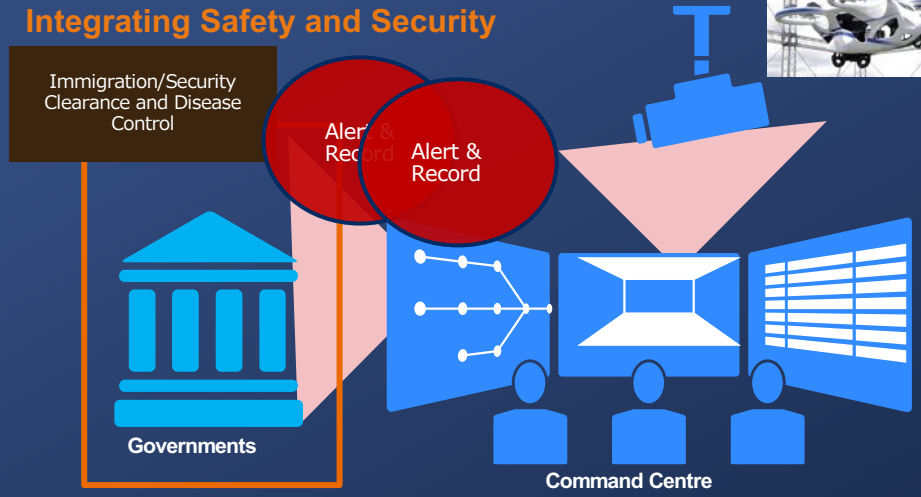
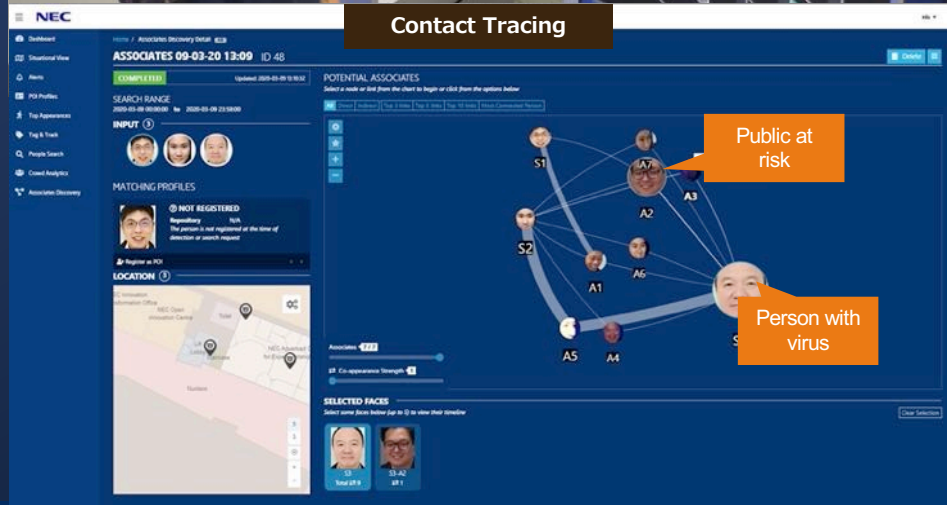
In Development: Contactless Border Control/Hospitals + Contact Tracing for the NEXT Normal

Integrating Safety and Security



From Clearance to Contact Tracing
adding in NEC command centre solution & CCTV feeds with
Integration of Thermal, FR / Iris

Contact Tracing



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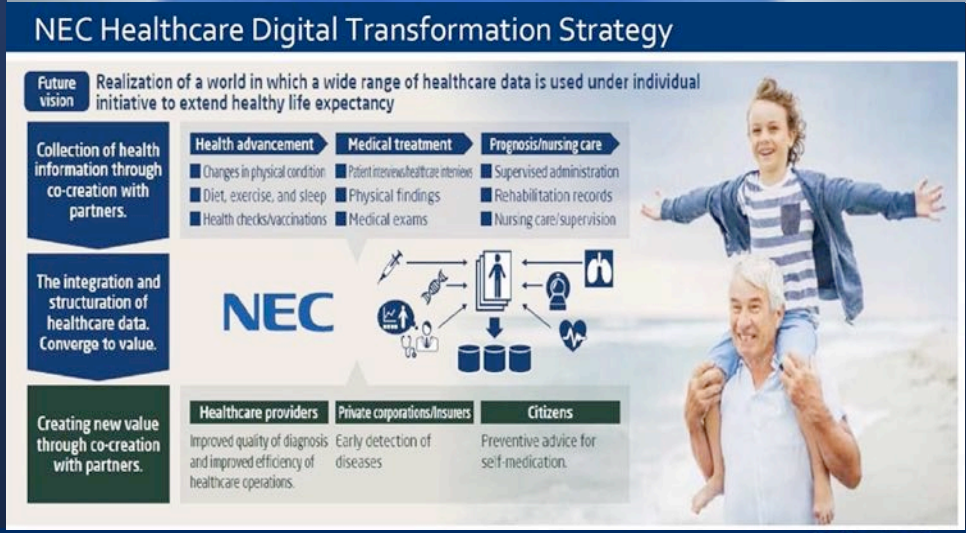
NEC publishes design blueprints for SARS-CoV-2 vaccines using its Artificial Intelligence technology

- NEC has used *artificial intelligence* (NEC Immune Profiler suite) to conduct a faster genetic decoding of the novel coronavirus, aiming to *accelerate* the development of a vaccine to quell the pandemic.
- NEC completed its analysis of the *genetic structure in a month*, far less time than typically needed to decode a virus.
- Using proprietary AI designed to combat cancer, NEC located several genes in the coronavirus that could help activate patients' immune systems. It also identified a combination of genes less likely to be affected by mutations.



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Social Value Creation Report

\Orchestrating a brighter world NEC

Quality of Life

The key is to extend healthy life expectancy

A sustainable longevity society made possible with digital healthcare

https://wisdom.nec.com/en/solutions/2019011502/images/SocialValueCreationReport_en_Vol.15.pdf

NEC's concept: Data-driven Healthcare

Future vision Realization of a world in which a wide range of healthcare data is used under individual initiative to extend healthy life expectancy

Collection of health information through co-creation with partners.

Health advancement	Medical treatment	Prognosis/nursing care
Changes in physical condition	Patient interviews/healthcare interviews	Supervised administration
Diet, exercise, and sleep	Physical findings	Rehabilitation records
Health checks/vaccinations	Medical exams	Nursing care/supervision

The integration and structuration of healthcare data. Converge to value.

NEC

Creating new value through co-creation with partners.

Healthcare providers	Private corporations/Insurers	Citizens
Improved quality of diagnosis and improved efficiency of healthcare operations.	Early detection of diseases	Preventive advice for self-medication.

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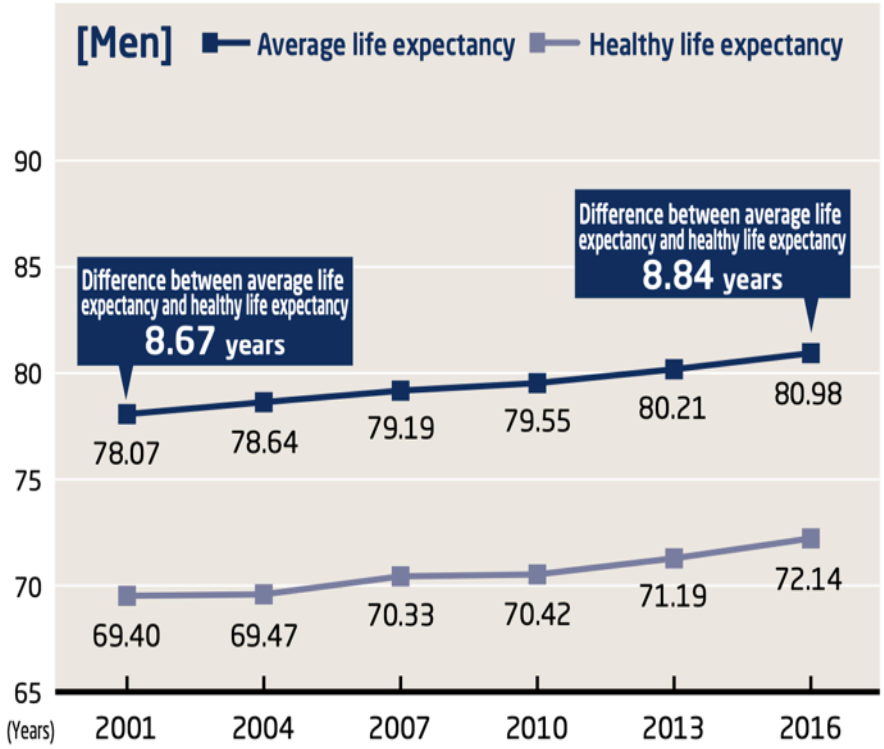
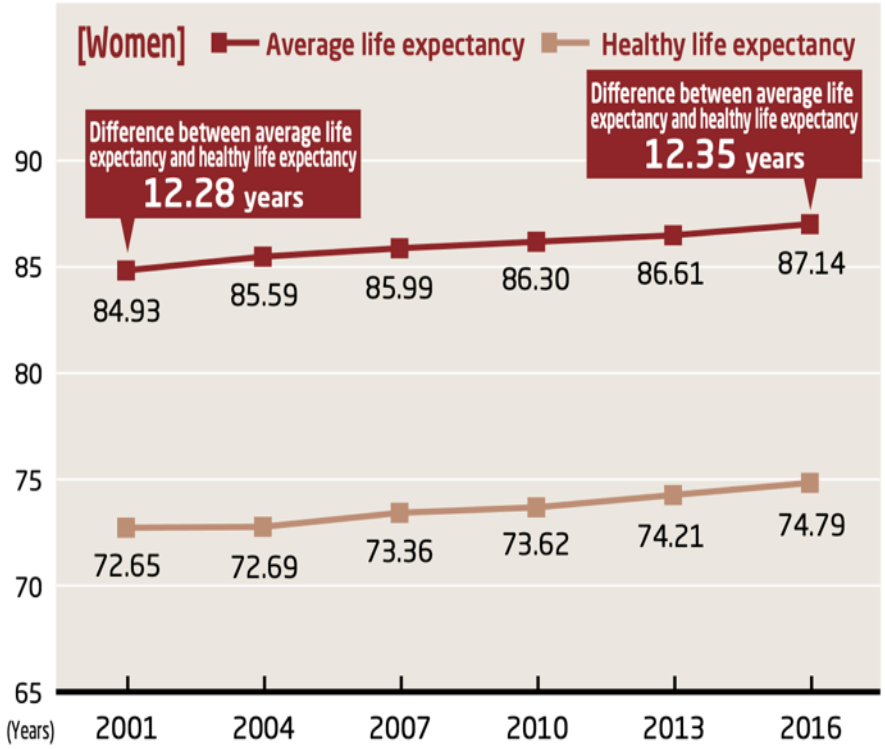
Transitions in average life expectancy and healthy life expectancy in Japan

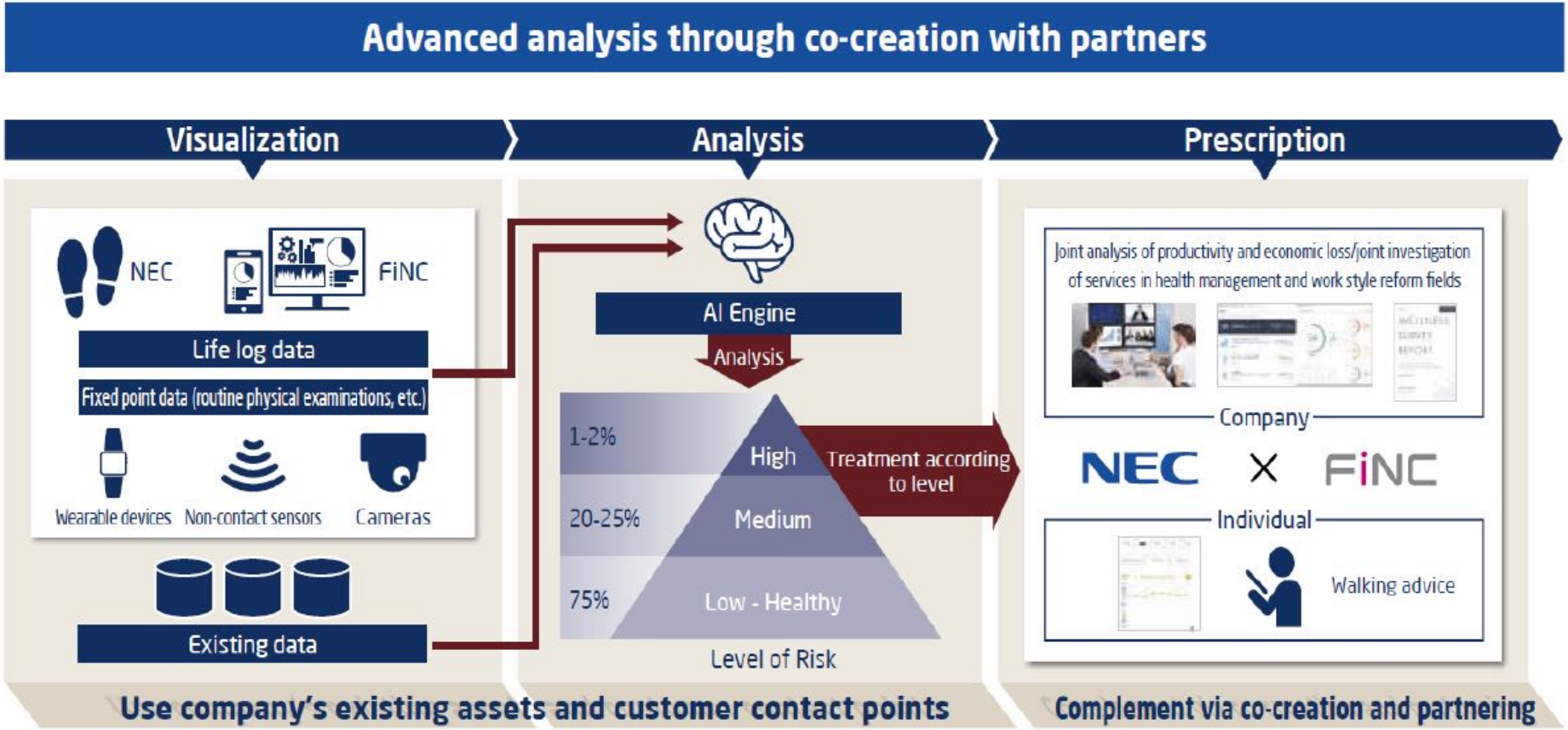




The difference between healthy life expectancy and average life expectancy has not yet decreased for men and women

* Source: Health Sciences Council, "11th Kenko Nippon 21 (2nd) Promotion Expert Committee Materials"

A.I. for Digital Transformation of Healthcare



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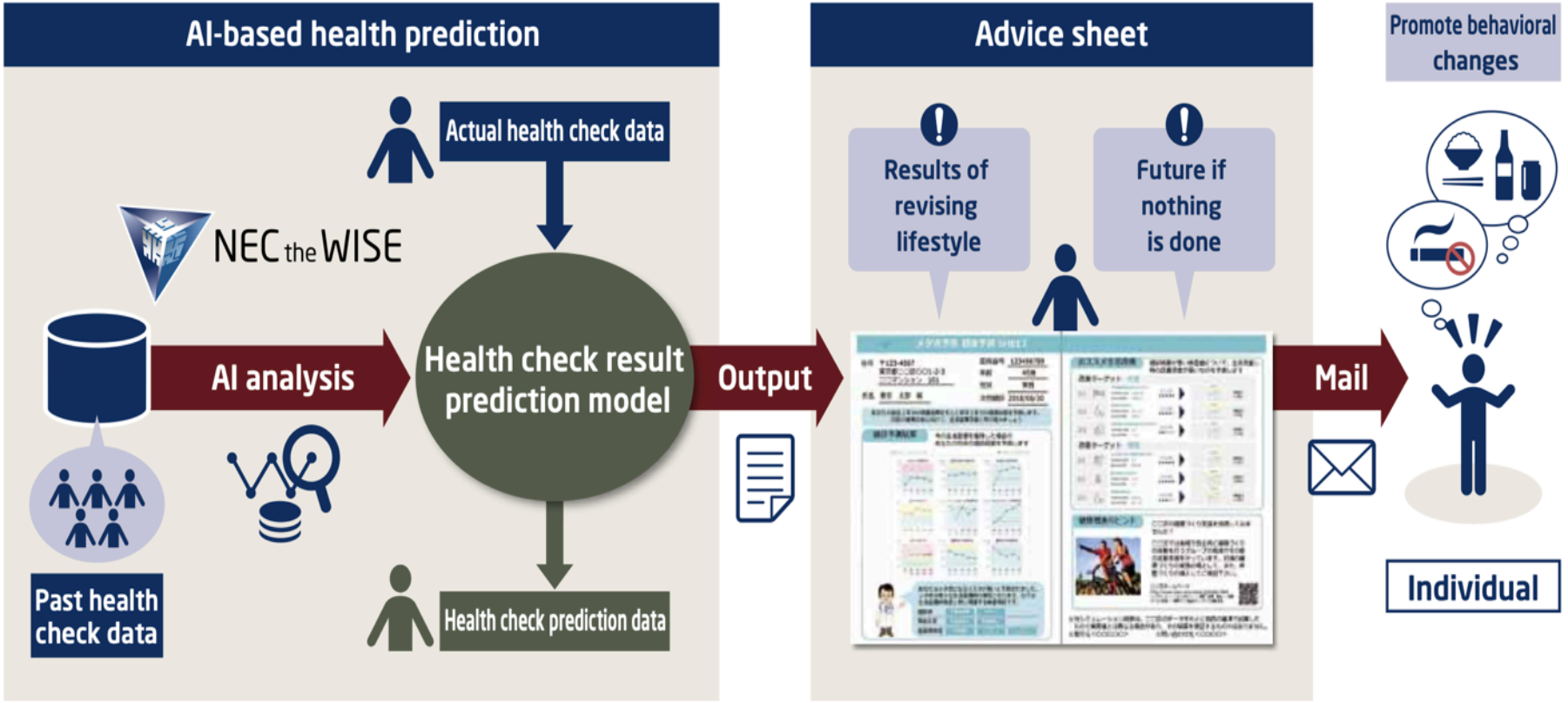
NEC Health check result prediction simulation



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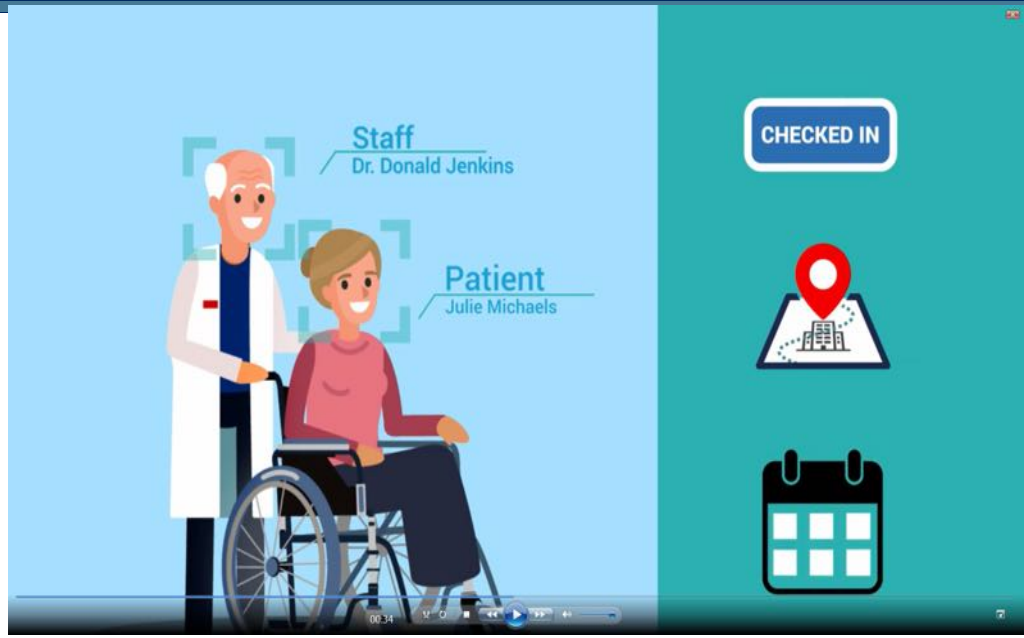
Shop or Call for Service with your Eyes☺

- Choosing with your eyes
- Use-Cases
  - Shopping
  - Healthcare
  - Security
  - Training

© NEC Corporation 2019

Digital Transformation of Healthcare

- Smart Healthcare utilising IOT and AI for efficiency and effectiveness of healthcare services.
- Biometrics for Seamless Patient Registration, Admission and monitoring
- Gaze Technology
  - Call for service with your eyes



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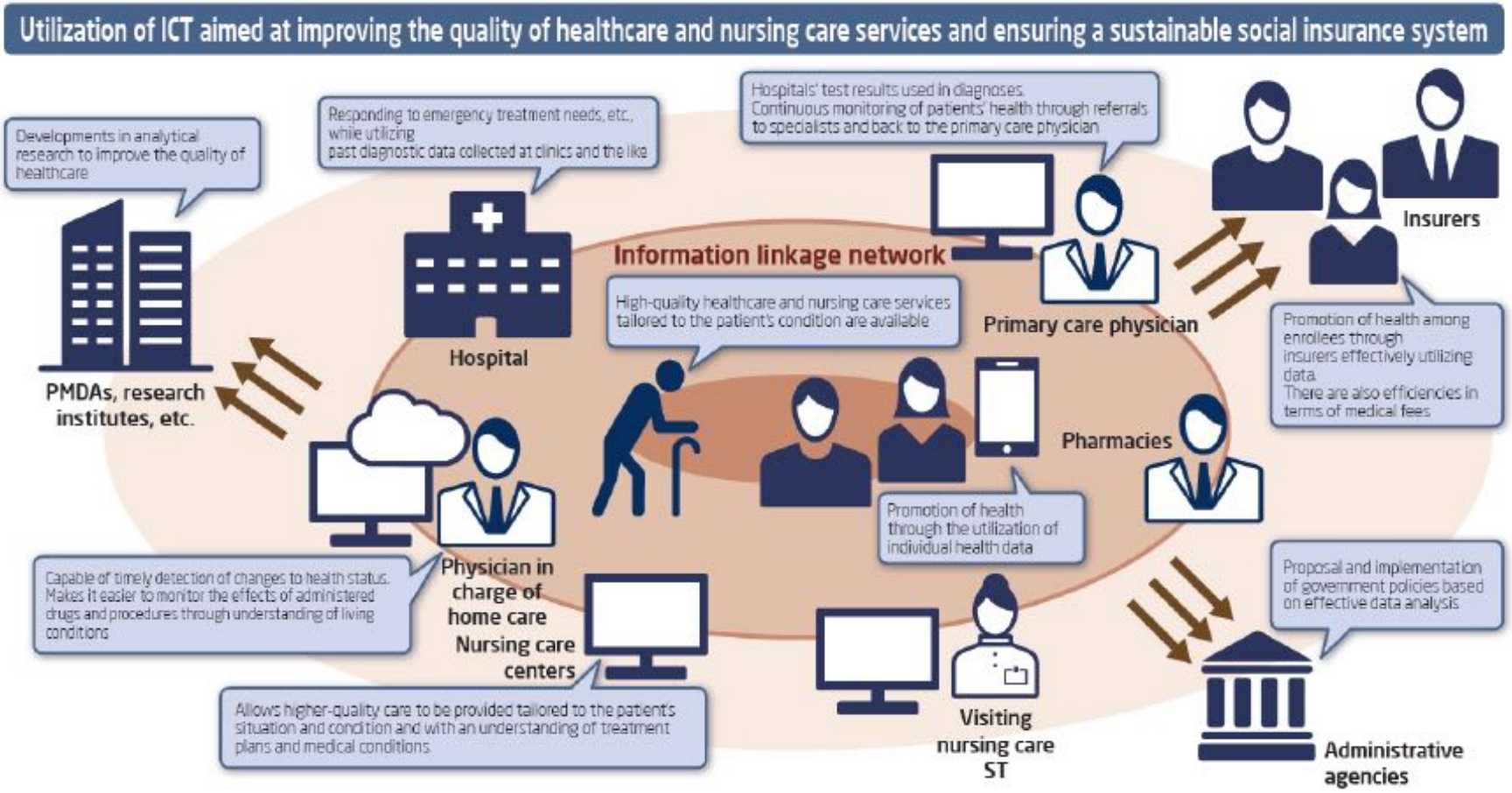
Healthcare Digital Network



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SINGAPORE HEALTHCARE ITM (https://www.mti.gov.sg/-/media/MTI/ITM/Essential-Domestic-Services/Healthcare/Healthcare-ITM---Infographic.pdf)

MINISTRY OF HEALTH
SINGAPORE

HEALTHCARE INDUSTRY TRANSFORMATION MAP

VISION

Championing a healthy nation with our people – to live well, live long & with peace of mind

LONG TERM TRENDS IN HEALTHCARE

- Ageing population
- Increasing chronic disease burden
- Slower workforce growth
- Rising healthcare costs

CURRENT HEALTHCARE WORKFORCE AND FACILITIES

96,000 PEOPLE

Nurses, Doctors, Administrative staff, Allied health professionals (AHPs), Ancillary staff, Support care staff, Pharmacists, Dentists

PRIMARY CARE	ACUTE CARE	COMMUNITY CARE
2,991	26	189
Polyclinics, GP and dental clinics	Public and private hospitals	Community hospitals, nursing homes, day care centres, home care providers

OUR STRATEGIES

BEYOND HEALTHCARE TO HEALTH
To help and support Singaporeans to lead healthier lives.

BEYOND HOSPITAL TO COMMUNITY
To enable Singaporeans to receive appropriate care in the community and closer to home.

BEYOND QUALITY TO VALUE
To give every Singaporean the best value, while keeping our system sustainable.

ENABLING OUR STRATEGIES

JOBS & SKILLS
To attract more locals and develop new skills for aged care

- Provide multiple pathways to attract mid-career locals to enter healthcare
- Develop community nursing and provide more upgrading opportunities for community nurses
- Redesign jobs and enhance skills upgrading to build a future-ready workforce

PRODUCTIVITY
Work better, work smarter

- Streamline workflows for healthcare workers to focus more on patient care
- Scale assistive equipment and cost-effective technologies to lighten work especially for the ageing workforce

INNOVATION
Partner with industry to develop tomorrow's solutions

- Introduce innovative and patient-centric solutions, and deploy in new hospitals
- Encourage meaningful private sector participation in service delivery through the Primary Care Network scheme for GPs and Build-Own-Lease for Nursing Homes
- Use technology to empower patients in care
- Digitise medical records & connect all healthcare providers

OUTCOMES

BETTER SKILLS, BETTER WORK, BETTER CARE

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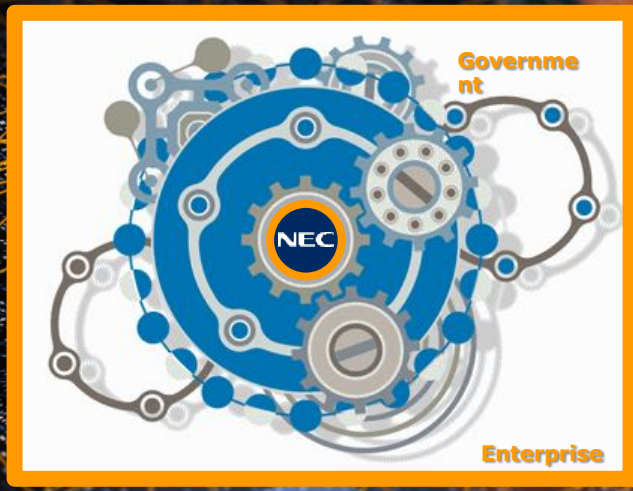
Case-Study: Co-Creation of Healthcare Solutions

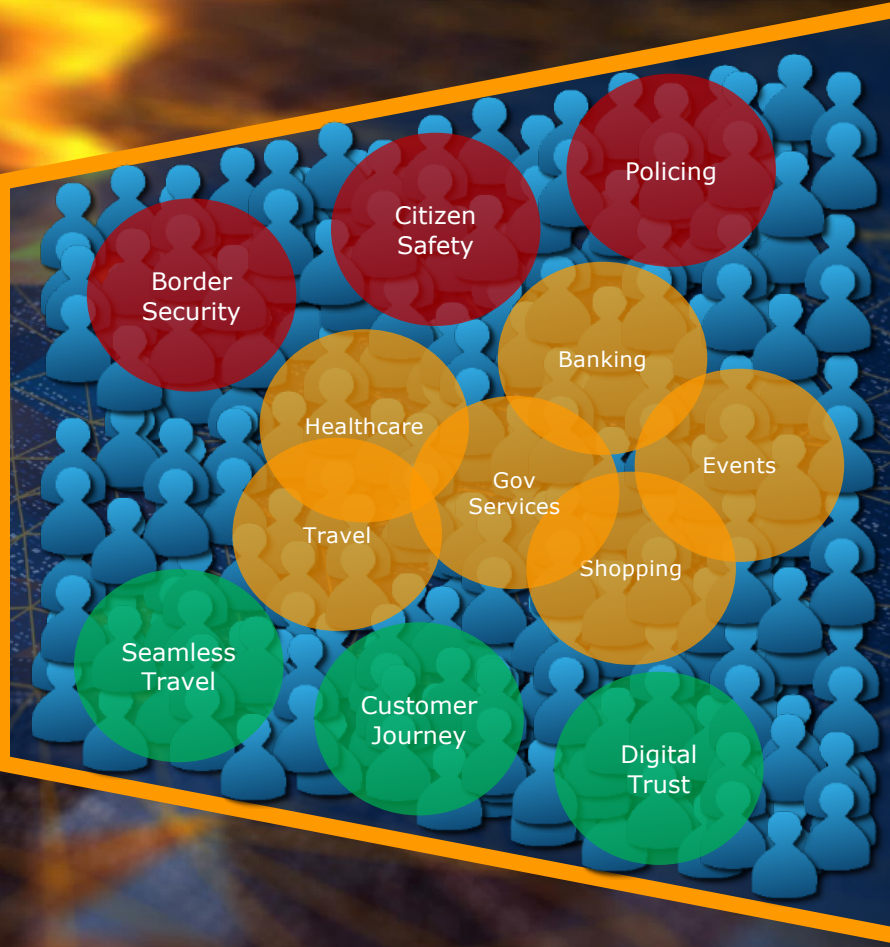
Convergence of DX/CX



Unified Security

Unified Experience

Single Identity



Bringing Safety and Security to Citizens and Businesses

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