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Artificial Intelligence in Enhancing the Efficiency and Accuracy of Health Claims Management in the Era of Digital Transformation

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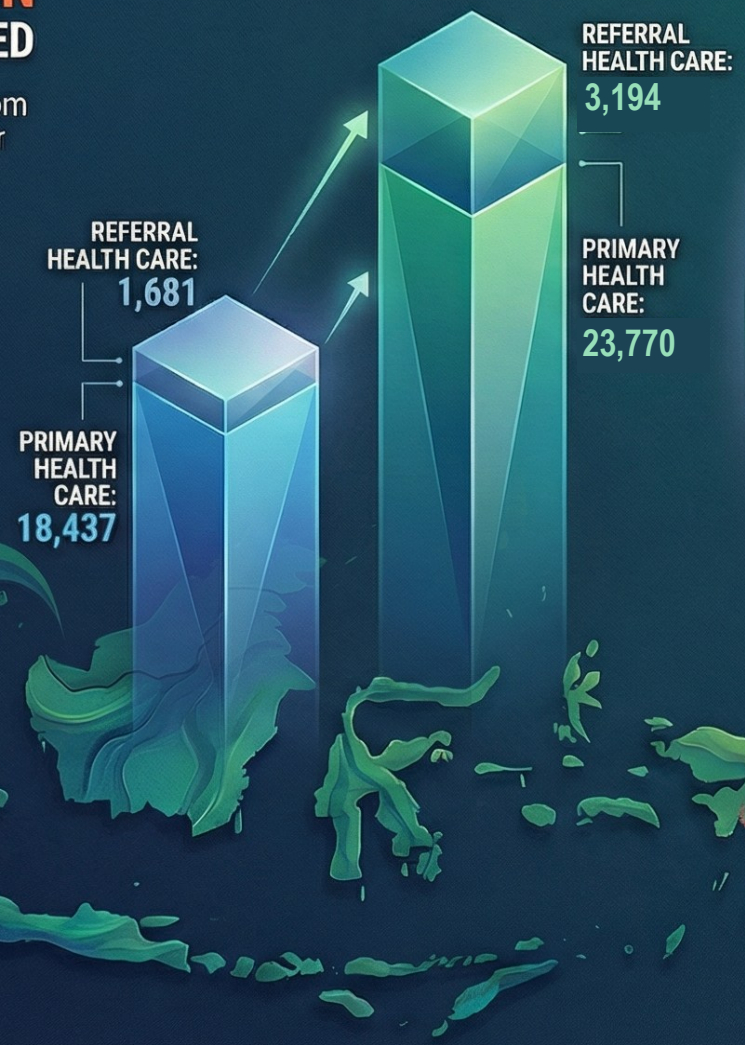
THE GROWTH OF INDONESIA'S NATIONAL HEALTH INSURANCE (JKN)

PROGRAM GROWTH & REACH

285 MILLION
MEMBERS COVERED

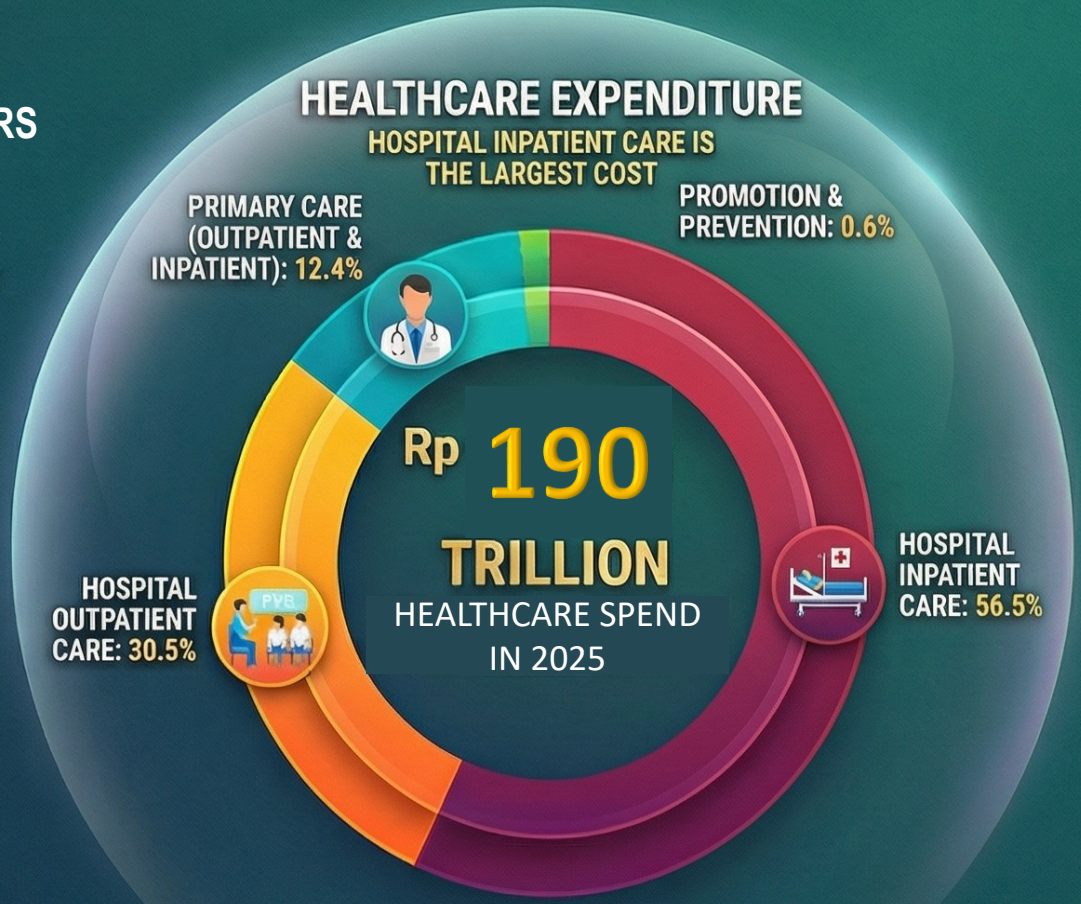
JKN membership grew from 133 million in 2014 to over 285 million by 2025

CONTRACTED HEALTHCARE PROVIDERS 2014 VS 2025



HEALTHCARE EXPENDITURE

HOSPITAL INPATIENT CARE IS THE LARGEST COST



EXPANDING NETWORK OF HEALTHCARE PROVIDERS

The number of partner facilities has steadily increased to improve access to care nationwide.

KEY CHALLENGES

GAPS IN HEALTHCARE ACCESS: 15 DISTRICTS, PRIMARILY IN PAPUA, STILL LACK ACCESS TO REFERRAL HEALTH SERVICES.

DOCTOR-TO-MEMBER RATIO NEEDS IMPROVEMENT: NATIONAL AVERAGE **1 DOCTOR PER 3,448 MEMBERS** (BELOW WHO STANDARD OF 1:1,000)

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The JKN Pyramid of Care: Strengthening Healthcare from the Ground Up

Through Managed Care concept, **Primary Health Care Facilities** is the **gatekeeper** of health services:

a. First contact
b. Quality control and Continous Care
c. Care coordination
d. Comprehensiveness of service

- Law of the Republic of Indonesia No. 40 of 2004
- Presidential Regulation of the Republic of Indonesia No. 59 of 2024 on Health Insurance

Tier 3: Tertiary Care
(Apex of the Pyramid)

Highly specialized sub-specialist treatment with the highest cost and lowest volume.

Tier 2: Secondary Care
(Middle of the Pyramid)

Specialist treatment for more complex conditions, accessible via referral

Patients with stable medical condition must be referred back to primary care for continuous treatment.

Tier 1: Primary Care
(Base of the Pyramid)

The foundation of the system, providing affordable and accessible care for all health needs.

Why Primary Care is the Foundation

Primary Care Acts as the System's "Gatekeeper":
It is the first contact, ccordinating continuous and comprehensive care for patients.

A Hub for Total Wellness:
Services include promotive, preventive, curative, and rehabilitative care.

Strengthening Primary Care is Essential:
This is the key to achieving quality control and cost containment across the entire system.

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Challenges of Indonesia's National Health Insurance Program

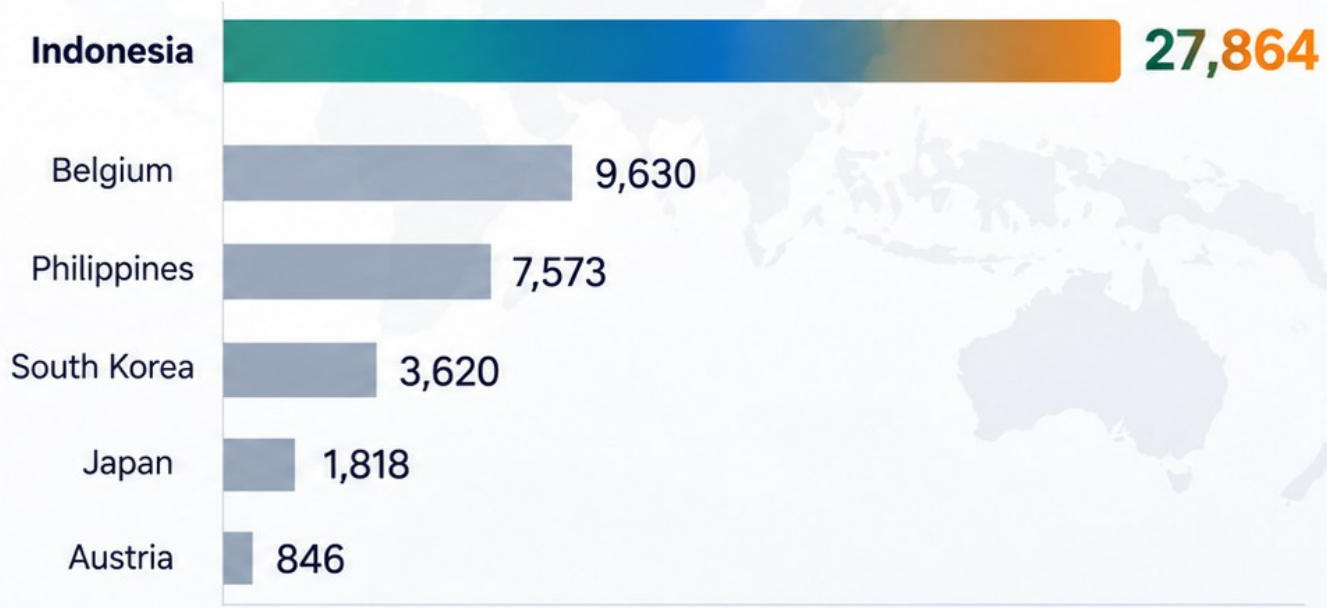
Indonesia serves **282 million** participants with only **10,214** employees—one of the **most challenging** health insurance programs **in the world.**

282,46 Million
Total Participants

10,214
Number of Employees

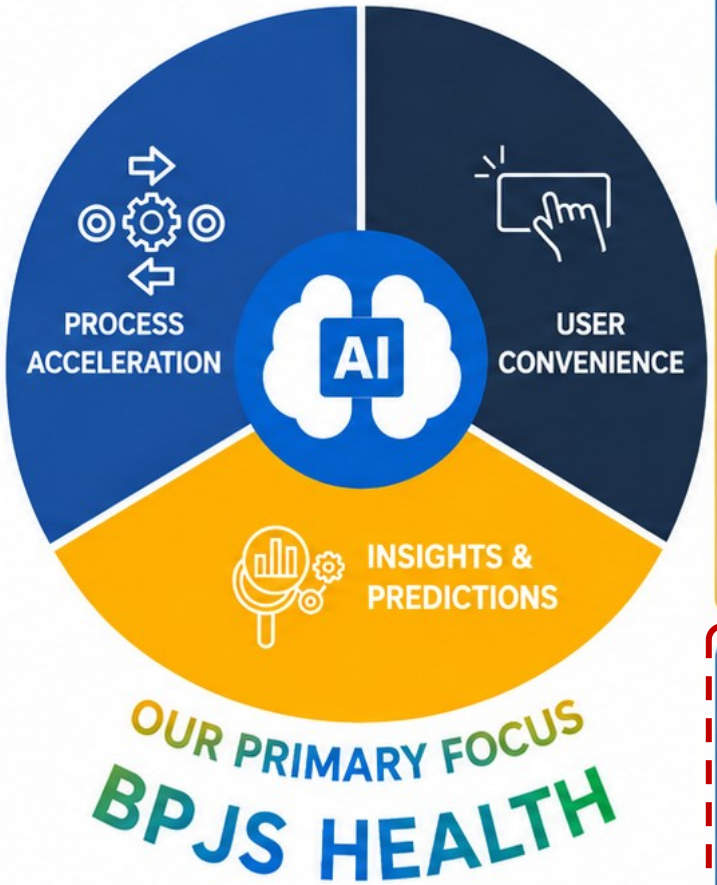
1 : 27,864
Service Load Ratio
(Participants per Employee)

STAFF-TO-POPULATION RATIO COMPARISON (GLOBAL)



Note: Lower ratio indicates higher efficiency *(fewer employees per participant).*

ARTIFICIAL INTELLIGENCE IMPLEMENTATION



USER CONVENIENCE

Optimizing user experience through AI methods, Natural Language Processing (NLP), and specialized tools.

- Smart Content Search (OCR)
- Digital Human AI
- News Personalization
- Sentiment Analytics

INSIGHTS & PREDICTIONS

Identifying patterns, trends, and clusters using Deep Neural Networks and Predictive Analytics.

Clinical & Health Focus

- Detection of Health Data Anomalies
- Prediction of Diabetes & Hypertension
- Prediction of Treatment (Medication)

Financial & Operational Focus

- Prediction of JKN Payment Arrears
- Prediction of Visits & Costs
- Prediction of Claim Anomalies

PROCESS ACCELERATION

Automation and improvement of operational workflows through the implementation of various AI methods.

Process Flow

- Document Verification (Data Portal)
- Data Entry (Pandawa)
- Validation (Face Recognition)
- RPA (Robotic Process Auto.)

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STRENGTHENING HEALTHCARE CLAIM ACCOUNTABILITY

PRE-VERIFICATION AREA

Biometric Validation
Fingerprint & facial recognition scan for FKRTL and FKTP (coming soon).

Digital Validation
Claim submission tool for FKRTL to check compliance from the beginning.

VERIFICATION AREA

AI & Automation
Development of artificial intelligence in document and claim review.

System Logic
Updating logic on the FKRTL Digital Claim Verification Application.

Collaboration & Data
Implementation of Joint Verification and Utilization of Metaphysics.

RETROSPECTIVE AREA

Audit & Review
Post-Claim Verification, Administrative Audit, & Performance Capitation Review.

Utilization Review
Comprehensive evaluation of service utilization.

Warning System
Routine feedback regarding potential claim anomalies via the Health Facility Information Portal.

ACCOUNTABILITY MECHANISM & CHECK AND BALANCE

Trust & Fairness — Not to reduce benefits, but to ensure guarantee compliance.

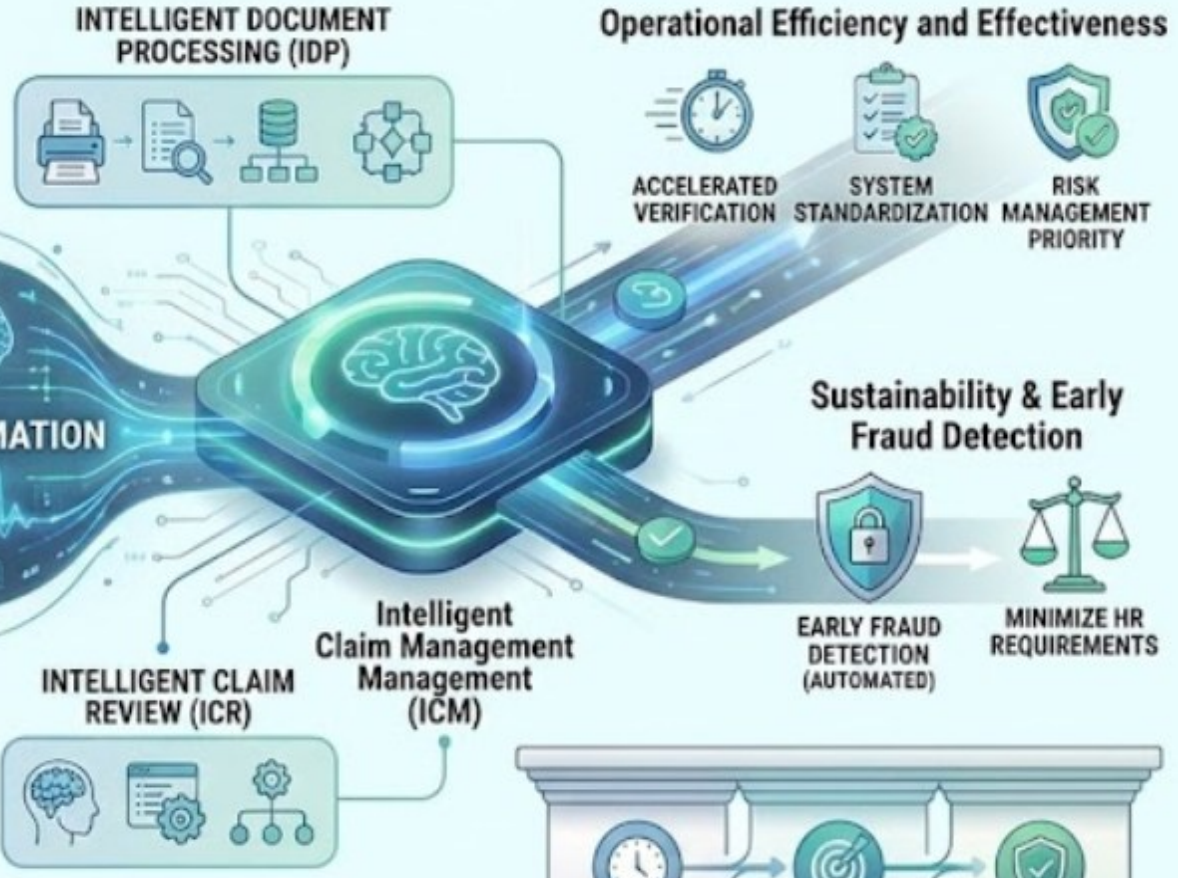
AI-Based Claim Management Transformation: From Manual Processes to Smart Solutions through **Intelligent Claim Management (ICM)**

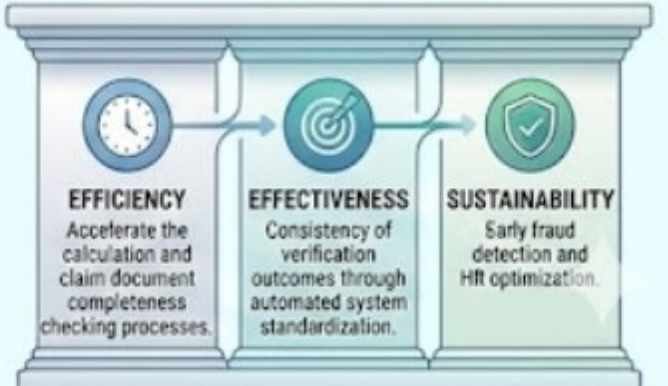
Urgency & Challenges of Current Conditions

Risks of Manual Processes (Clerical Checks)

Growth of Health Facilities vs. HR

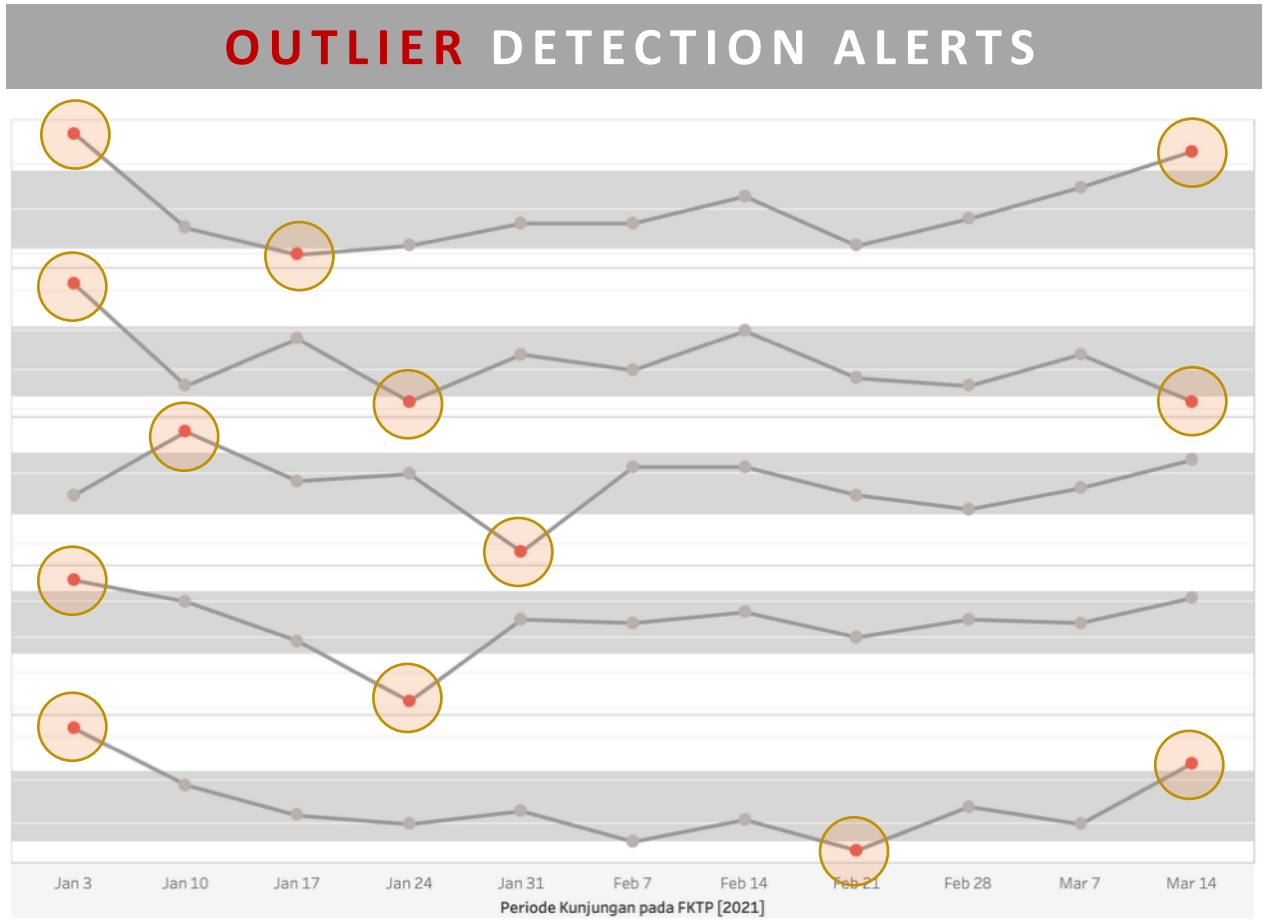
Strategic ICM Solutions & Benefits





AI IN JKN CLAIM DETECTION

Improving the integrity and efficiency of the JKN claims process through AI technology:



01

OUTLIER DETECTION ALERTS

AI studies claim patterns over 3 months to years to detect anomalous data.

02

ANOMALY DETECTION

The system sends an alert to the verification officer when a suspicious claim is detected.
i

03

DEEP INVESTIGATION

Officers conduct claim investigations based on AI recommendations for validation accuracy.

04

BUSINESS PROCESS AUTOMATION

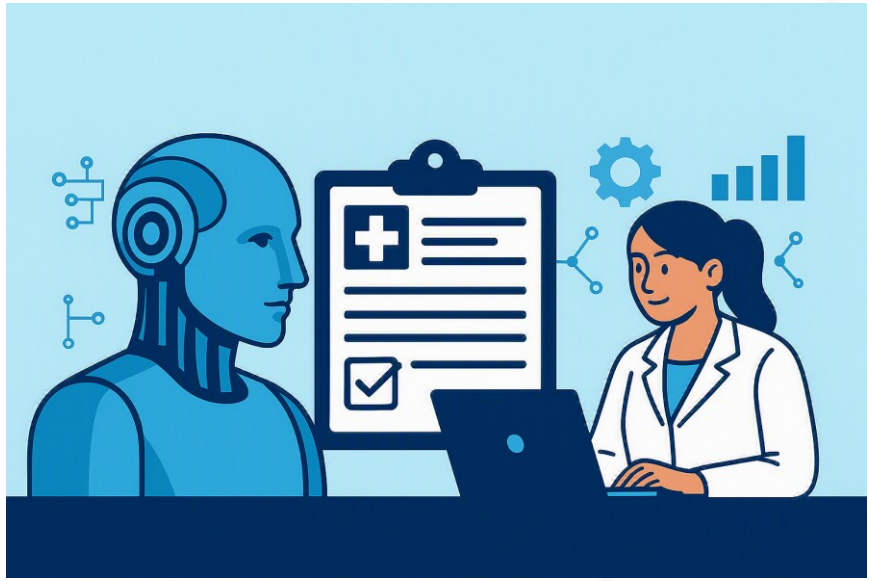
RPA improves operational efficiency in claims verification and payment processes.

05

CONTINUOUS LEARNING

AI will improve the accuracy of claims detection by learning new patterns from historical data and verification officer feedback.

LESSONS LEARNED



- **Data-driven governance strengthens accountability**
  Digital claims management and utilization review are essential to control costs while ensuring provider trust.

- **Technology is used to enhance the efficiency**
  AI adoption into the process hopefully can boost the efficiency of the business process, especially to tackle the fraudulence behaviours

- **Human-AI collaboration empowers the verification workforce**
  The role of verifiers shifts from manual repetitive processors to high-level analytical supervisors, enhancing final decision accuracy

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