



**Percepatan Deteksi Awal Covid-19
dengan Artificial Intelligent (AI) Bidang Radiologi
PERSI | 01 Agustus 2020**

alex.firdaus@global.ntt

Agenda



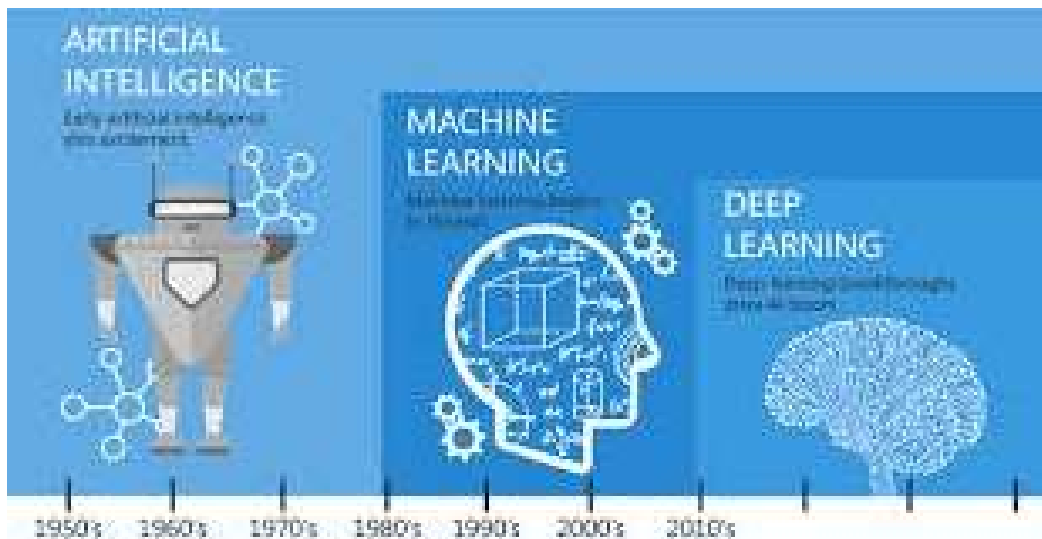
Alex Firdaus



Dr Amit Kharat

- Artificial Intelligent (AI) & aplikasinya di sektor kesehatan
- Solusi AI untuk Radiologi
- Program Penggunaan AI untuk analisa citra medis Covid-19
- Demo Solusi AI untuk Radiologi

Artificial Intelligent (AI) in Healthcare



Artificial Intelligence



Any technique that enables computers to mimic human intelligence. It includes *machine learning*

Machine Learning



A subset of AI that includes techniques that enable machines to improve at tasks with experience. It includes *deep learning*

Deep Learning



A subset of machine learning based on neural networks that permit a machine to train itself to perform a task.

MORE ACCURATE CANCER DIAGNOSIS WITH AI

DIAGNOSING DEADLY BLOOD DISEASES FASTER

AI IN BIOPHARMACEUTICAL DEVELOPMENT

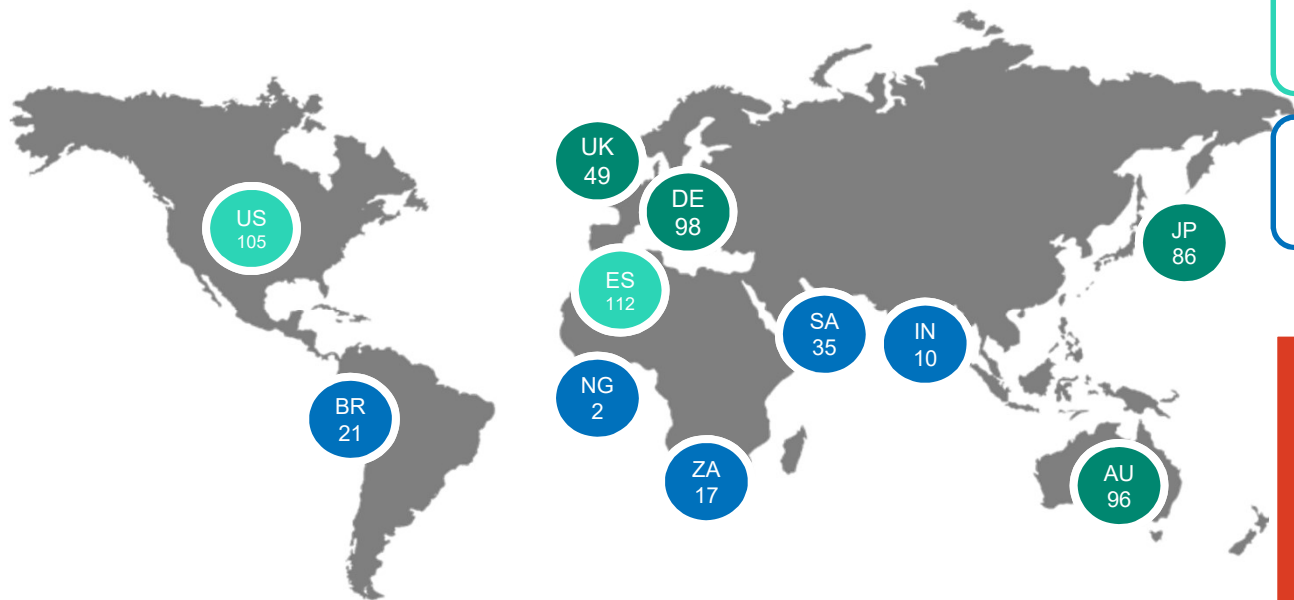
AI-POWERED RADIOLOGY ASSISTANT

AI had "enormous power" to improve care, save lives and ensure doctors had more time to spend with patients

World Issues of Radiologist Shortage

Oversight of Abnormal Diagnosis and Mis-Identification in Diagnostic imaging are becoming Social issues in the world.

Number of Radiologists per Million Population



More than 5,000 examinations/1 Radiologist per year

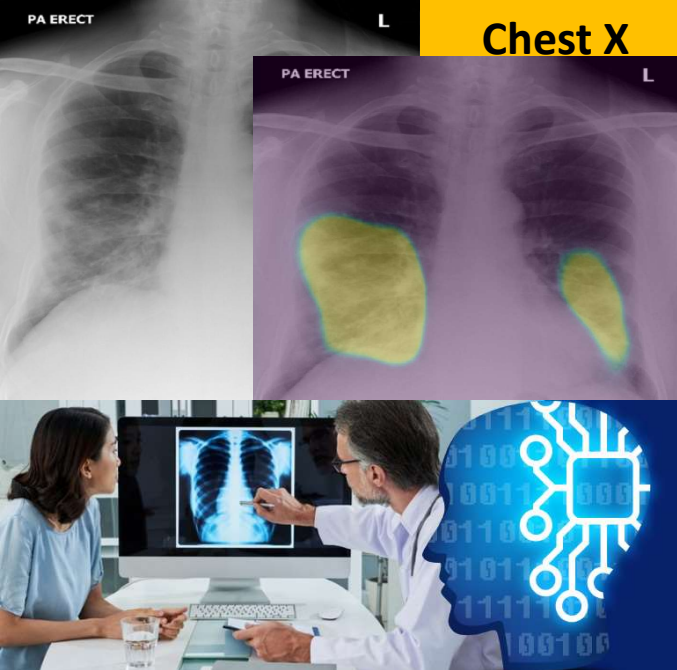
More than 300 images/inspection



- Increasing of medical diagnostic equipment
- Increasing burden of creating diagnostic reports
- Serious shortage of radiologists and Radiologist aggregation in urban areas

「5 Reasons Why Radiology Needs Artificial Intelligence」
<https://www.signifyresearch.net/medical-imaging/5-reasons-why-radiology-needs-artificial-intelligence/>

AI enabled Radiology Platform



Chest X

PA ERECT L

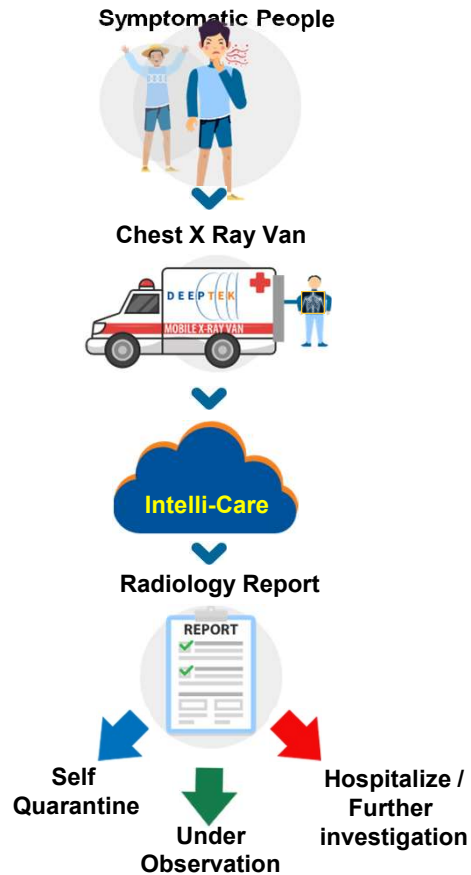
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AI + Expert in the loop
High accuracy, Rapid turn around
& Cost efficiencies

Public & Hospital Screening Tb/Covid-19 like infections
Tele-Radiology Service
Radiology optimization platform

- Speed
- Accuracy
- Cost
- Minimizing exposure
- Scalability
- Guideline

Active Case Finding @ Public Screening



PUBLIC SCREENING AT HOT SPOTS

Targets:

- Public screening programs in hot spots

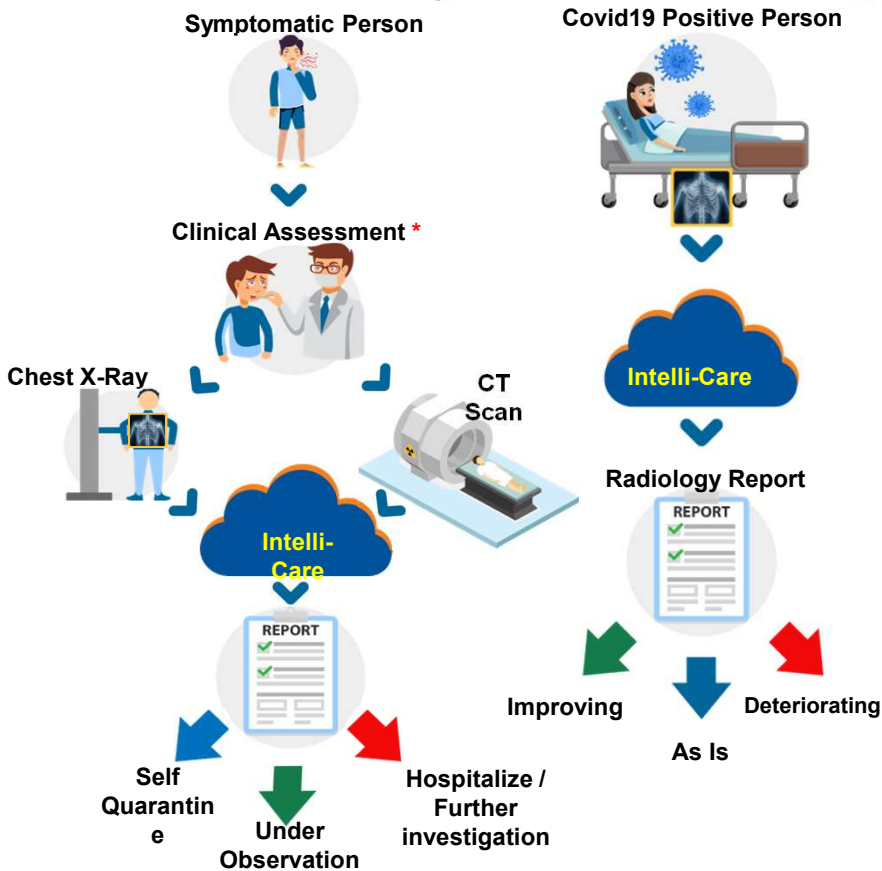
Value:

- Cost effective way of active case finding
- **Comprehensive Reporting:** The report cover all potential findings / impressions – not just COVID19
- **Highly accurate** as the study is processed by AI and is also reviewed and confirmed by a radiologist

Turn Around Time (TAT):

AI results are available in a few milli seconds
Results with radiologist review in 2 hours

Active Case Finding @ Hospitals & Patient Progress Monitoring



ACTIVE CASE FINDING

Targets:

- Government and private hospitals screening for covid19

Value:

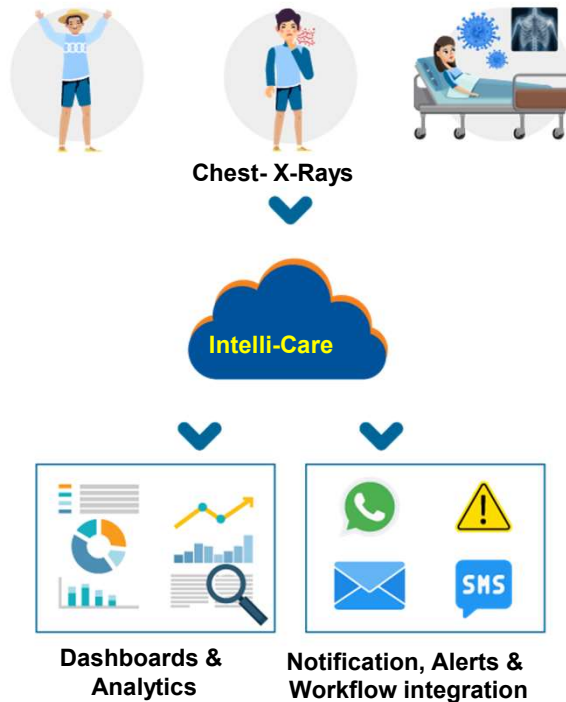
- **Rapid and cost effective:** Biochemical tests are expensive and time-consuming
- **Highly accurate** as the study is processed by AI and is also reviewed and confirmed by a radiologist
- **Optimized workflow:** Swabs for biochemical tests are collected only for AI positive cases

Turn Around Time (TAT):

AI results are available in a few milli seconds
Results with radiologist review in 2 hours

** Guidelines to the use of X Ray / CT Scan differ from region to region. CT scan is more sensitive than X rays – and can detect a lesion much earlier. However CT scanner have risk of getting contaminated and spread infection. Also CT scanning is considerably more expensive. X Rays are easy to clean and disinfect; also they can be taken to patients' doorstep (portable) and are faster and cost effective. Different countries have issued different guidelines regards the use of X ray / CT scan – primarily based on factors like load on the hospital infrastructure, resource availability and risk of contamination and spreading infection. US and several European regions recommend use of X Rays. While Japan, South Korea have recommended use of CT scanning.*

Analytics & Notification



Targets:

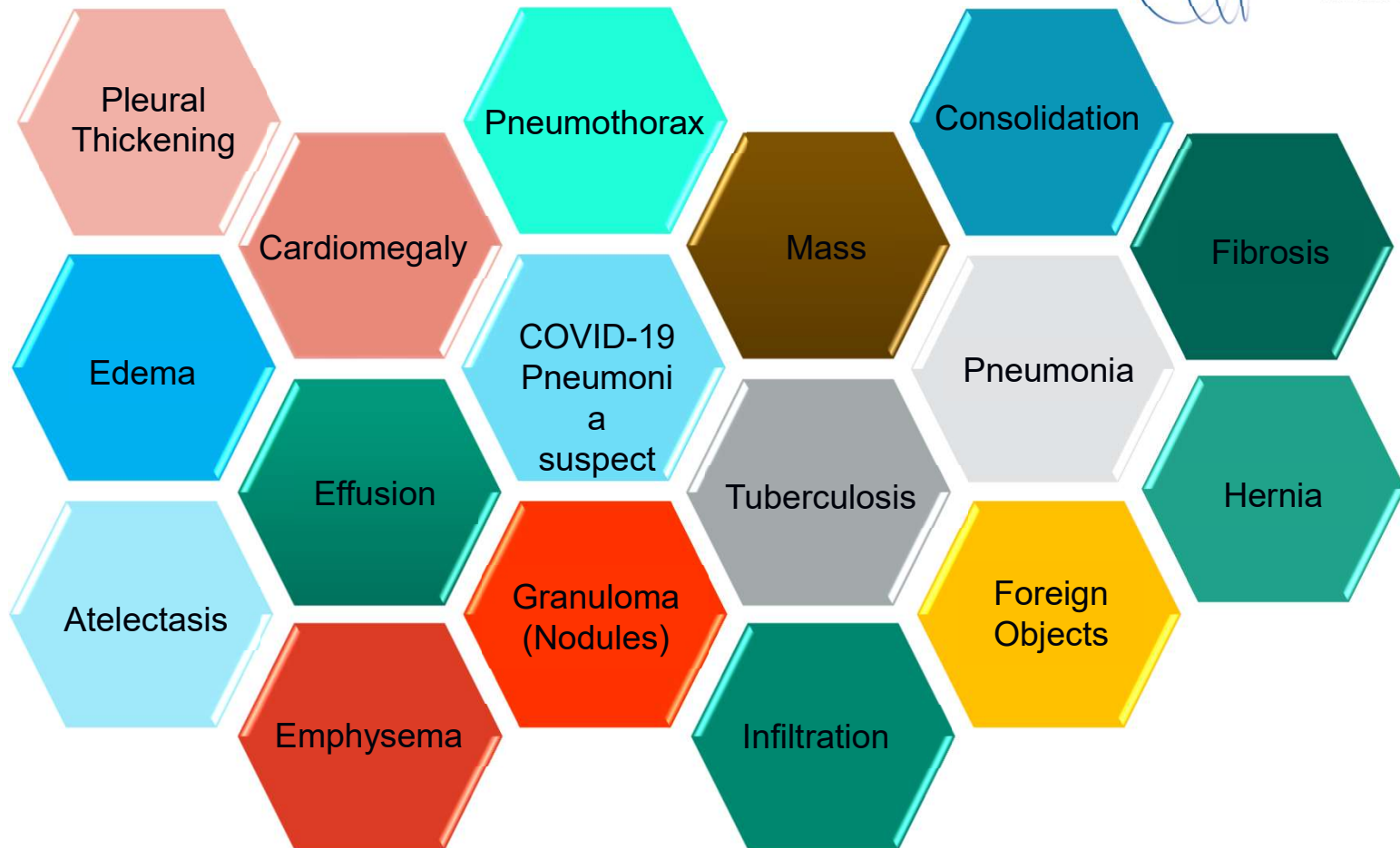
- Government Public health departments
- Hospitals

Value:

- **Dashboard and Analytics:** Age, Gender, Geolocation, Disease progression analytics easy to understand and actionable
- **Alert tracking:** Radiologist can mark studies are alerts – which results into specialized workflow and better patient care
- **Notifications and workflow integration:** to facilitate easy follow-up and ensure timely care and support to patients

Tailored Solution: Solution will be tailored to the needs of the local requirements

Over 17 Pathologies covered in the solution



Capabilities



40+

Hospitals & Medical Imaging
Centers as paying customers



**Chennai,
Malaysia**

Public health screening
10K+ scans monthly



40,000+

Scans processed
every month



**Scaling
Steadily**



**Patents &
Papers**

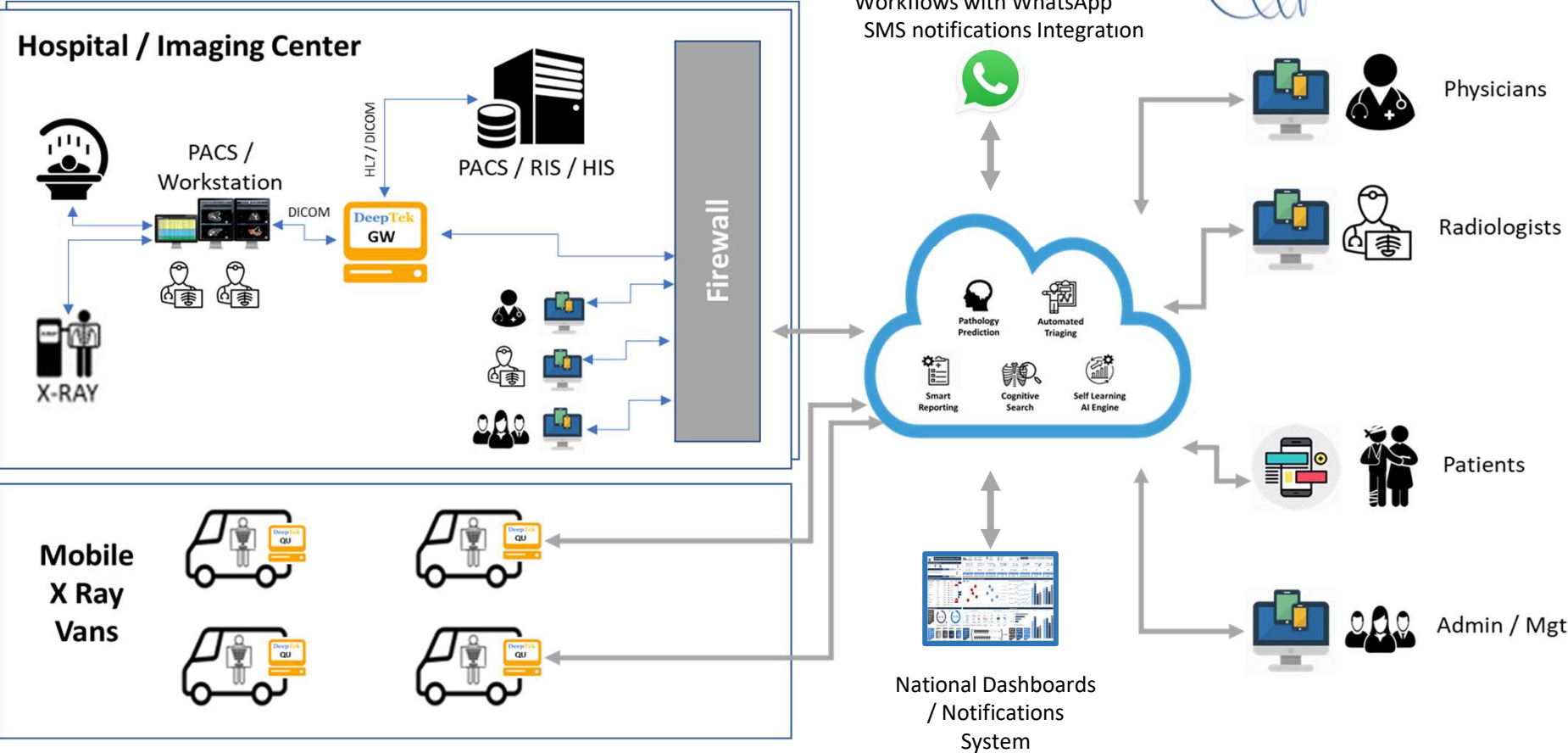


75+ members

20+ Tech
50+ Radiologist

Case Study: Ruby Hall Clinic Hospital, Pune, 750 Bed Hospital Adopts solution for Chest X rays reading| 100 X Rays daily

Solution Overview



Dell Technologies Solutions





Program Penggunaan
Kecerdasan Buatan
menyaring *suspect* COVID-19
Gratis analisa untuk 1000 citra medis

* syarat dan ketentuan berlaku

hubungi: alex.firdaus@global.ntt

DEMO



- Smart Triage
- Smart Reporting 11:47
- Smart Toggle 3:44
- Quick Comparison
- Conflict Alert
- Smart Analytic
- Smart Notification