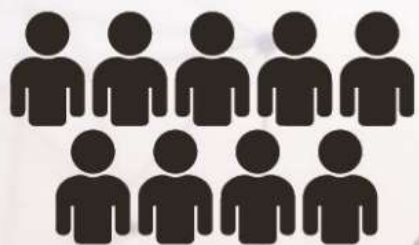


SMART HOSPITAL

โรงพยาบาลสมุทรปราการ
Samutprakan Hospital by Dr. Anuwat
SAMUTPRAKAN HOSPITAL



2.5

M.People



600

Beds



3,200

People/day
800,000 p./year



615

People/day
41,197 p./year

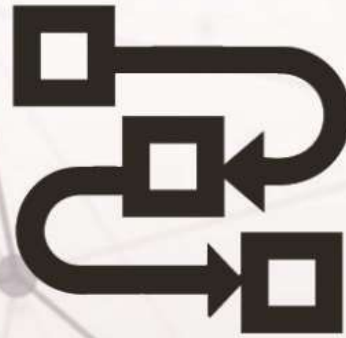




People

Adaptability

Change management:
People & Organization



Process

Quality

LEAN
Queuing Theory
Supply Chain



Program

Technology

Front: HIS & EMR
Back: ERP & e-Office

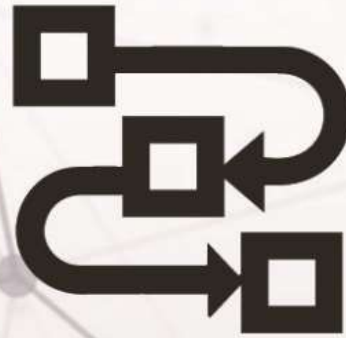




Input

Resources

People, time, money,
equipment, property



Process

Value-based

Networking
Agile management
Decentralization
Strategic management



Output

Patient-centered

Stakeholders
Partners
Sustainability



ROAD MAP

Phase I [55-59] : Transformation

Modernized Hospital

| Change culture & Redesign Service

• HPH Award				
	• Thailand Energy Award			
• Professional Center		• Service Plan		• PCC
• Balancing Productivity				
• Successor & Talent		• Capacity Building: Lean & IT		
• Change People & Organization		• Innovation Culture		
• Provide IT Infrastructure	• Excellent CKD Clinic	• Redesign OPD process	• PPP collaboration	
• HIS HOS x P	• LIS		• Robotic Dispensing	• Redesign IPD Process
• Redesign ER Process	• PACS			
• HA Award				

Phase II [60-62] : Integration

SMART Hospital

| Lean & IT Solution on Health Ecosystem

• GREEN & CLEAN				
		• Smart COC		
• Service Plan				
• PCC				
• Capacity Building: Supply Chain & Health tech				
• PPP collaboration		• Big Data (AI)		
• Paperless OPD	• Hospital Re-accreditation II	• Thailand Lean Award 2019		
• EMR	• E-Office	• Paperless Refer		
• OpenLab for Health-tech Startup	• CPDE & e-form	• SMART Identification Tracking		
	• EMR & PHR on blockchain	• Full PACS		
	• KM [Online] & PMS	• ERP		
		• Chat Bot		

Phase III [>63]: Disruption

Hospital of Future

| Value-based Healthcare Delivery

• Teleconsultation				
• Precision Medicine				
• P4 Medicine : Predictive, Preventive, Participatory and Personalized				
• Full Service Telemedicine				
• E-health Home Healthcare				
• Internal Supply Chain				
• External Supply Chain				
• self check in & self payment				
• AI for CDSS	• AI Triage			
• AI for Non Skill Job	• AI Communication			
• Paperless IPD	• Telemedicine			
• E-charting	• VMI			
• IoT monitoring & EDC				
• Integrated Patient Note				
• NB-IoT Connectivity				
• Big Data for Decision Making				
• Big Data on Health Research				
• Interoperability of Data				
• Smart Health - Wearable Devices				

55

56

57

58

59

60

61

62

63

INTEGRATION

Smart Hospital @ Samutprakan Hospital



**Capacity
Building:
Supply Chain
& Health tech**



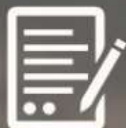
**Paperless
OPD**



**OpenLab for
Health-tech
Startup**



ERP



**CPOE &
e-form**



**EMR & PHR
on blockchain**



**Smart
COC**



**Internal
Supply Chain**



Big Data



**Thailand
Lean Award
2019**



**Paperless
Refer**



**SMART
Identification
Tracking**



**Full
PACS**



**AI
Chat Bot**



AI images

2560

2561

2562

COLLABORATION



Blockchain Ever network



KTB: JUN 2019



Next GOV: 30 Jan 2019



Botnoi: May 2019



 Clicknic



 AIS : 8 APR 2019

Change



“ลีน”
แล้วคุณจะชอบ



Thailand

Lean

Award 2019

26 June 2019



瘦

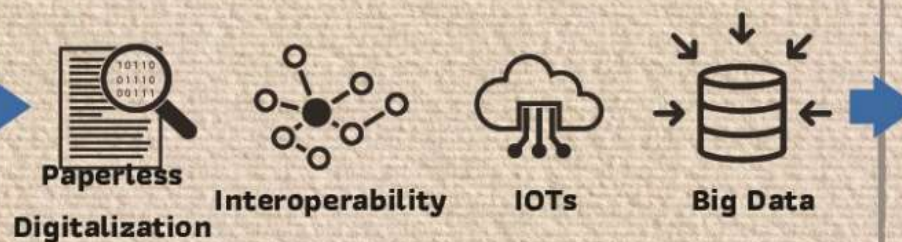
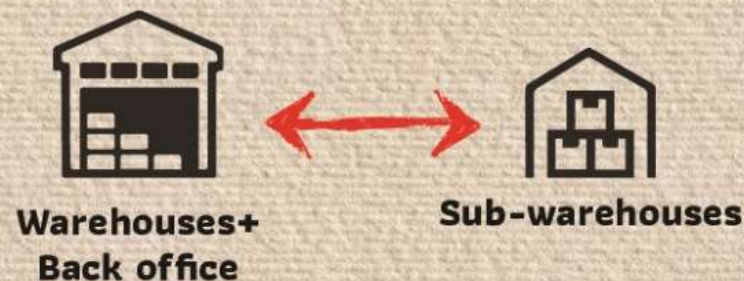
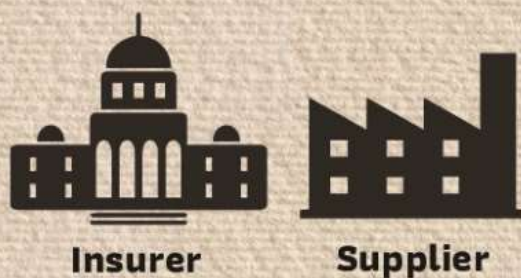
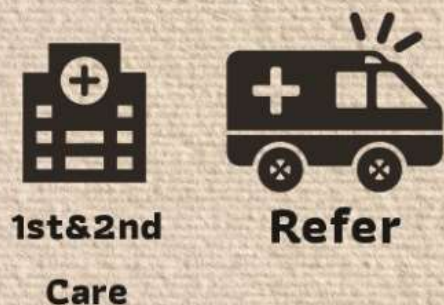
Smart Hospital



Pre-hospital

Hospital

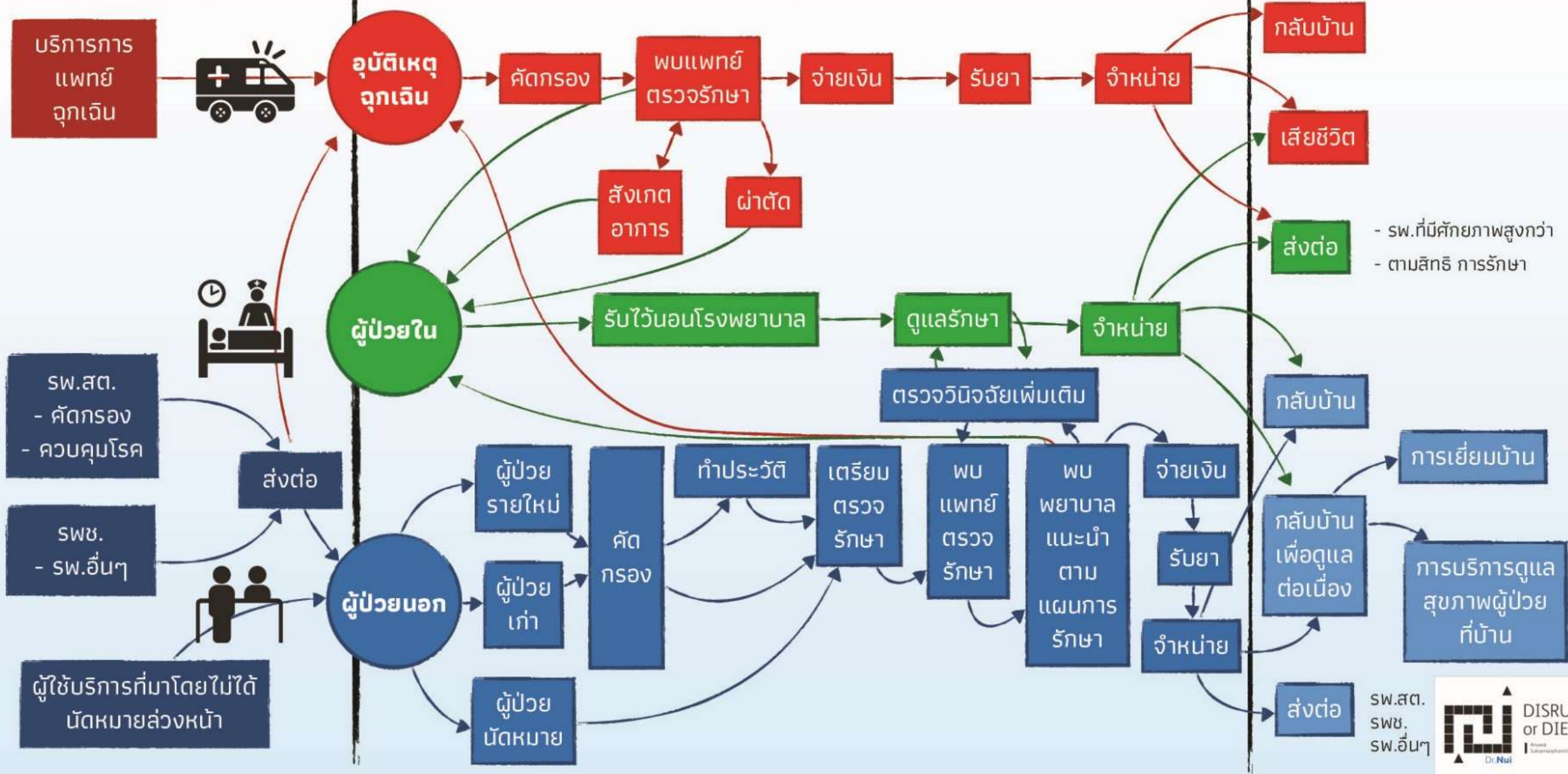
Post-hospital

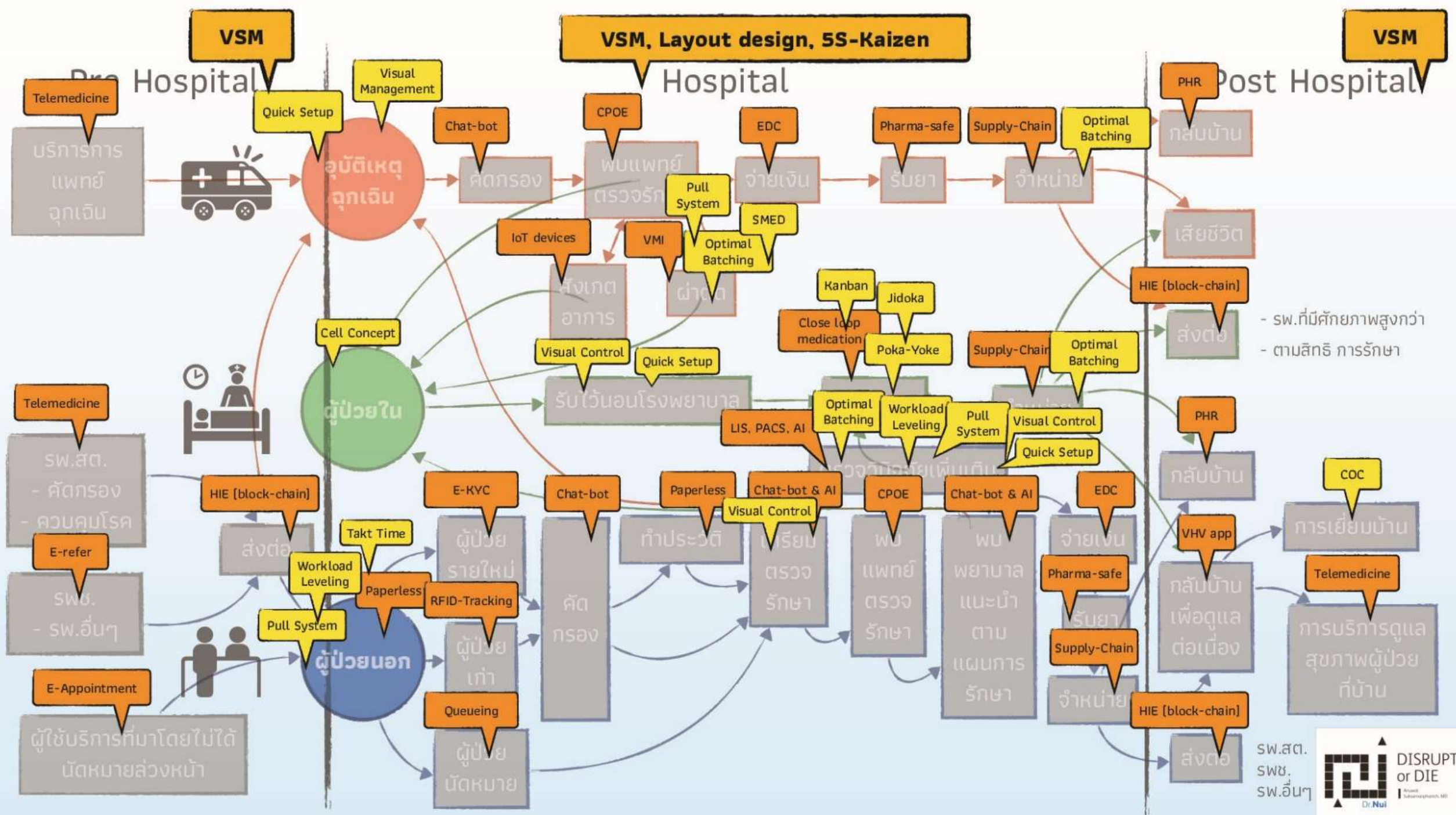


Pre Hospital

Hospital

Post Hospital





VSM



VOC

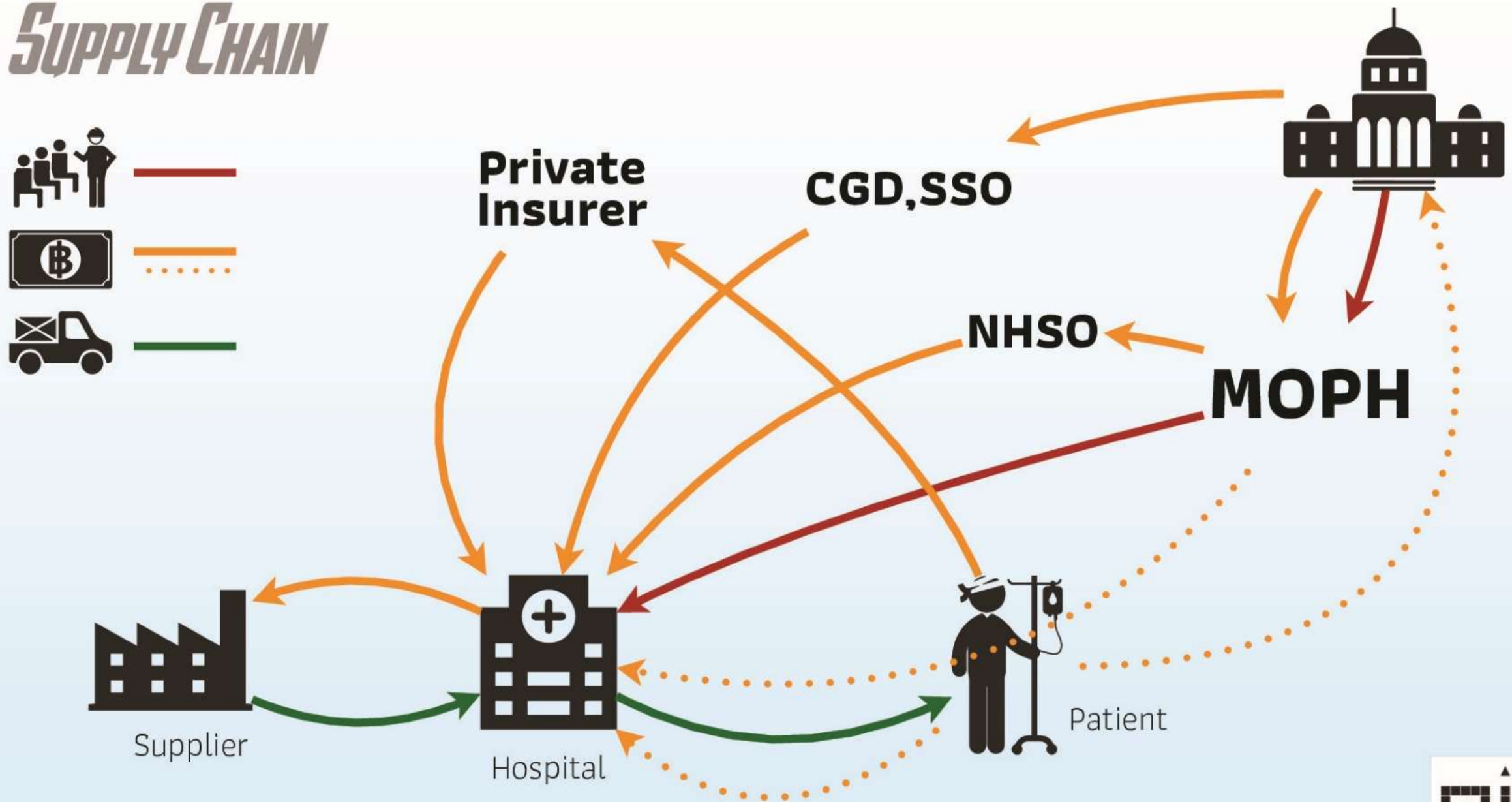
Complete all processes
within 2 Hours

less move

waiting area



SUPPLY CHAIN



SUPPLY CHAIN



Process analysis & improvement

- Dashboard
- Optimization
- ERP

INTERNAL PART



คลังพัสดุ, จำหน่าย,
ศูนย์ผ้า, โภชนาการ

Material Patient & data management

- Forecasting
- layout design



ส่งของ



คลังย่อย
OR, IPD, OPD, ER



ส่งคน



ส่งของ



คลังย่อย
OR, IPD, OPD, ER

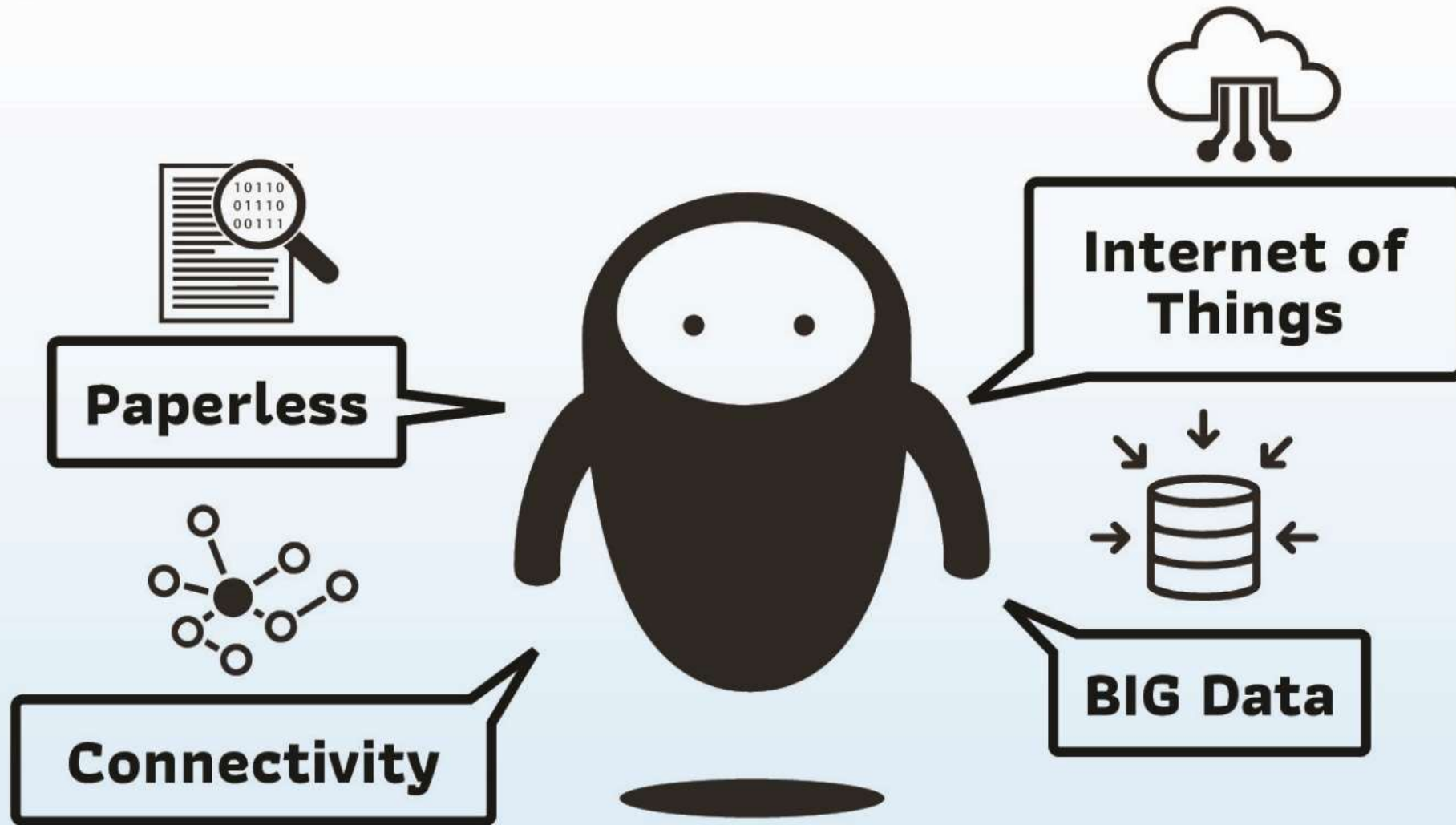
Material, Patient & data flow

- Line balancing
- Scheduling



DISRUPT
or DIE

Dr. Nui





IT Solution

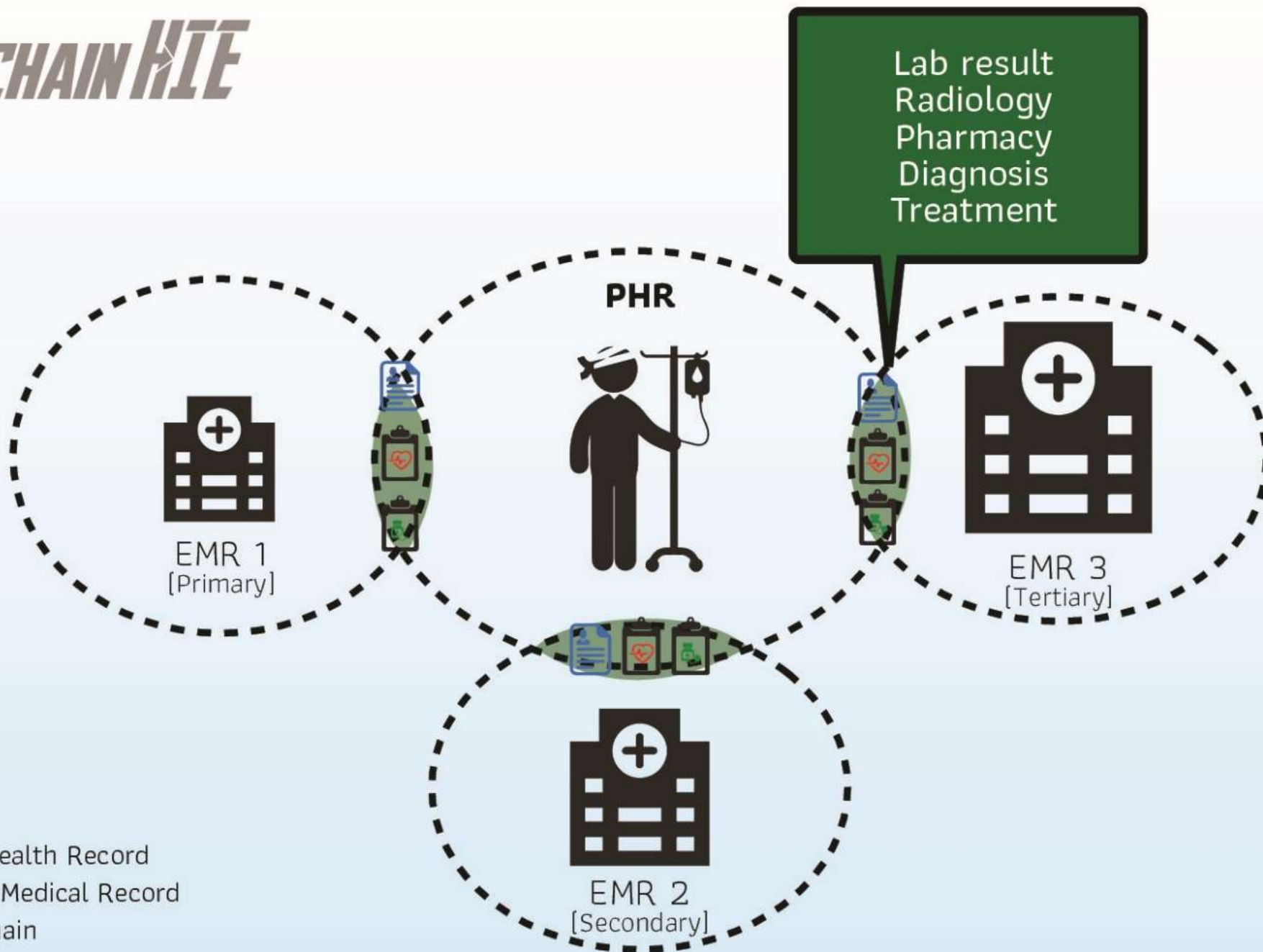


Paperless

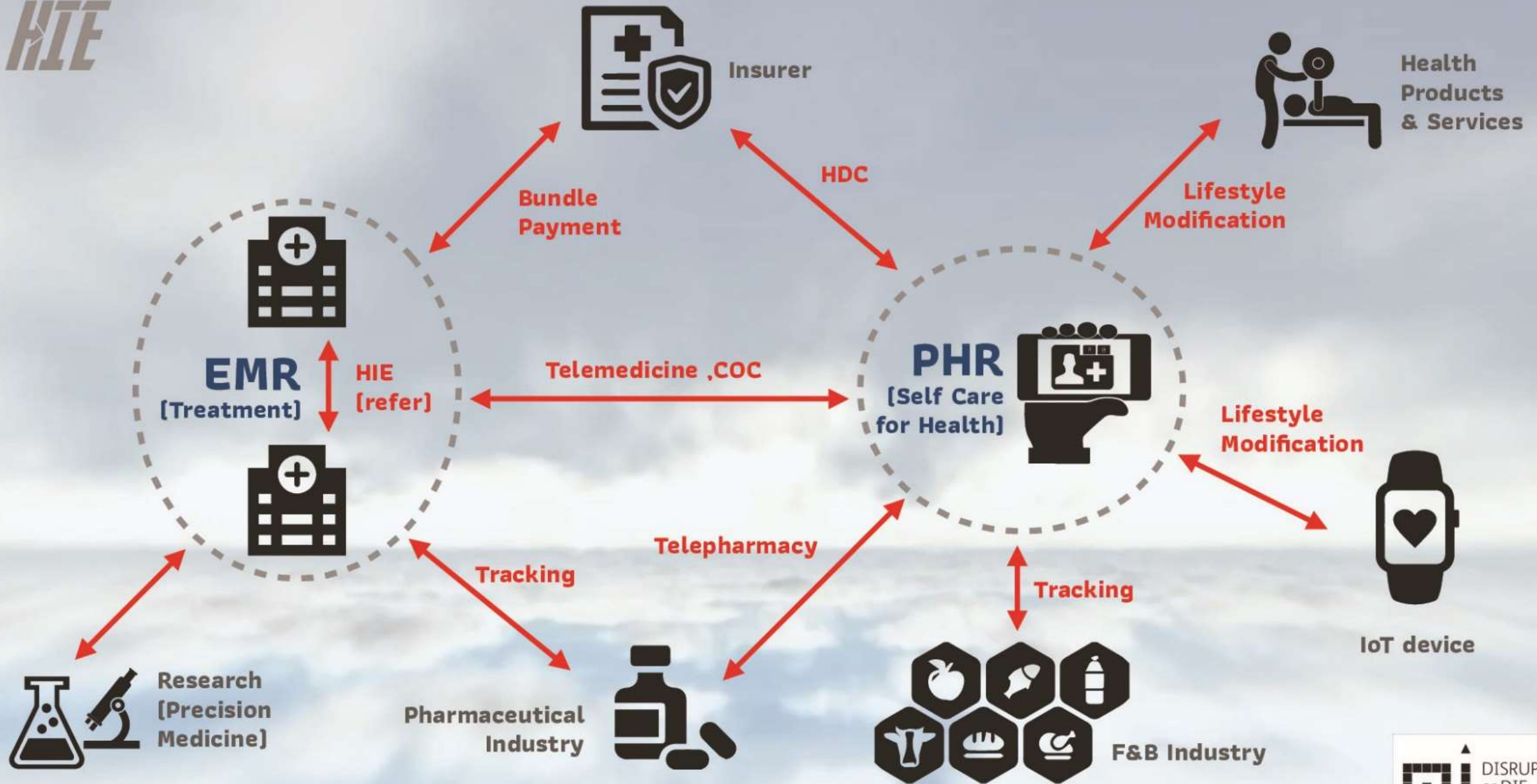


**Internet of
Things**





PHR = Personal Health Record
EMR = Electronic Medical Record
เชื่อมข้อมูล Blockchain



DISRUPTION

Smart Hospital @ Samutprakan Hospital



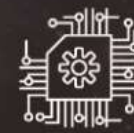
**self check in
& self payment**



**Integrated
Patient
Note**



**NB-IoT
Connectivity**



AI for CDSS



**AI:
Communication**



VMI



**Big Data
for Decision
Making**



**P4 Medicine:
Predictive, Preventive,
Participatory
Personalized**



**Paperless
IPD**



**External
Supply Chain**



**AI for
Non Skill
Job**



**Big Data on
Health Research**



**IoT
monitoring**



Telemedicine

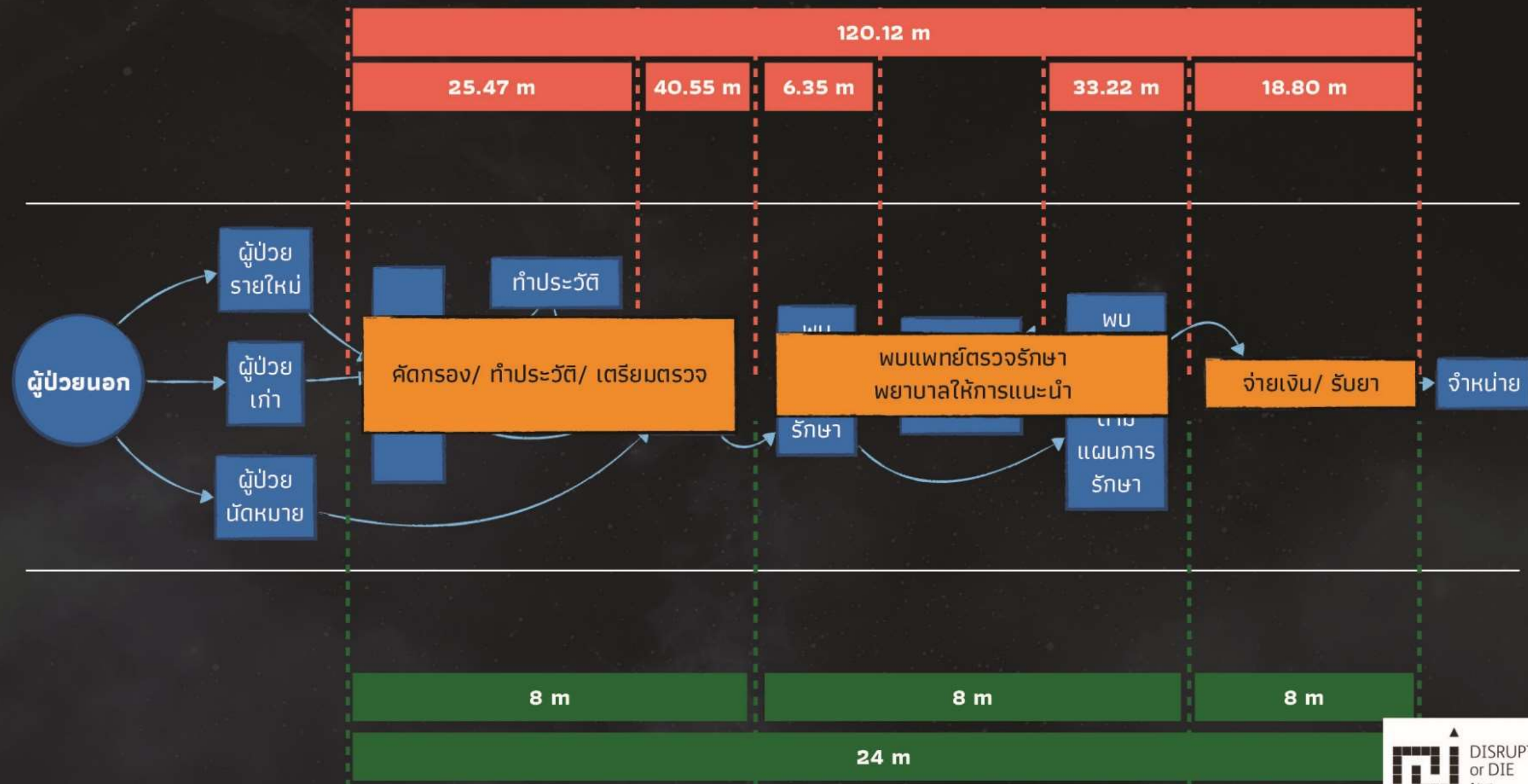


**E-health
Home Healthcare**



**Precision
Medicine**

> 2563



ผู้ป่วยนอก

ผู้ป่วย
รายใหม่

ผู้ป่วย
เก่า

ผู้ป่วย
นัดหมาย



Chat Bot

CPOE



จำหน่าย



8 m

8 m

8 m

24 m



ประชาชนสุขภาพดี

- Paperless+Redesign Workflow
- Lean ขั้นตอนเพื่อลดภาวะแทรกซ้อน
- Service Plan

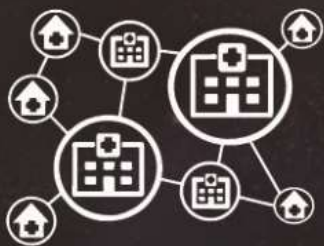
- SLA ~120 min
- ลดลง 10%



เจ้าหน้าที่มีความสุข

- ลดภาระงาน [AI, Chat Bot, Self Check-in]
- ลดความแออัด [PCC, COC, Telemedicine]
- ลดขั้นตอนการทำงาน [Paperless, Lean]
- เพิ่มรายได้ เพื่อเพิ่มความพึงพอใจ [SMC, P4P]

- พัฒนาศักยภาพ อสม
- ลดลง 70%
- HPI 63.54%
- HM 52.80%



ระบบสุขภาพยั่งยืน

- EMR + PHR + Block Chain [Refer-Front, Refer-Back, COC]
- Supply Chain Management [Inventory online, ขนส่งกลาง, ERP]
- Plan FIN
 - เพิ่มรายได้ [Branding, PPP project, Open Lab Innovation, SMC]
 - ลดค่าใช้จ่าย [RDU, Standardized Work]
 - บริการทรัพยากร [ERP, RFID Tracking]

- พัฒนาศักยภาพ SW สต
- Inventory ลด 70% Cash เพิ่ม 30MB ลดการเดิน 50%
- MOU > 20 projects Funding 80M
- +5.4 M/month
- EBITDA, NI, NWC+

...QUEUING SYSTEM...

Samutparkan Hospital
Dr. Anuwat Suksamanphanich

Arrival
rate

Patients



Walk-in



Emergency



Appointment



Service
rate

Doctor

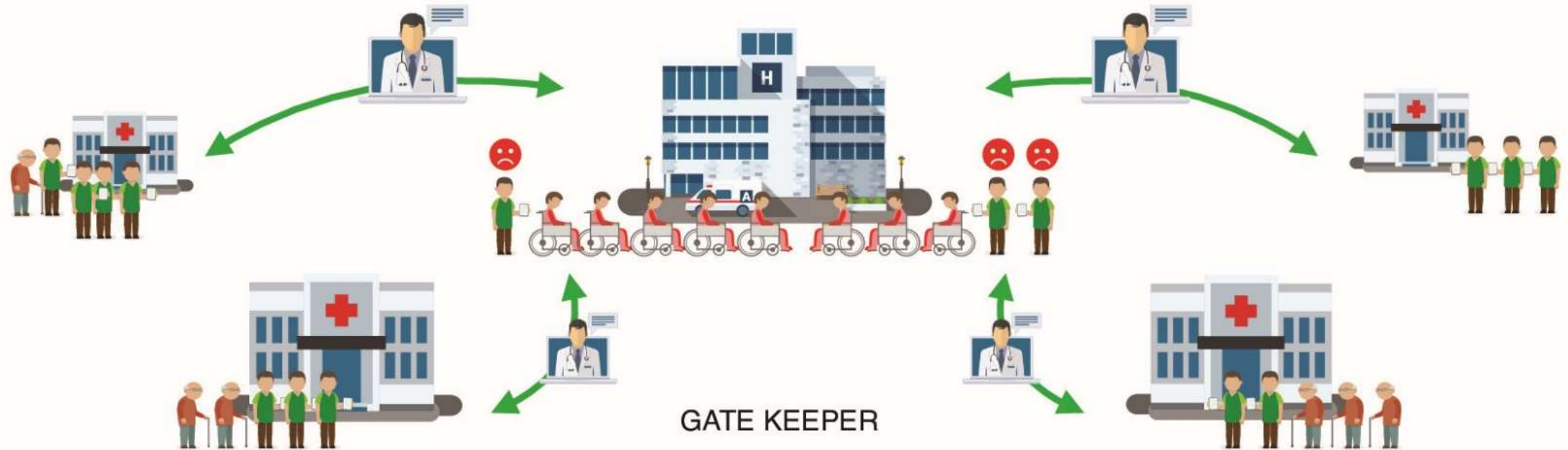
OPTIMIZATION SOLUTIONS

- Decrease demand of peak time
- Classify (appointment, emergency, walk-in) & Prioritize
- Decentralization

- Increase resources: room, station, period
- Interval appointment depend on doctor capacity
- Implement Lean process

... Decentralization...

TELEMEDICINE & SHARING ECONOMY



Queuing System



Consult



Pharmacy



Laboratory



Refer & Billing system



Supply Chain



HIE & EMR



IT infrastructure