

2025 제22차 국제연수과정 NHIS UHC GLOBAL ACADEMY

Illegality & Fraud Information System in NHIS - Fraud Detection -



Department of Healthcare Institution Support,
Kim Hansang



Contents

01. Introduction of NHIS

02. NHIS Big Data

03. Illegality & Fraud Information System

2025 제22차 국제연수과정
NHIS UHC
GLOBAL ACADEMY



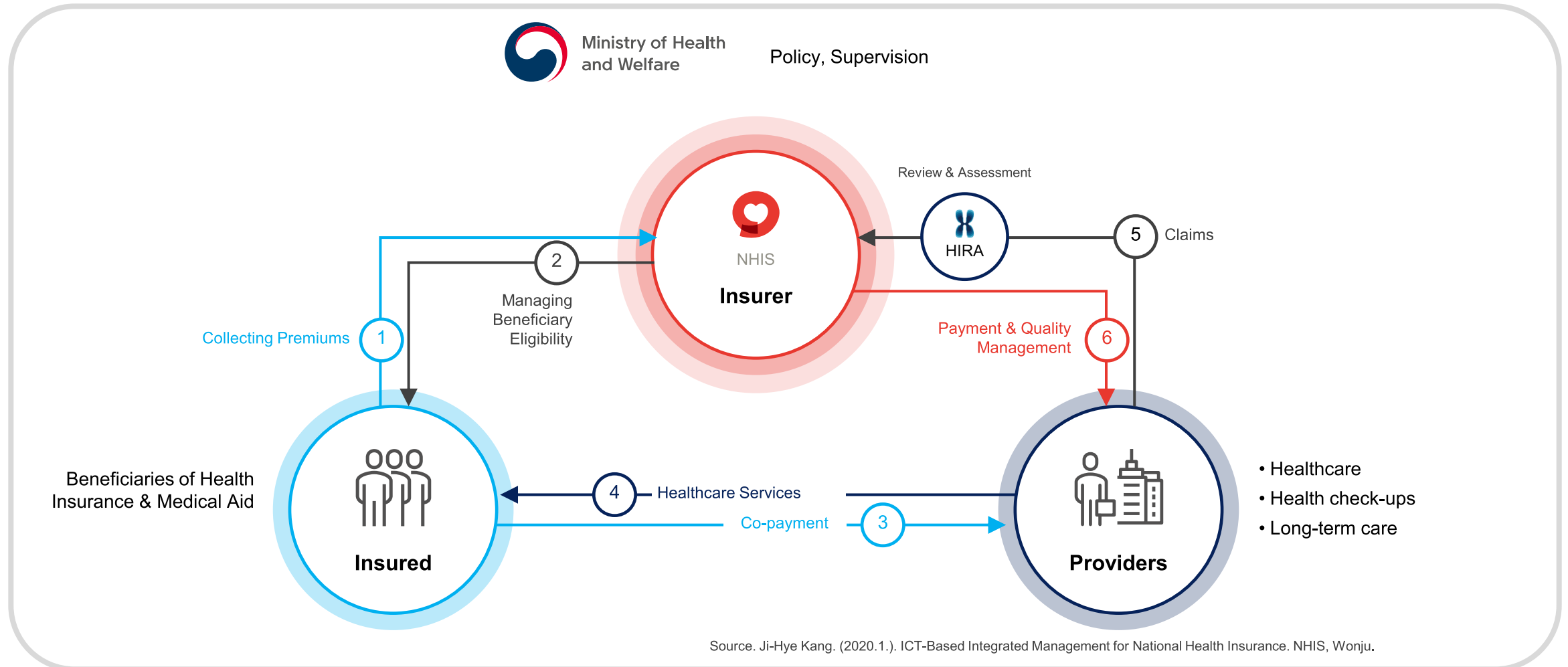
01

Introduction of NHIS



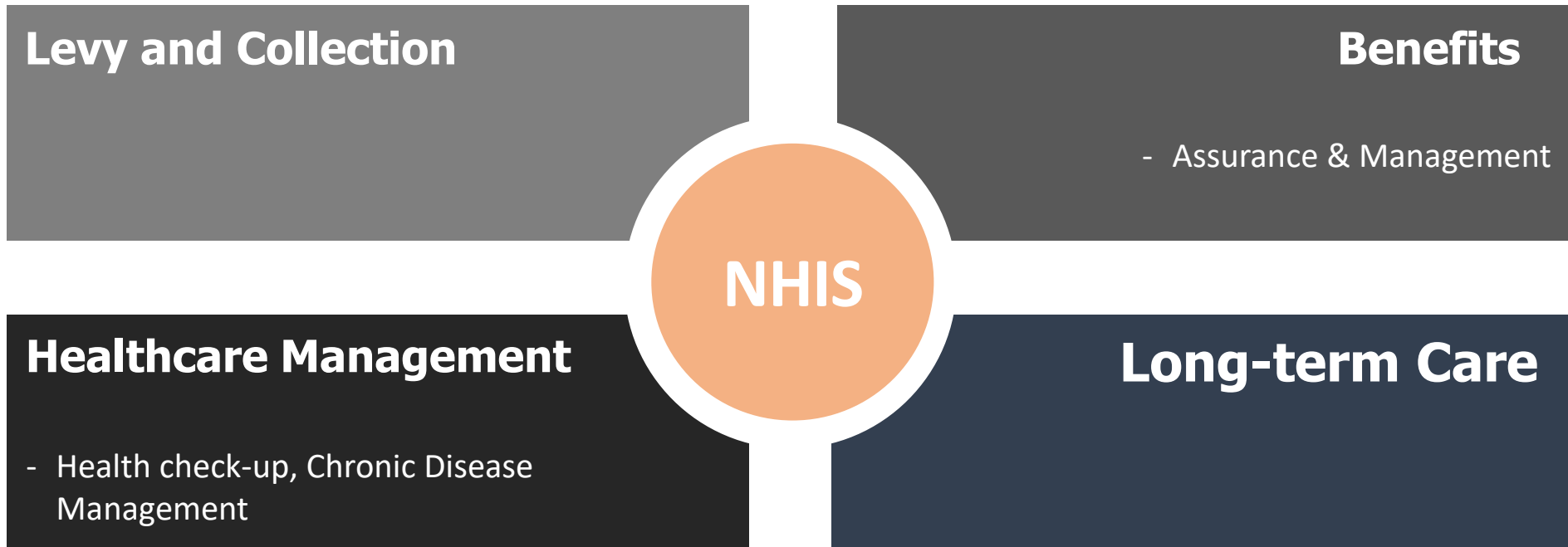
Illegality & Fraud Information System in NHIS - Fraud Detection - Introduction of NHIS

Role of NHIS



Introduction of NHIS

■ Major Functions



2025 제22차 국제연수과정
NHIS UHC
GLOBAL ACADEMY



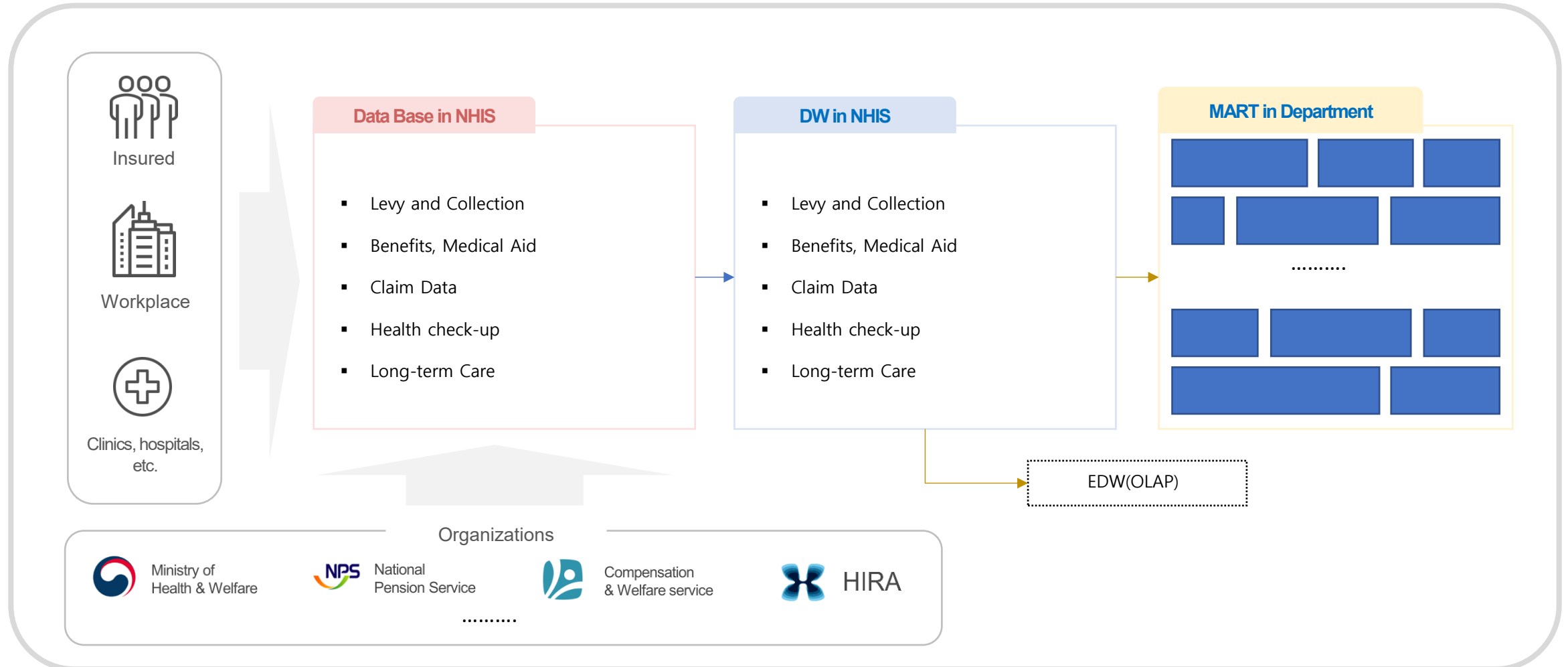
02

NHIS Big Data



NHIS Big Data

■ Data Warehouse(DW) in NHIS



■ Comprehensiveness of NHIS Big Data



Socio-demographic

- Gender, Age, Disability
- Birth, Death
- Residence
- Contributions
- Workplaces



Health check-up

- Smoking, Drinking
- Physical activity
- Disease history
- Mental health
- Check-up results



Treatment history

- Disease classification codes
- Healthcare utilization
- Healthcare expenses
- Treatment details and drugs



Long-term care

- Screening
- Assessment
- Diseases and symptoms
- Benefit types
- Service fees

Source. Ji-Hye Kang. (2020.1.). ICT-Based Integrated Management for National Health Insurance. NHIS, Wonju.

2025 제22차 국제연수과정
NHIS UHC
GLOBAL ACADEMY



03

Illegality & Fraud Information System



Illegality & Fraud Information System

■ Illegal establishment and Fraudulent claims (1/2)

● Fraudulent insurance claims(National Health Insurance Act 57)

The NHIS shall collect all or part of an amount equivalent to the insurance benefits or the insurance benefit costs from a person who has received insurance benefits, a quasi-health care institution, a business entity selling assistive devices, or a health care institution that has received insurance benefit costs by fraud or other improper means.

● Illegal establishment(Medical Service Act 33, 4)

No person, other than any of the following persons, may establish a medical institution ...

(1) A physician, a dentist, an oriental medical doctor, or a midwife, (2) The State or a local government, (3) A corporation established for the purpose of rendering medical services (hereinafter referred to as "medical corporation"), (4) A nonprofit corporation established pursuant to the Civil Act or any special Act, (5) A quasi-government agency prescribed in the Act on the Management of Public Institutions, a local medical center prescribed in the Act on the Establishment and Management of Local Medical Centers or the Korea Veterans Health Service prescribed in the Korea Veterans Health Service Act

Illegality & Fraud Information System

■ Illegal establishment and Fraudulent claims (2/2)

● Illegal establishment(Medical Service Act 33, 4)

No medical personnel referred to in paragraph (2) 1 shall establish nor operate at least two medical institutions under any pretext: Provided, That where a person with at least two medical licenses intends to establish a clinic-level medical institution, he or she may open medical institutions together at one location only by type of his or her licenses.

No medical corporation, etc. that has established and operates a medical institution shall lend the name of the corporation to a third party.
No person shall borrow a license granted pursuant to Articles 5 through 7 nor arrange the borrowing of such license.

● Illegal establishment(Pharmaceutical Affairs Act 20, 21, 6)

No person, other than a pharmacist or oriental medicine pharmacist, shall establish a pharmacy.

A pharmacist or oriental medicine pharmacist may establish only one pharmacy.

If a license referred to in paragraph (1) has been lost or damaged or the matters stated therein have been modified, a new license may be issued in lieu thereof.

Illegality & Fraud Information System

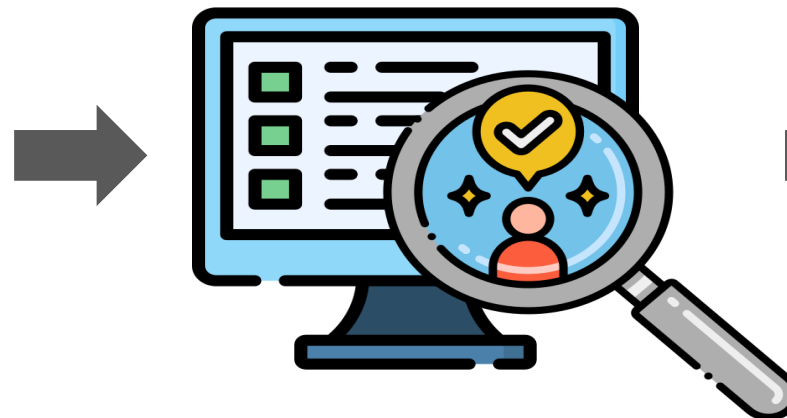
Overview of the System: Definition

- A system that detects healthcare facilities with a high likelihood of fraudulent claims and illegal establishment, utilizing NHIS's diverse big data-based analysis techniques.
- It provides efficient and proactive support for investigations into fraudulent claims and illegal establishments.

Determine the scope of investigation



Select investigation targets



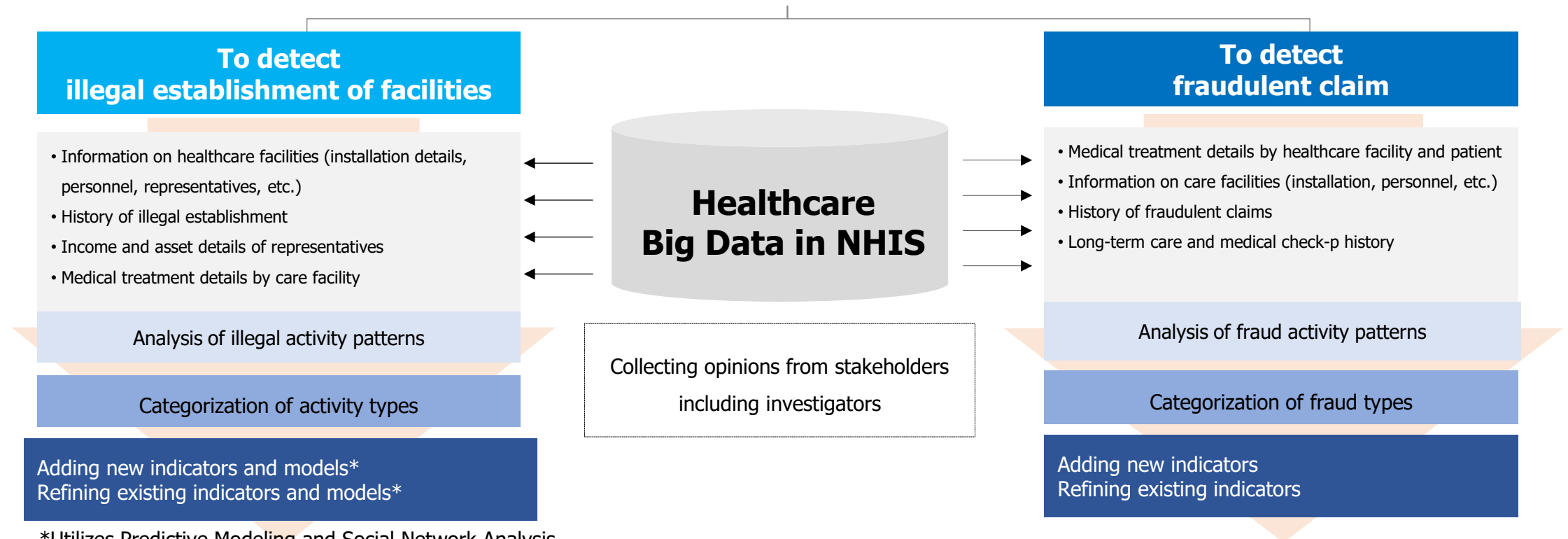
Provide detailed information on investigation targets



Illegality & Fraud Information System

Overview of the System: Architecture

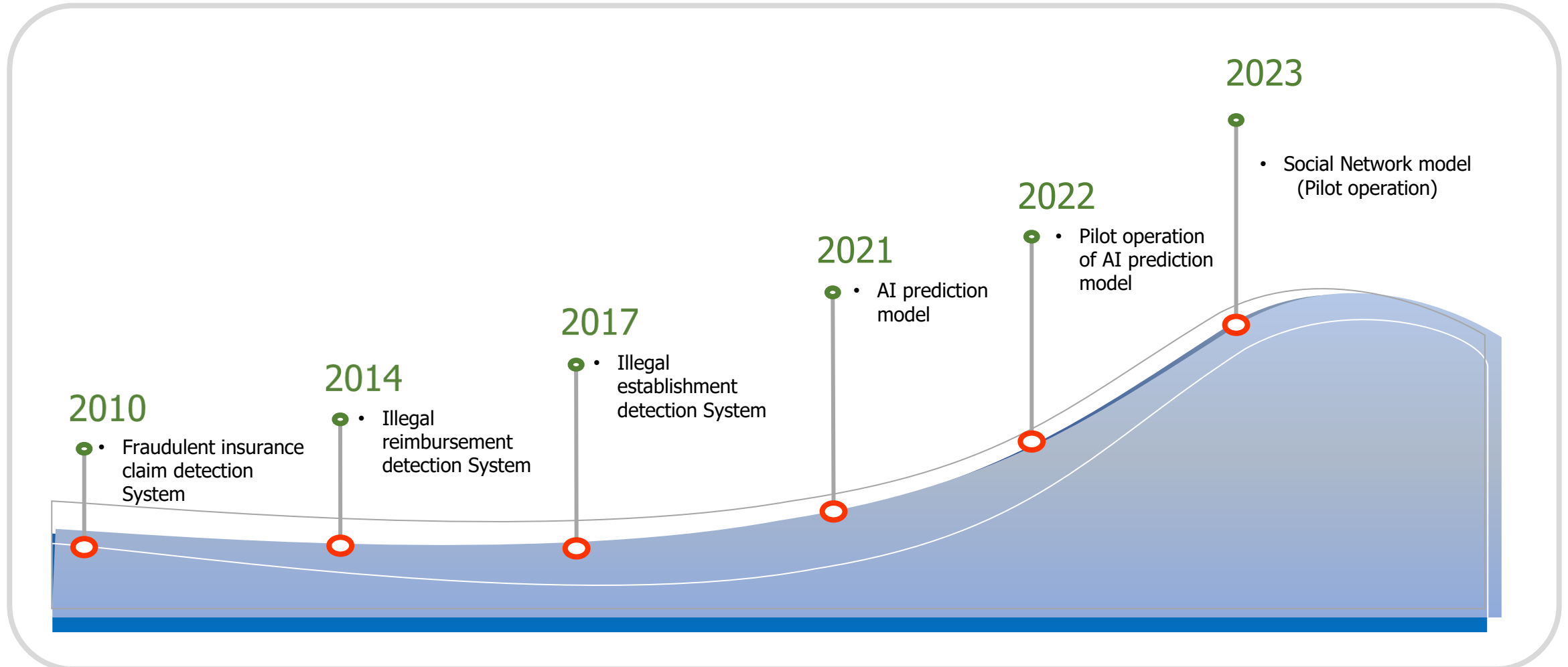
ICT System for detecting illegal establishments and fraudulent Claims



*Utilizes Predictive Modeling and Social Network Analysis

Illegality & Fraud Information System

Overview of the System: Brief History



Illegality & Fraud Information System

■ Operation Process

1



▶ Determine the scope of investigation

- Indicators, NHIS Big data

2



▶ Choose investigation targets

- Detailed information, NHIS Big data, real-estate registration, internet search information, etc.

3



Finalize on-site investigation targets

- Review Committee

4



▶ Detailed review before on-site investigation

5

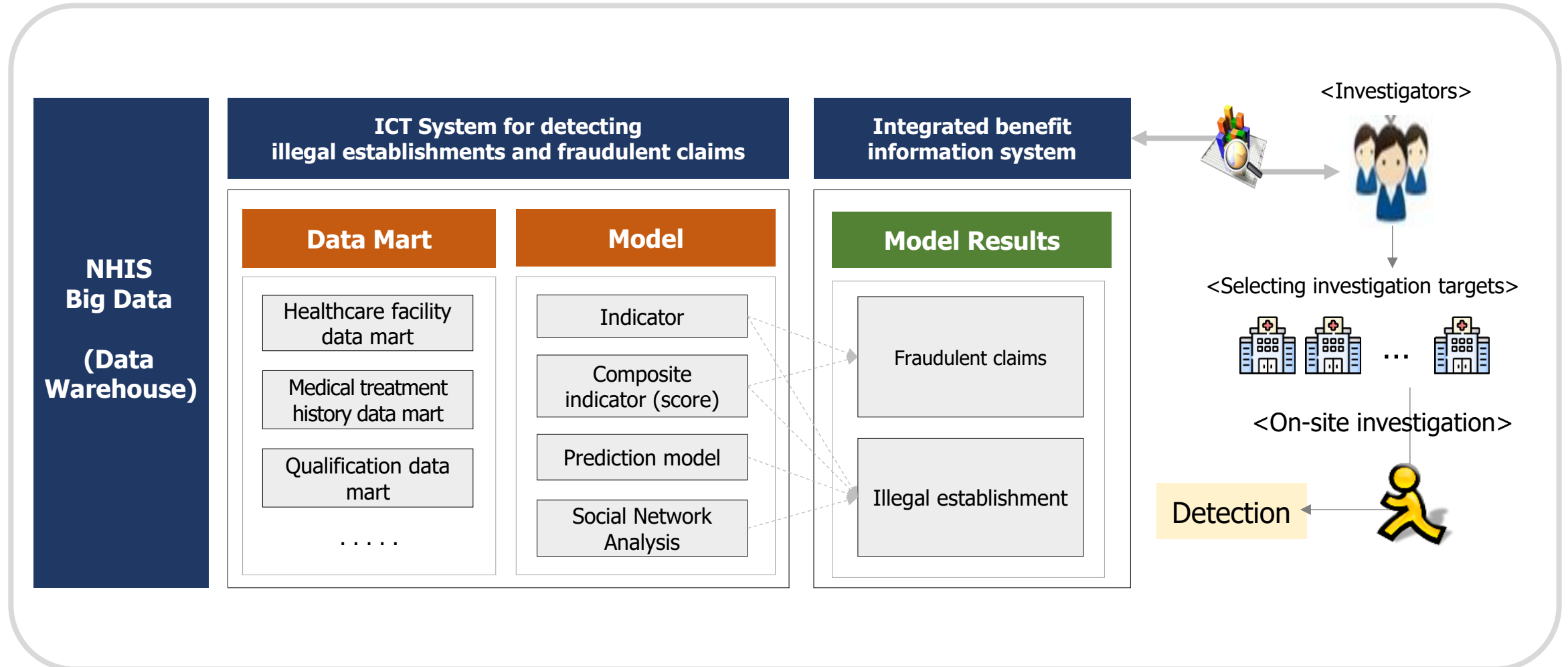
▶ On-site Investigation

- Collecting documents and materials from facilities including hospitals, pharmacies



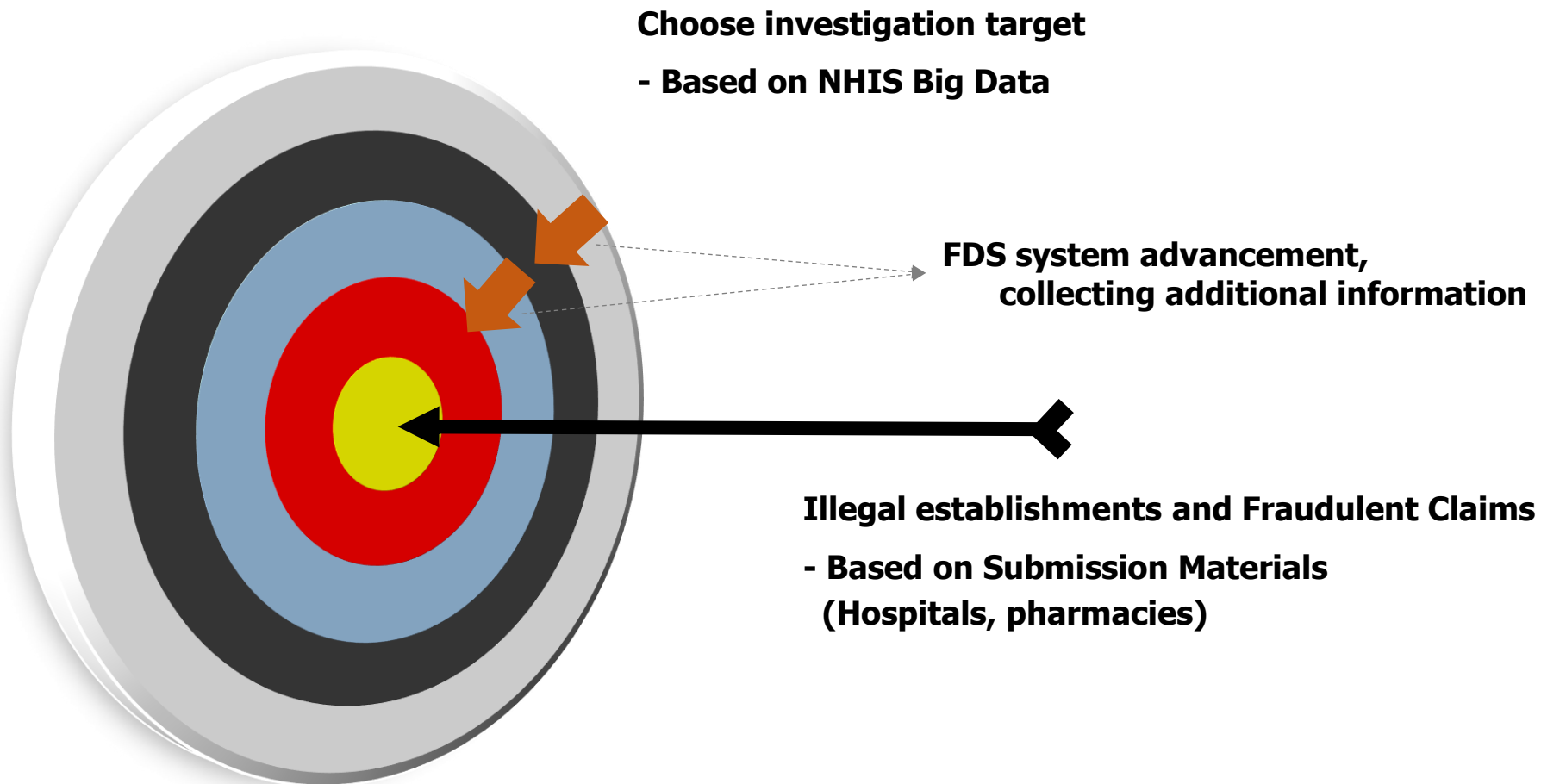
Illegality & Fraud Information System

Operation Process



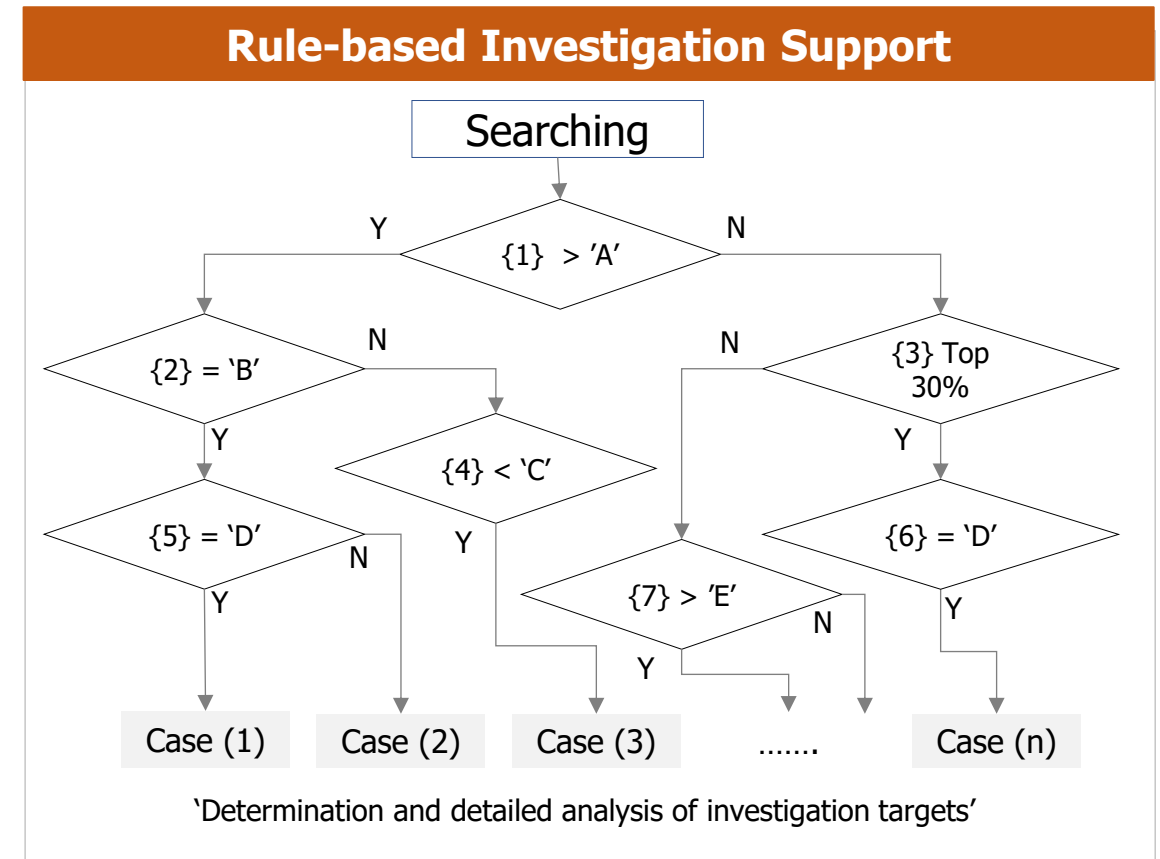
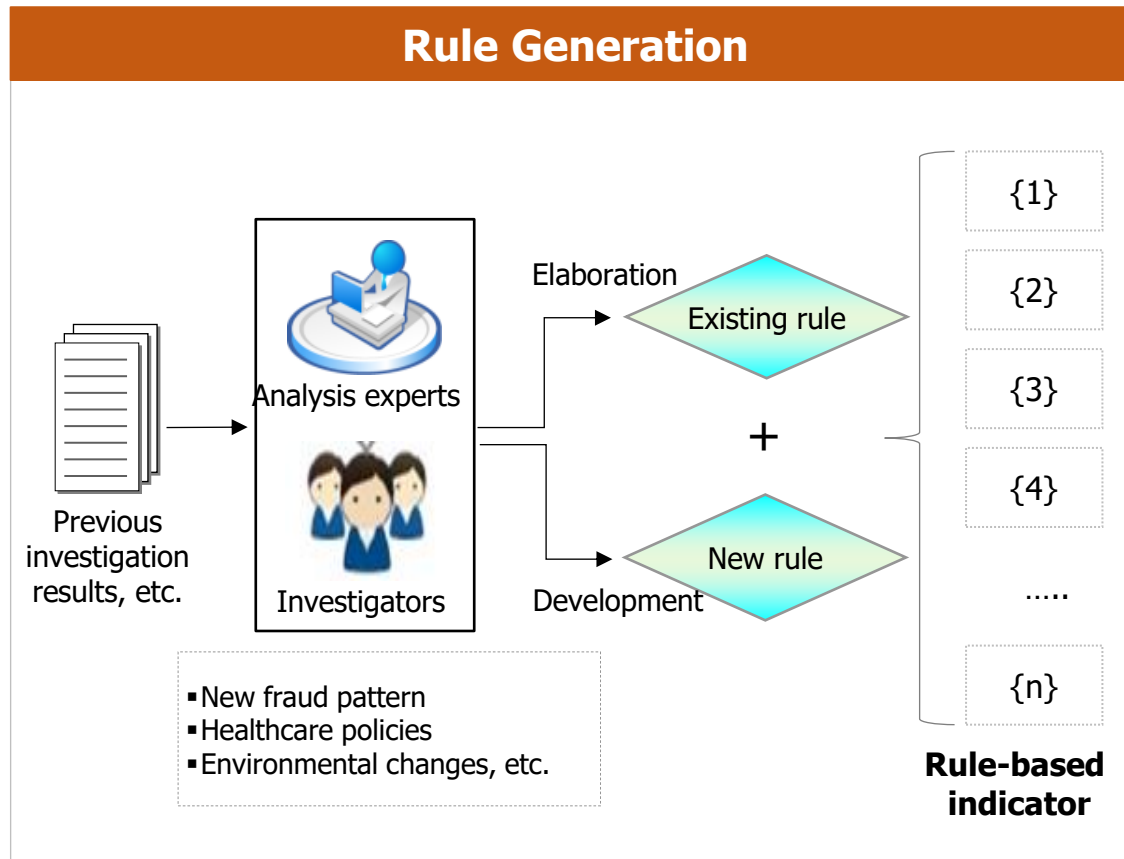
Illegality & Fraud Information System

■ Structural Boundaries



Illegality & Fraud Information System

Tools and Techniques: Rule-based Algorithm



Illegality & Fraud Information System

Tools and Techniques: Rule-based Algorithm Sample

Fraudulent claim detection indicator (Example)

[1] Outpatient treatment numbers for outside of patient's residential area

Illustrative



Abnormal Situation

Distance 500km

Large number of
treatment records
for reimbursement

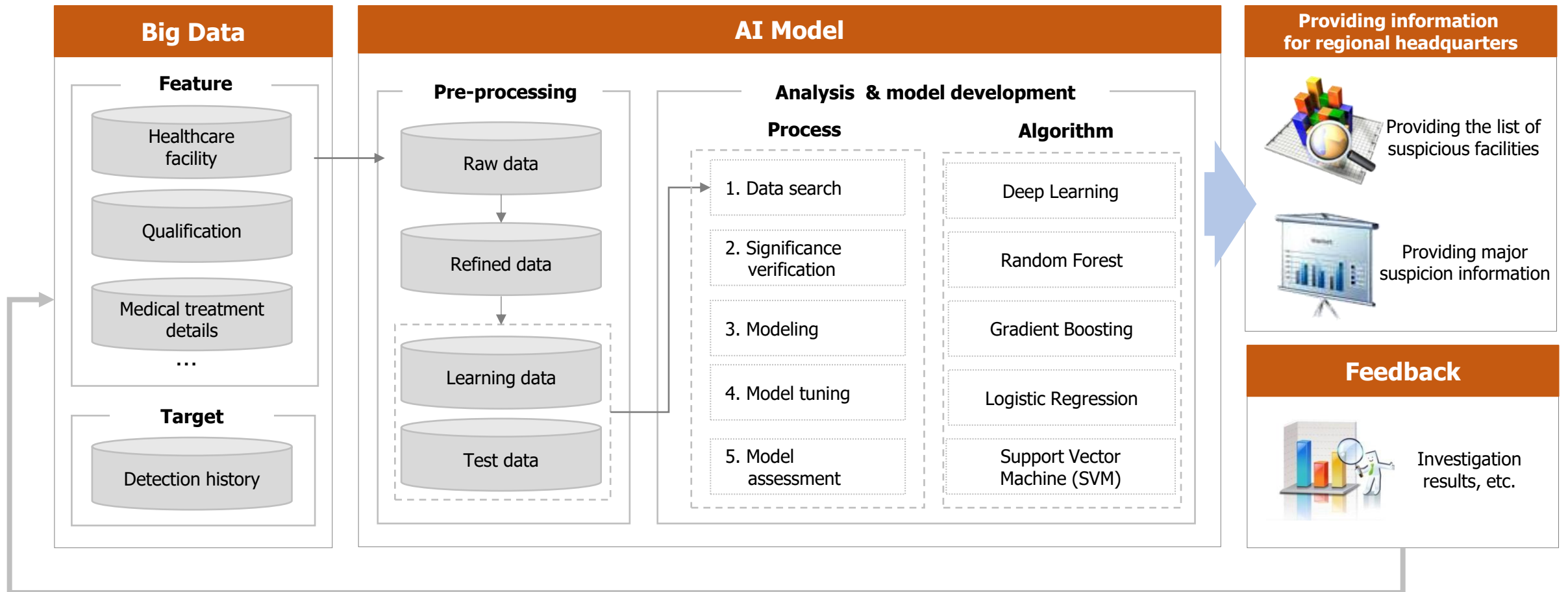


Patient Location:
Busan

Compare clinic locations with patient residential areas, analyzing distance, frequency, and other relevant factors

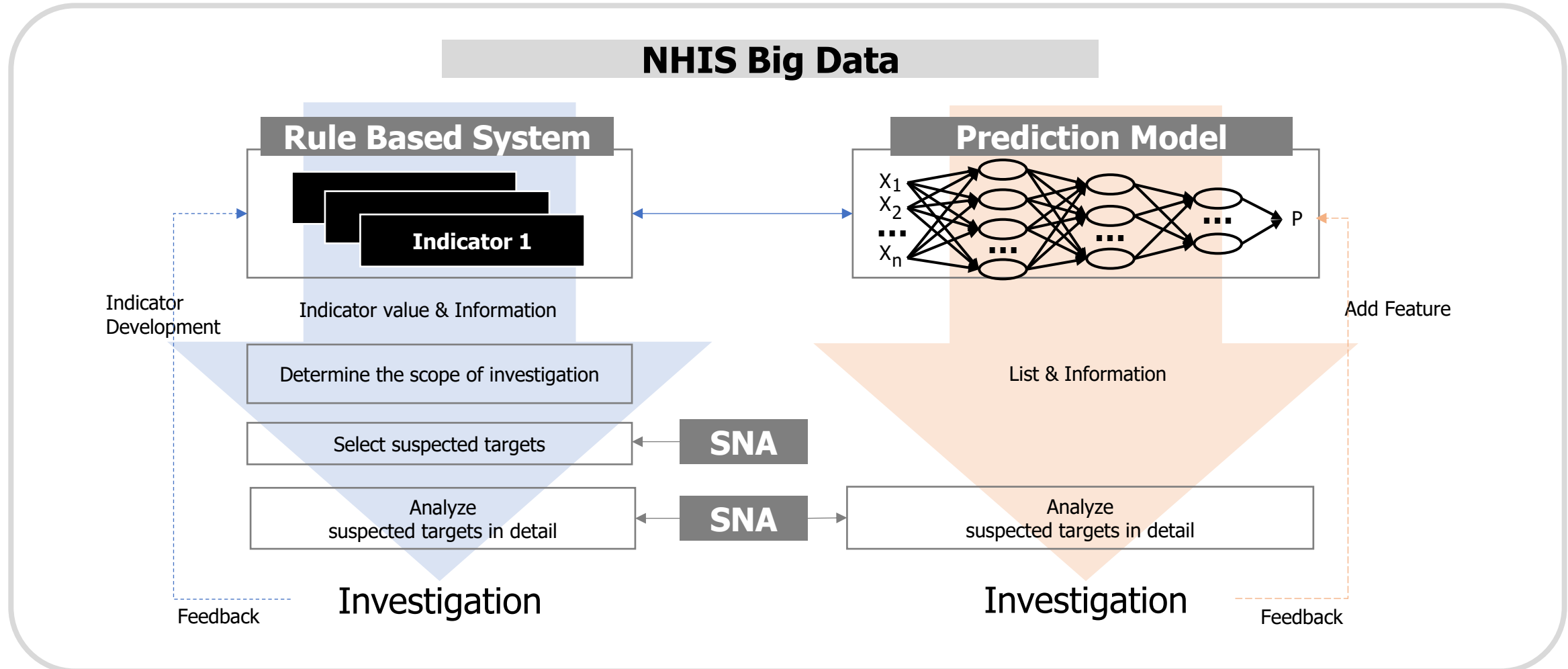
Illegality & Fraud Information System

Tools and Techniques: AI Prediction Model



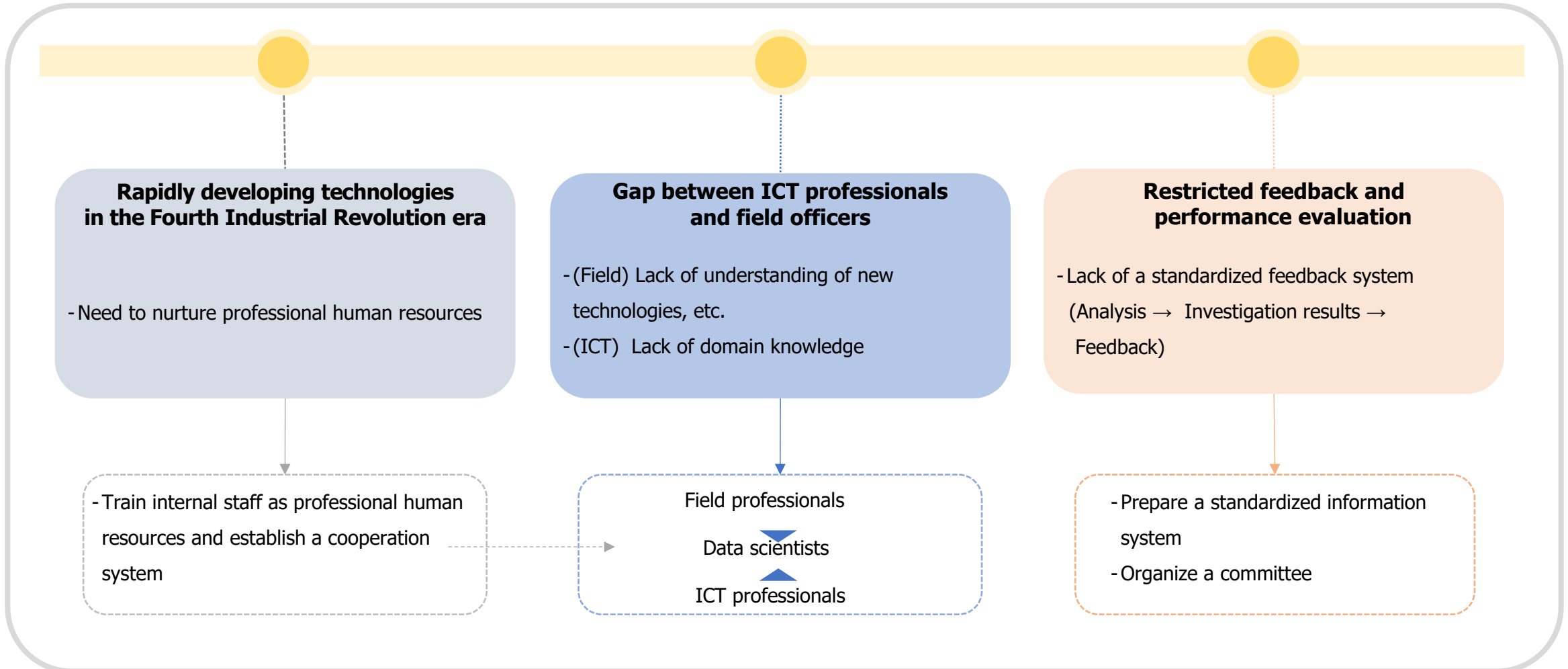
Illegality & Fraud Information System

Tools and Techniques: Hybrid Detection System



Illegality & Fraud Information System

Major Challenges



2025 제22차 국제연수과정
NHIS UHC
GLOBAL ACADEMY

Thank You

