China Smart Customs Experience Sharing

Hao Yanqian, CGAC

Big Data & AI

Risk Prevention

Detection Technology

The 24th Meeting of the Customs Cooperation Committee of the Central Asia Regional Economic Cooperation (CAREC)

Case Study 1: Big Data & AI in Risk Prevention

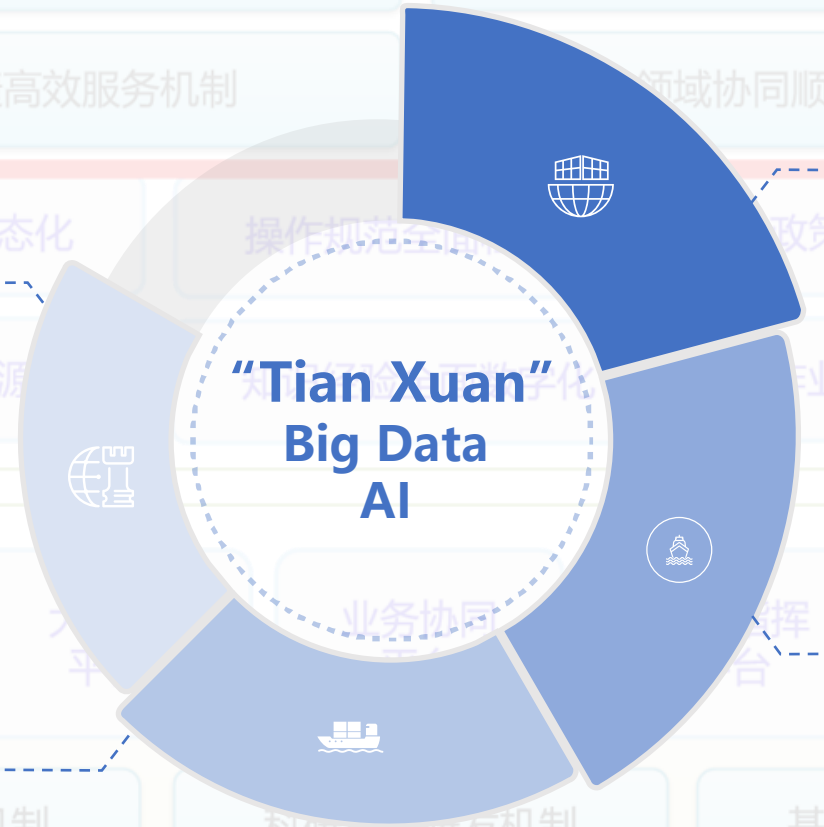
Project Overview

Technology Revolution Drivers

Big data & AI transforming governance from digital to smart

Enhanced Risk Prevention

Rapid identification and **precise control** with expanded coverage



"Tianxuan" Smart Control Model

Connecting **expert knowledge** with **AI technology** for continuous learning

Self-Improving System

Continuously learns policy changes, risk features, and trade patterns

Case Study 1: Big Data & AI in Risk Prevention

Key Practices

Deepen Data Governance

- Created **"big data pool"** by integrating multiple data sources
- Organized **9 major categories**: declarations, manifests, logistics, inspections, etc.

Quantify Risk Ranking

- Utilized **CATBOOST** and **neural networks** for advanced AI modeling
- Automatically identifies risk characteristics and ranks impact
- **Real-time** quantitative risk assessment in **seconds**

Case Study 1: Big Data & AI in Risk Prevention

Project Outcomes

- **Comprehensive Analysis**

  Integrates **13** business areas: prohibited goods, taxation, quarantine

  Transforms expert insights into **132** identifiable risk features Enables **all-factor risk screening**

- **Precise Control**

  Based on WCO risk management concepts

  Considers risk level and regulatory cost

- **Efficient Prevention**

  Automatic controls for declarations exceeding threshold

  3S Per declaration “health check”

  100% real-time monitoring

- **Uniform Enforcement**

  Same algorithm for every shipment assessment

  Eliminates inconsistencies from expert judgment variations

  Ensures **fairness and consistency** in controls

Case Study 1: Big Data & AI in Risk Prevention

Wider Application

01

National Deployments & Optimization

30	600+	1.5X
Iteratinos	Opetimization	Control Growth

Rapid improvement in model accuracy and speed

Seizure rata increased by **3.9%** in 2024

Achieved **quantitative & qualitative growth**

02

International Exchange & Cooperation

Experience include in **WCO Risk Managment Compendium**

Promoted at WCO meetings in Jakarta and Brussel

WCO Smart Customs experts conducted study tour in China

Case Study 2: Automated supervision of imported bulk minerals using non-invasive detection technology

Key Practices

Innovative Detectino Equipment

01

Near-Infrared Spectrometer

Real-time element analysis

02

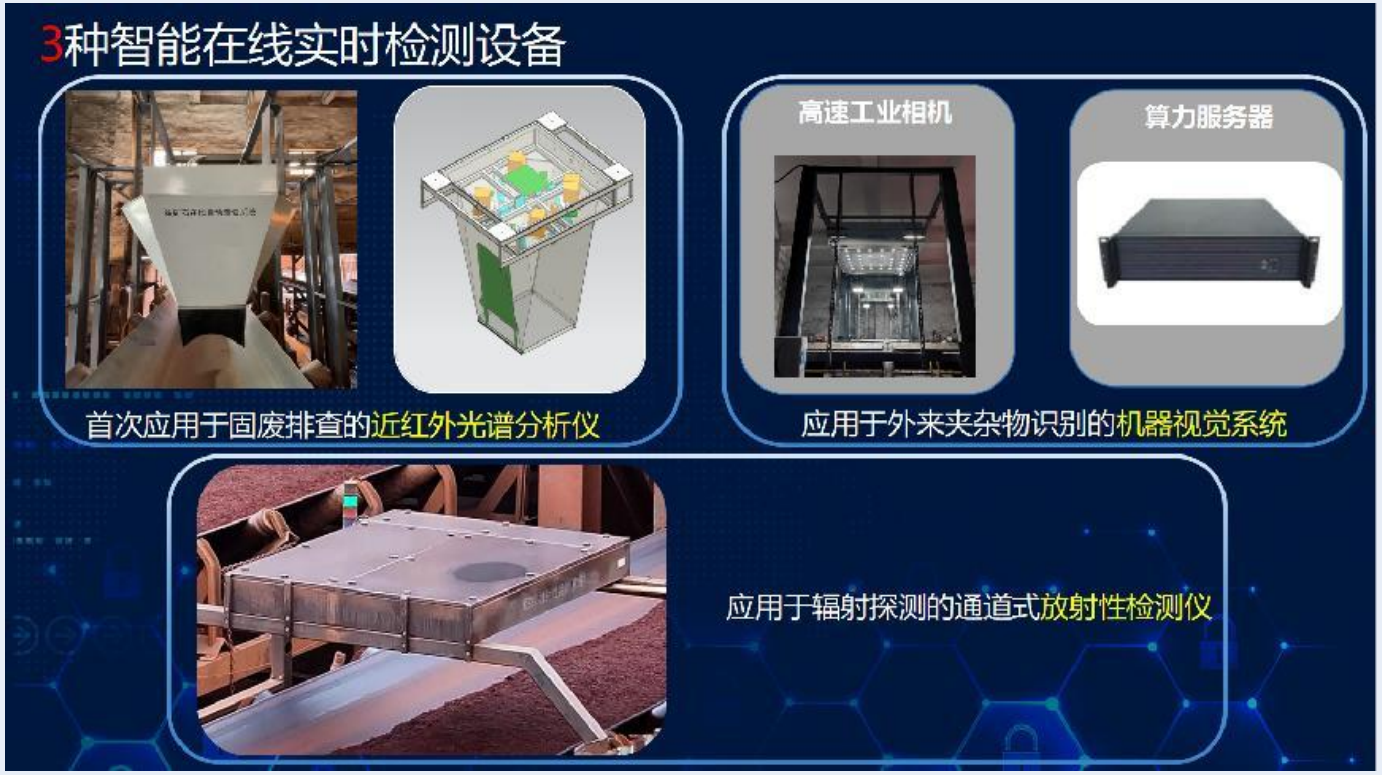
Machine Vision System

High-speed imaging for contaminants

03

Portal Radiation Monitor

Continuous gamma radiation detection



Case Study 2: Automated supervision of imported bulk minerals using non-invasive detection technology

Project Outcomes

Time-Saving

15 hours reduction in clearance time

Labor-Saving

95% reduction in on-site workload

Cost-Saving

￥115 million in logistics costs saved

Worry-Free

Full automated process with digital records

Implemented in **Zhangjiang,Guangdong**
Expanded to **11** customs districts

Conclusion and Outlook

Smart Customs Experience

Our cases represent a **fraction** of China Customs's Smart Customs initiatives,demonstrating our commitments to **technological innovation,effciency enhancement**,and **international cooperation**.

Future Vision

Strengthening exchanges with Central Asian customs authorities to foster mutual learning and jointly advance regional trade facilitation

Email：yanshiyy@hotmail.com