

# Innovative solutions for safer and more sustainable trade



**WORLD BANK GROUP**  
Macroeconomics, Trade & Investment

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WORLD BANK

# THE WORLD BANK GROUP IS A MAJOR PROVIDER OF TRADE RELATED ASSISTANCE



**Analysis and Diagnostics**

**Technical Assistance**

**Financing of major trade infrastructure and  
institutional reform projects**

**Research and data products (LPI/Doing Business)**

**Global advocacy and partnerships**

**The current portfolio is over \$7 billion for trade facilitation projects.**

The World Bank Group has implemented more than 120 customs, border management and trade facilitation projects over the past 20 years that have resulted in major improvements in terms of reduced time to import and export, as well as better transparency, predictability, and reduced transaction costs for traders.



Part of this is the World Bank Group's support to the WTO's TFA agenda through the Trade Facilitation Support Program (TFSP)

# INNOVATION ≠ THE USE OF LATEST TECHNOLOGY

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## **Innovation includes the entire process:**

- Problem identification
- New Idea
- ideation to invention;
- Development & prototyping;
- Field-testing & Implementation

## **Innovation in Customs Enforcement:**

- Necessarily includes risk management
- Can be radical or incremental
- By small teams or by the whole org.
- Encompasses the whole process

## **Innovation may involve:**

- A new detection technology
- A new clearance process
- A new data source
- A new analytical tool
- A new collaboration model!
- A new program

# INNOVATION – DRIVEN BY DATA TECHNOLOGIES

## Data Generation



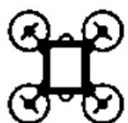
e-commerce data



Social networks



Internet of Things



Surveillance Technologies



Screening Technologies

## Data collation



Distributed Ledger Tech.



Blockchain



Integration tools



Smart Sharing

## Data Integration



Predictive Analytics



A.I. = Analytics Integrated



Machine Learning

## Data Integration

Data is King, but...



Smart Controls-  
still the Master

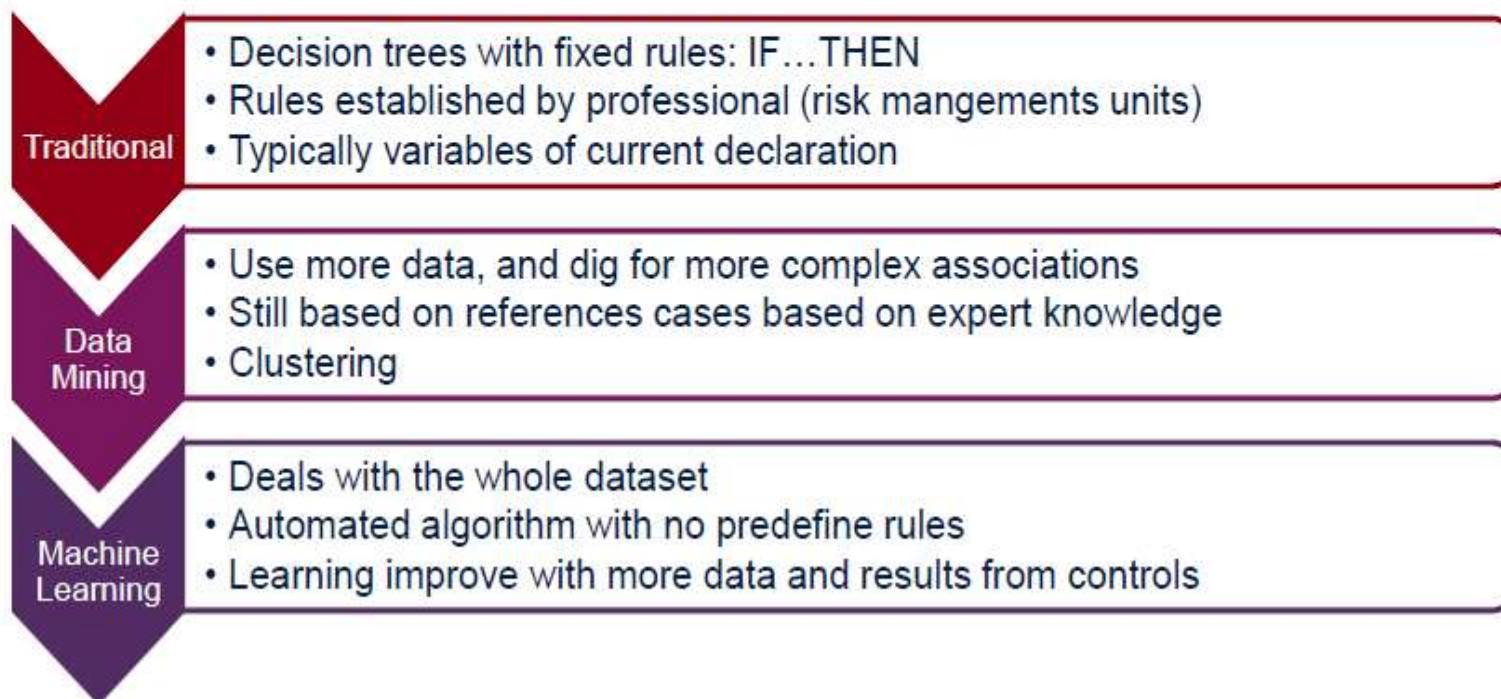


**WORLD BANK GROUP**  
Trade & Competitiveness



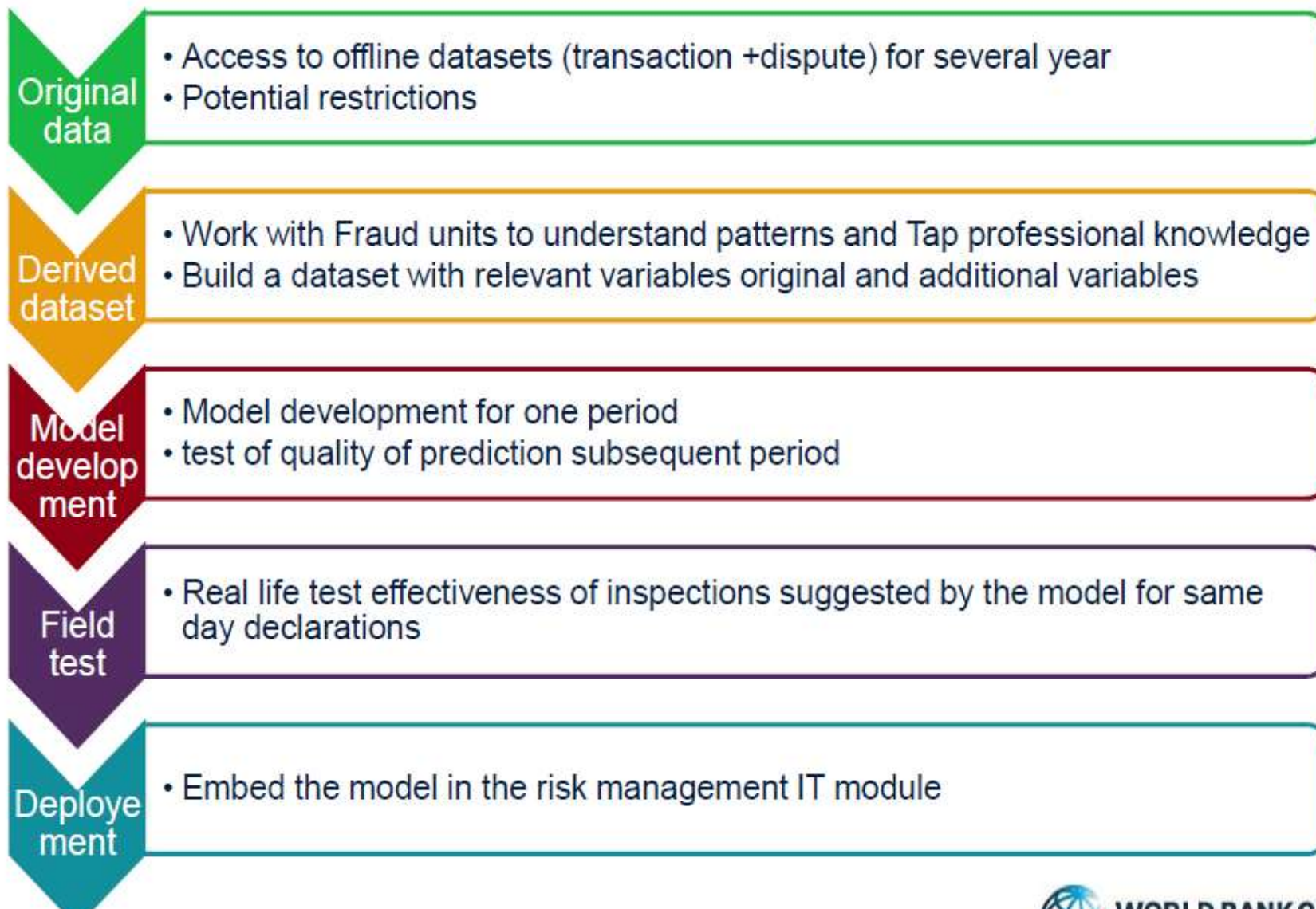
## What ML brings: AI vs. ruled based risk systems

- Maximize the information contained in the transactional databases
- Still Integrate the Customs professional experience
- While managing better the complexity of the data
- An evolution learning behavior vs. rules



Source Machine Learning and Fraud Detection: Application to Customs Risk Management - Dalila Benachenhou & Jean-François Arvis (World Bank, May 2019)

# Organization of an AI/ML project



Source Machine Learning and Fraud Detection: Application to Customs Risk Management - Dalila Benachenhrou & Jean-François Arvis (World Bank, May 2019)

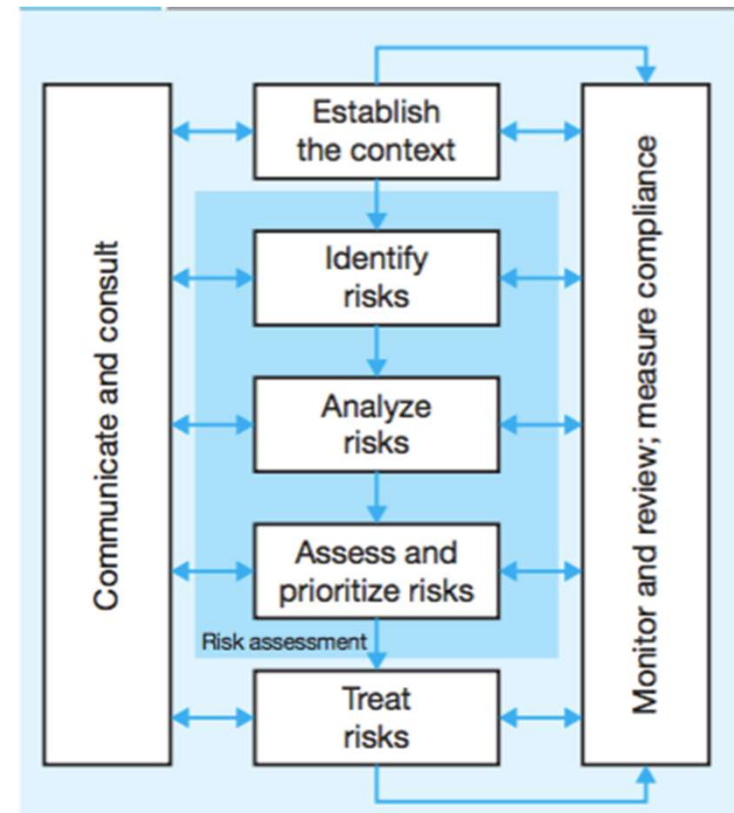
# Challenges

1. Customs data is (very) complex:
  - Large data (over 8 million observations in the case studied)
    - Number of variables (50 +) by declaration
    - Numerical and categorical variables (with over 50 levels, and changing through time)
    - Quality of data
  - Dispute datasets may not be well recorded or computerized.
2. AI may not beat collective customs intelligence:
  - ML models runs on variables that should reflect professional expertise of fraud:
    - Original variable
    - Variable constructed from knowledge of fraud patterns, or to identify behavioral anomalies (e.g. lag variables)
  - ML, especially supervised, is very dependent on current findings of fraud
3. **Deployment potentially challenging: how to integrate the models to existing system?**



# NEW TECHNOLOGIES DON'T CHANGE THE FUNDAMENTALS OF RISK MANAGEMENT

1. Risk Management approach in clearance procedures
2. Agency to agency cooperation within government
  - Data sharing
  - Transparency
  - Risk based information sharing, targeting and decision making
  - Post clearance audit
3. Partnership with trader
  - Trusted trader programs
  - Facilitation of low risk traders

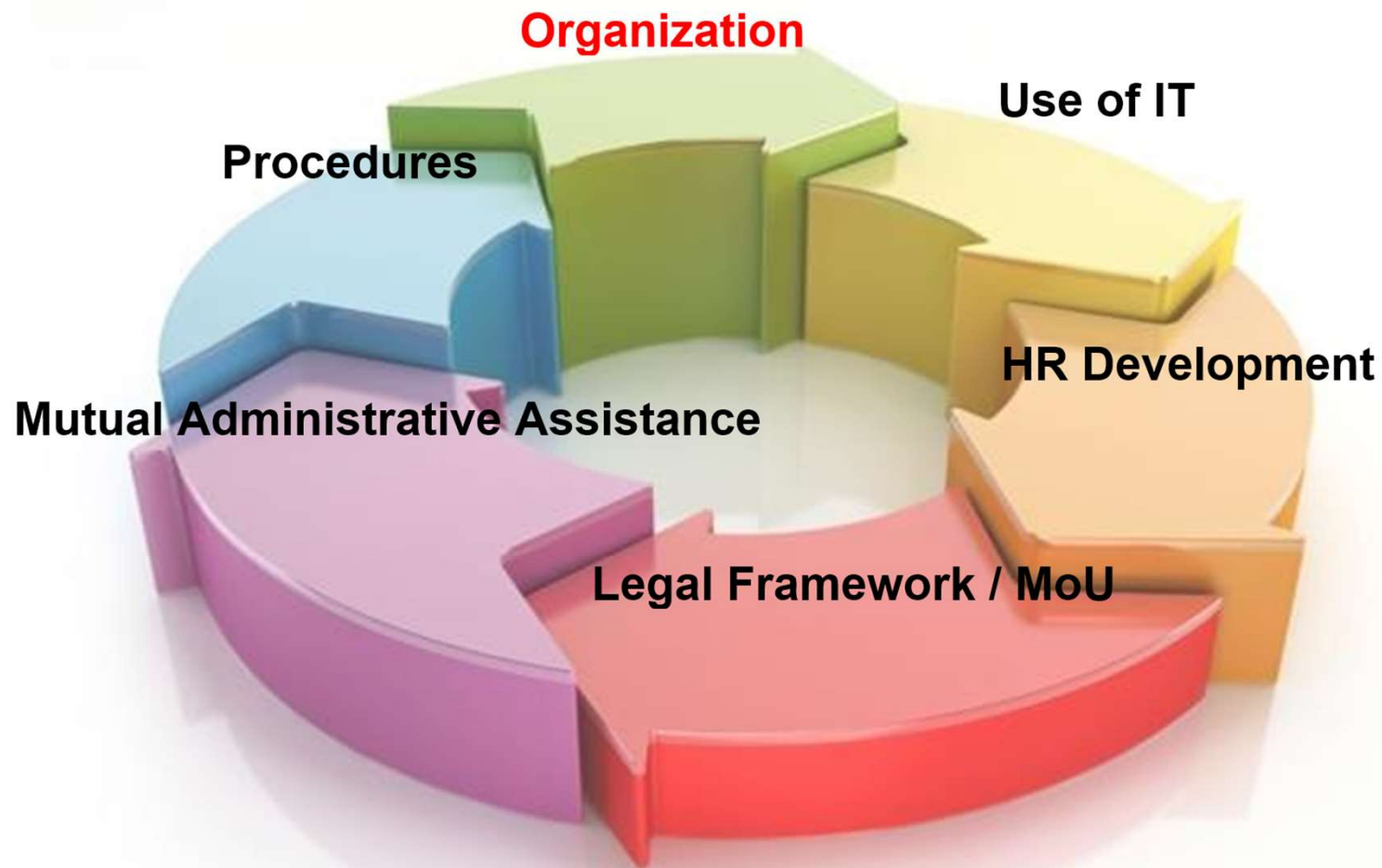


Source: WBG



# EFFECTIVE RISK ASSESSMENT & SELECTIVITY SYSTEM

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*It takes 'whole of border' approach to reduce time and cost and achieve better border outcomes for the community*

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