BIOSECURITY INNOVATION EXCHANGE 2019

Data Analytics and Biosecurity

Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

Australian Government
Department of Agriculture

KO TĀTOU THIS IS US
BIOSECURITY 2025

Increasing volumes at the NZ border

over 7 million
Travellers processed

over 32 million
Mail items cleared by MPI

7,300
Craft arrivals

>64,000 Imported cargo consignments inspected by MPI

12 million
Individual consignments of cargo came into New Zealand in the last 12 months

12,000
Infringements were handed out to passengers for not declaring

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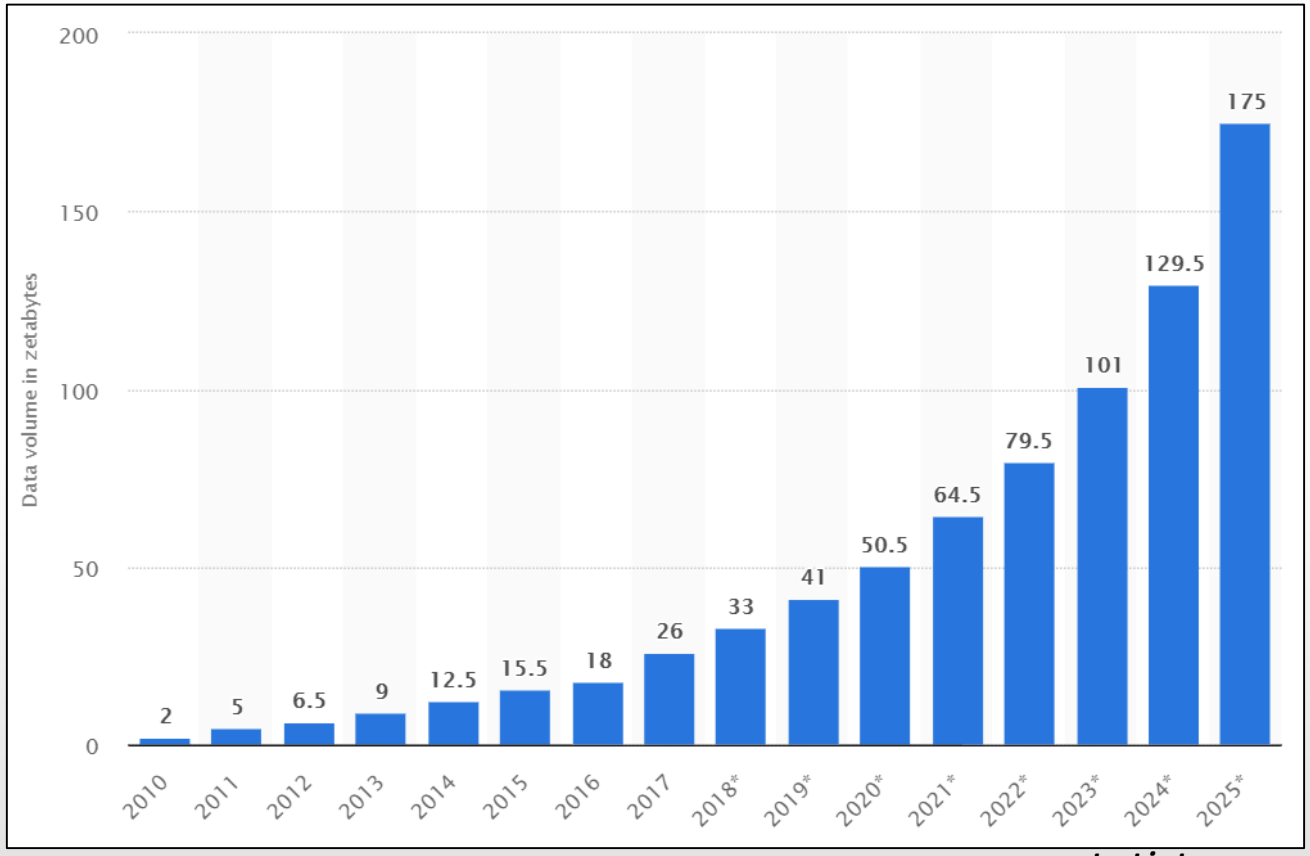
Projected volume of data/information created worldwide from 2010 to 2025 (in zettabytes)



www.statista.com

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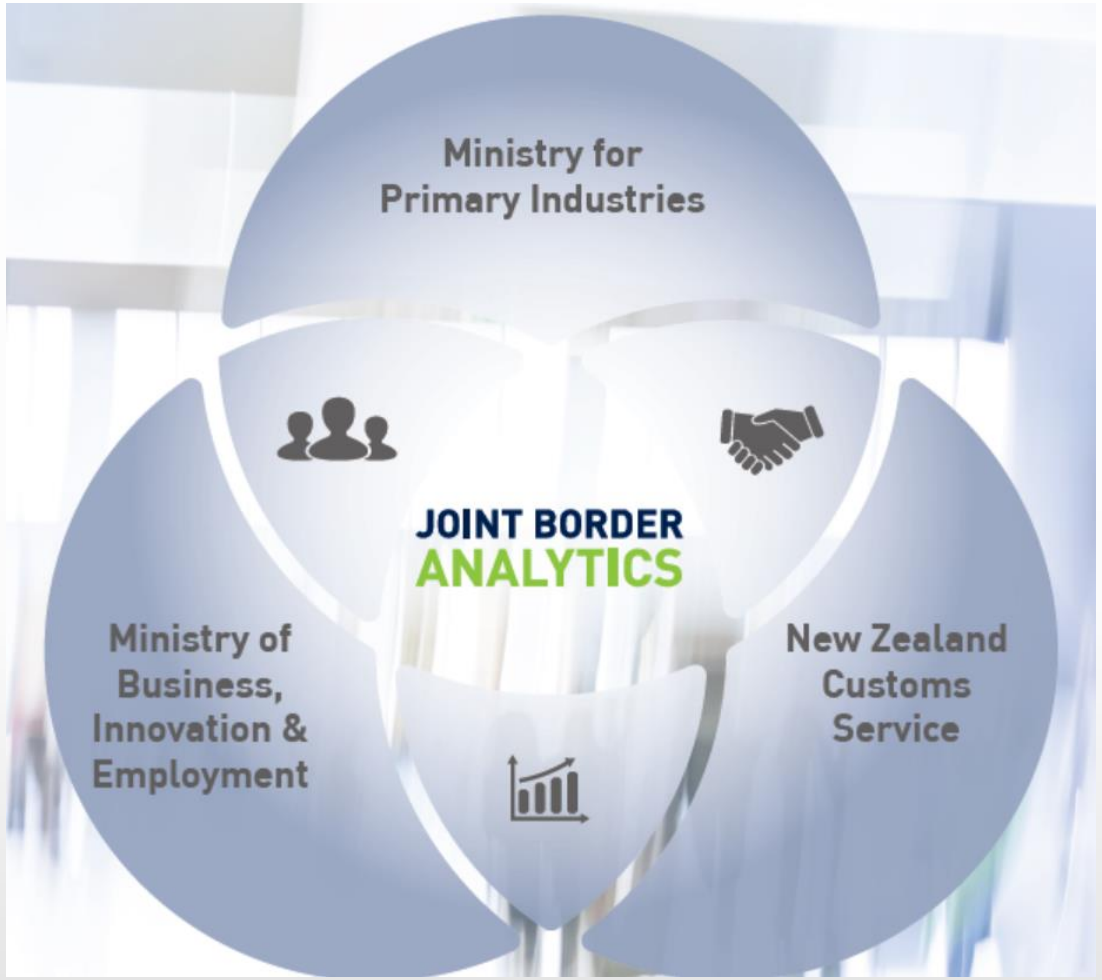
JOINT BORDER ANALYTICS

Inter-agency team underpinned by data science

Predictive analytics to enabled enhanced risk management at New Zealand border

Increased collaboration, and grow best practice across government



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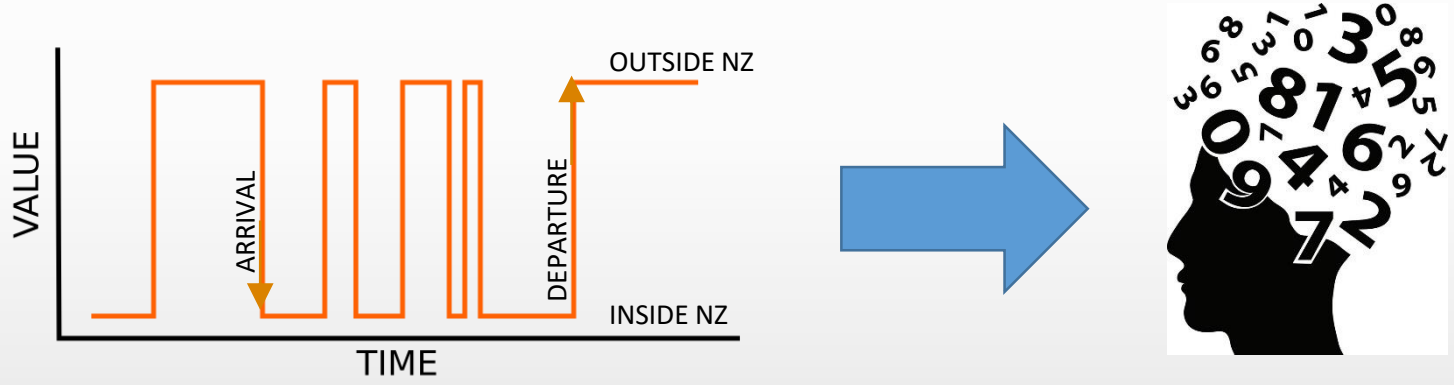
Travel Pattern Fingerprinting

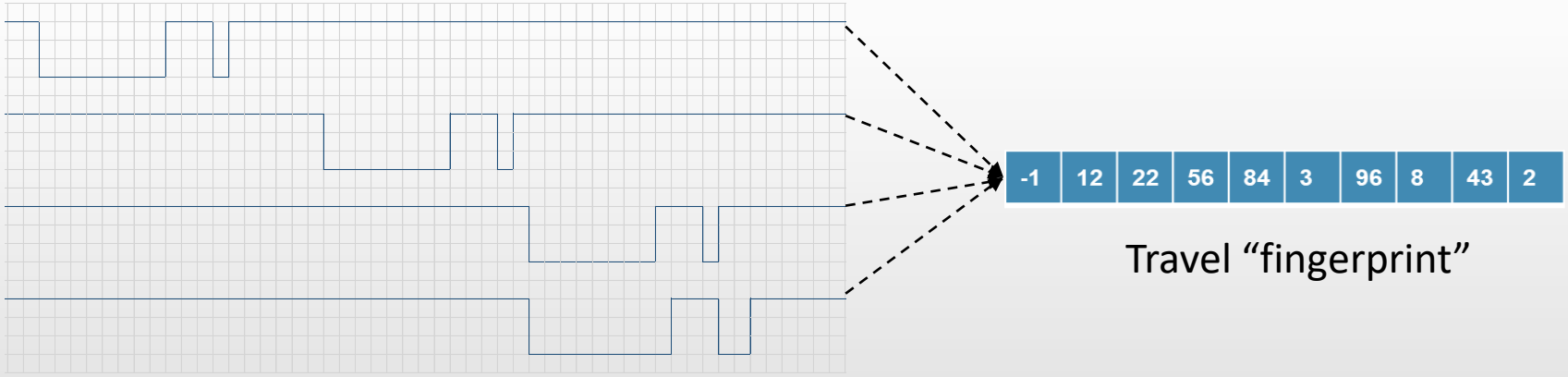
- Travel movements can be represented using arrivals and departures



Travel Pattern Fingerprinting

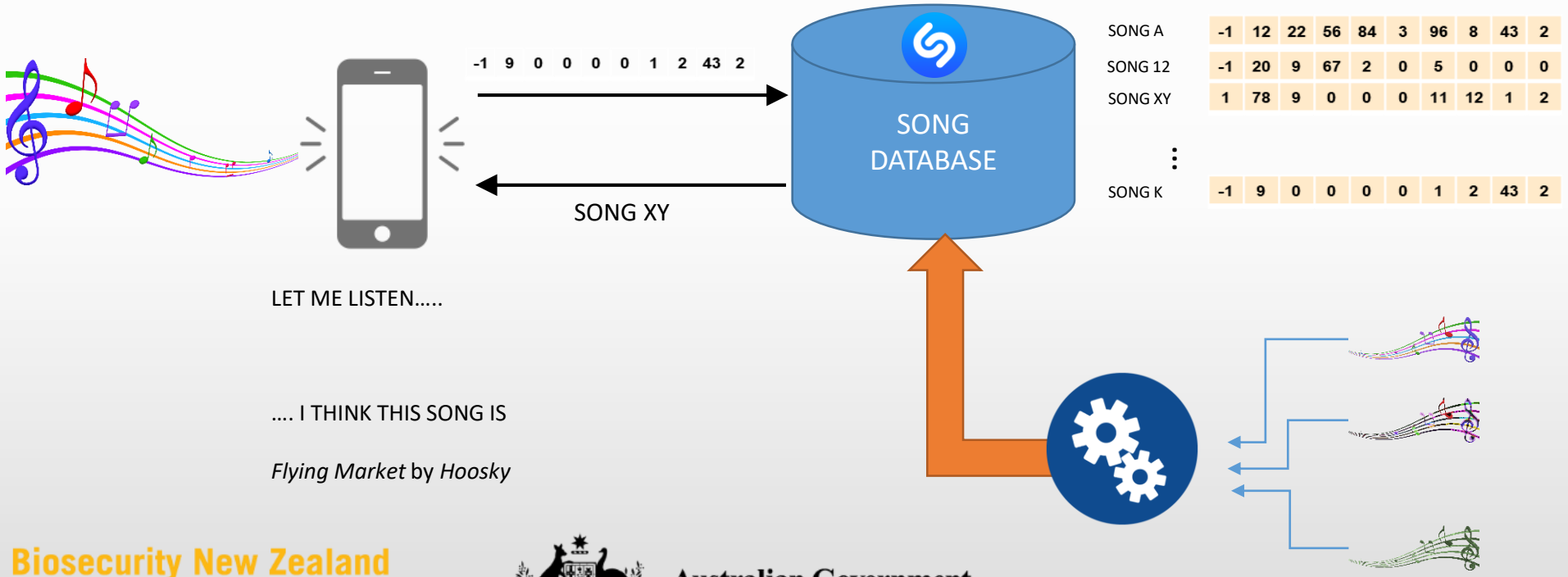
Creating a unique fingerprint from travel patterns.

Similar patterns have the same/similar code



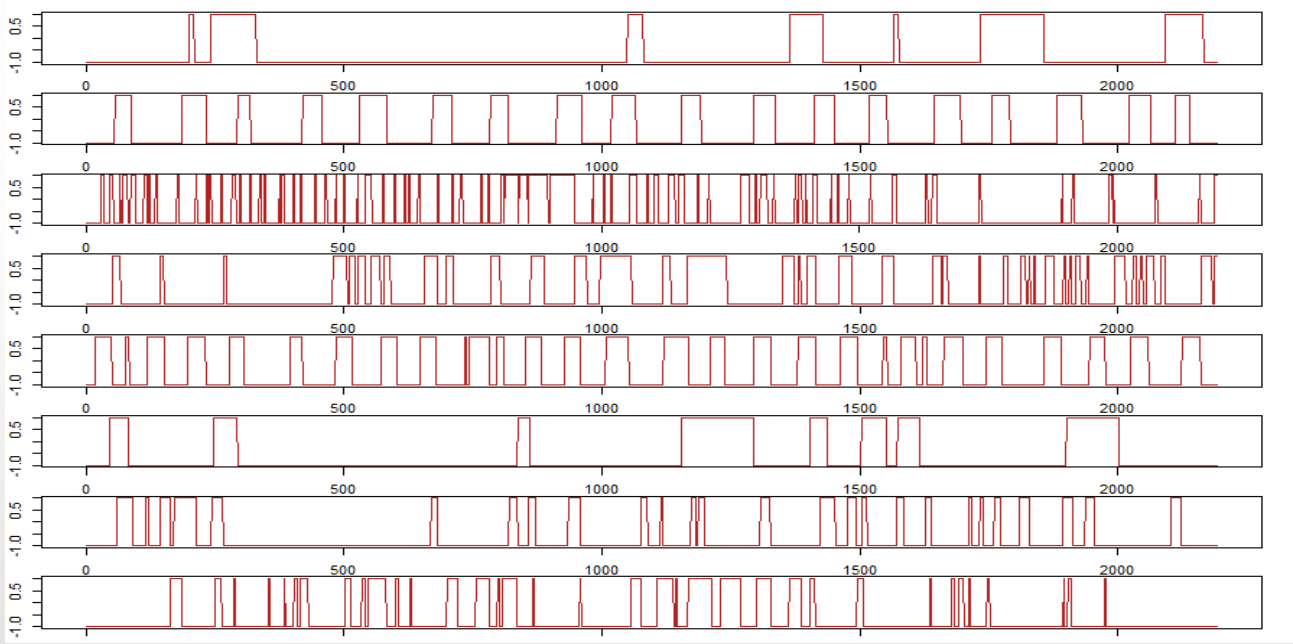
Travel Pattern Fingerprinting

- Inspiration – audio fingerprinting



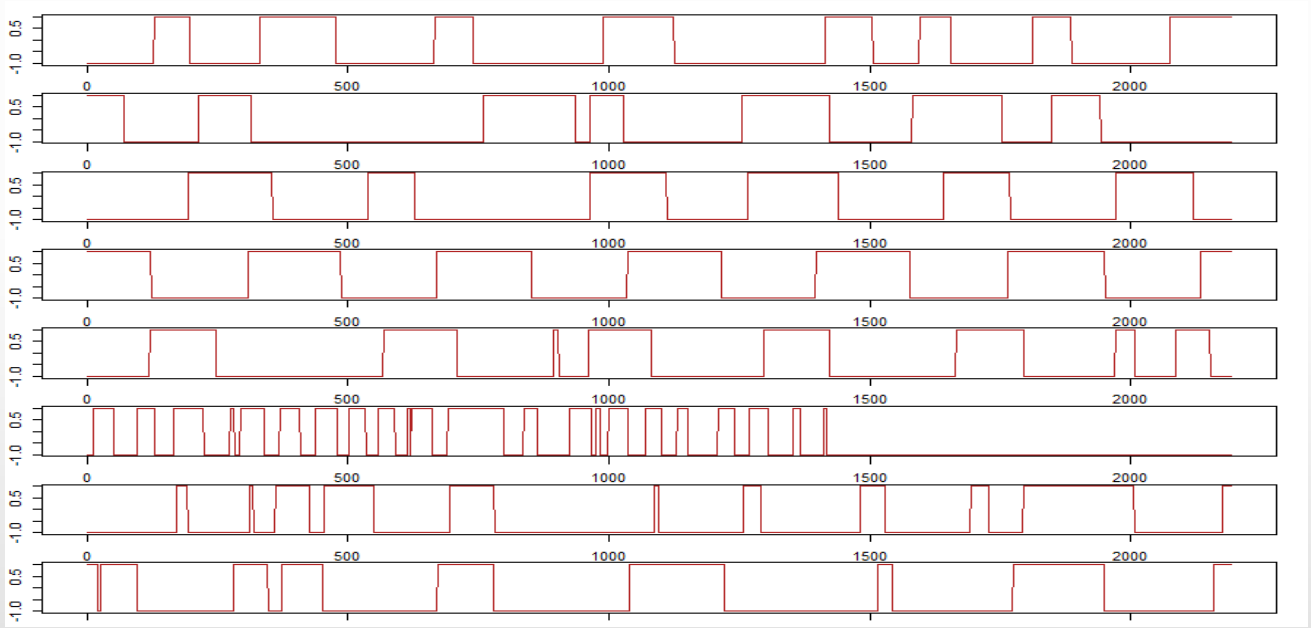
Travel Pattern Fingerprinting

- Macroclustering – a cluster of mostly business travellers



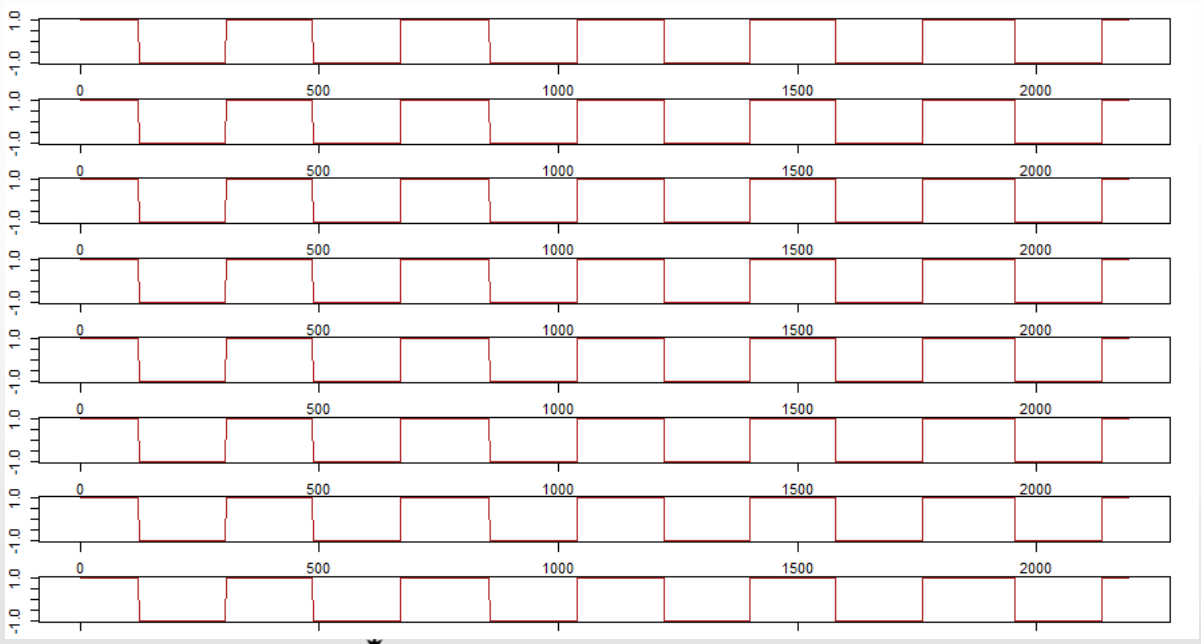
Travel Pattern Fingerprinting

- Macroclustering – a cluster of mostly crew members



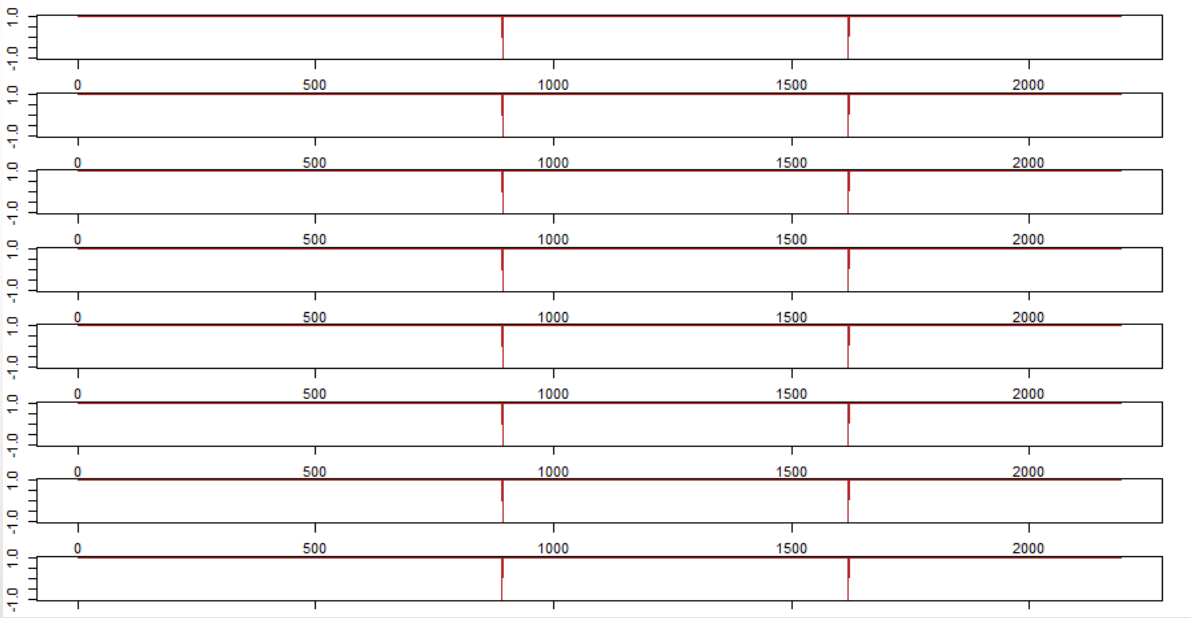
Travel Pattern Fingerprinting

- μ-clustering – crew on the same fishing vessel



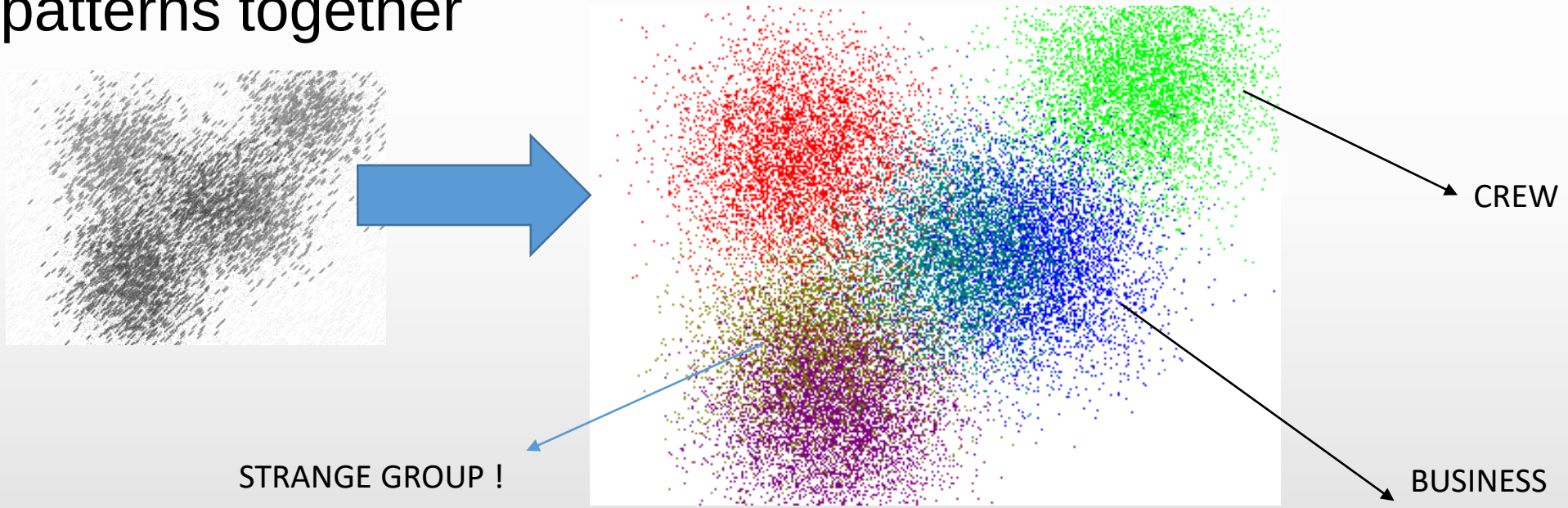
Travel Pattern Fingerprinting

- μ-clustering – Another group travelling together



Travel Pattern Fingerprinting

Application 1: Macroclustering – Clustering broad bands of travel patterns together



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An Innovative Approach to Intelligence

- Multidisciplinary team
  - Scientists
  - Intelligence professionals
  - Data analysts / modellers (JBA)
- Developing biosecurity threat intelligence
  - Developing processes & products
  - Science-fused operational & strategic intelligence
  - Aiming to predict & forecast biosecurity threats
  - Utilising new technology

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QUESTIONS?