HVTT 15

INTERNATIONAL SYMPOSIUM ON HEAVY VEHICLE TRANSPORT TECHNOLOGY

RE-ENGINEERING ROAD NETWORKS THROUGH ON-BOARD MASS (OBM) SYSTEMS

Gavin Hill

Transport Certification Australia (TCA)

My presentation

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

1. Defining performance based requirements for OBM
2. Creating disruption through mass data
3. Re-engineering road networks

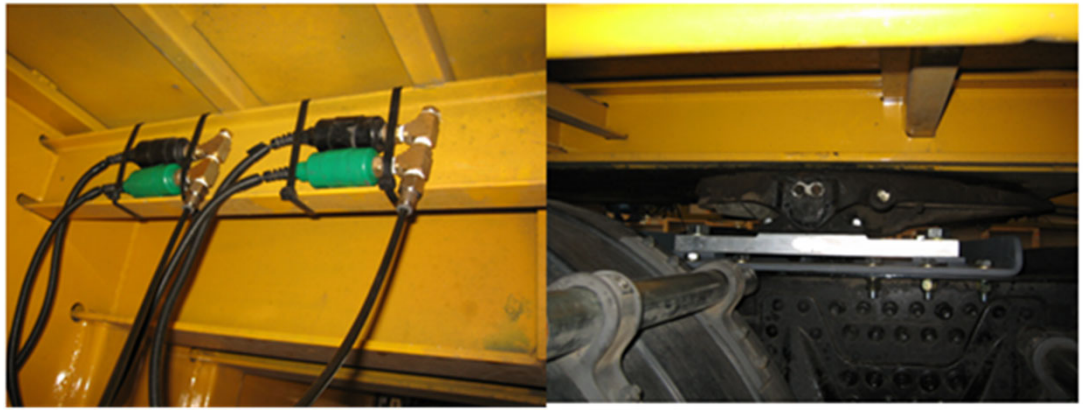
ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

Defining performance based requirements for OBM

OBM Systems

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

…commonly referred to as weigh scales or electronic weighing systems



Defining performance based requirements

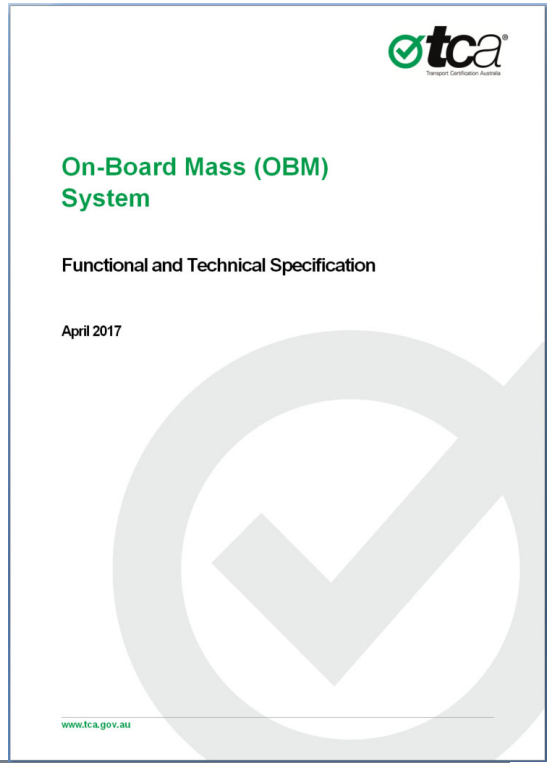
ECONOMY ON WHEELS
fast changes, slow structures

HVTT 15

On-Board Mass (OBM) System Functional and Technical Specification

Released in April 2017

Freely available on our website



A focus on performance outcomes

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

- Physical Characteristics
- Environmental Characteristics
- Data Collection
- Record Generation
- Functionality
- Data Storage
- Data Security and Transfer
- Interconnection to a Telematics In-Vehicle Unit
- Installation, Calibration, Operation and Maintenance

A focus on performance outcomes

Our philosophy…

- *Performance-based* focus on required *outcomes*
- Innovation is encouraged!
- Performance outcomes can be achieved with:
  - OEM-fitted or an after-market products
  - ‘Shared components’ providing comparable functionality
  - Quality management system approach to calibration to maintain accuracy

A focus on performance outcomes

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

A key requirement of the Specification is accuracy:

The *axle group mass* shall not deviate from the *absolute axle group mass* by more than 2% of the maximum permissible mass (ie the legal mass limit for an axle group) of the axle group for 98% of observations

Performance assessment

In May 2017 TCA began accepting applications for OBM Systems for type-approval.

1. **A probity and financial assessment of OBM System suppliers**

   A critical indicator of business continuity and support expected by stakeholders

2. **A functional and technical assessment of OBM system 'types'**

   To determine whether all performance requirements for a type-approved OBM System can be satisfied

Performance assessment

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

The first type-approved OBM Systems became available in August 2018

tca Transport Certification Australia | Type-Approved™

ECONOMY ON WHEELS

fast changes, slow structures

HVTT 15

Creating disruption through mass data

The challenge…

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

Heavy vehicle access policies are challenging because of competing priorities

Asset life, productivity and safety outcomes are often in conflict

The challenge…

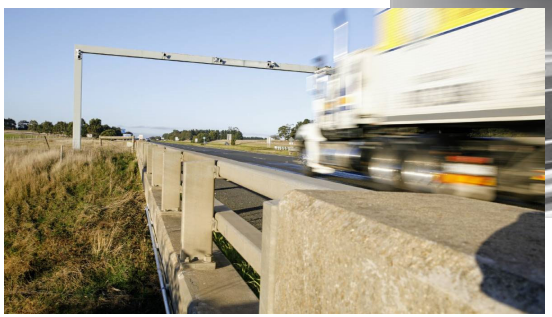
ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

Heavy vehicle road use data is not consistently available to inform access decisions

The challenge…

ECONOMY ON WHEELS
fast changes, slow structures
HVTT15

Where data are available, conventional methods are typically limited to provide ‘point-based’ data collected methods



The opportunities…

ECONOMY ON WHEELS
fast changes, slow structures

HVTT 15

The collection of data from in-vehicle technologies presents new options

Access to location, configuration, mass and speed data *across the network* changes the paradigm

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

Re-engineering road networks through OBM

Re-engineering road networks

ECONOMY ON WHEELS
fast changes, slow structures

HVTT 15

Infrastructure managers and regulators are looking at ways to re-engineer the road network

This is not about *physical engineering*…

…but the way we *engineer the most effective use* of road infrastructure

Significant productivity gains can be derived *without* major investments in new infrastructure

Re-engineering road networks

ECONOMY ON WHEELS
fast changes, slow structures
HVTT15

Heavy vehicle access is based upon a number of assumptions made by infrastructure managers

Decisions about access often come down to a *conservative* set of assumptions…

…especially when it comes to mass loadings

Loading assessments of bridges are typically based on *peak loads*, which leads to access constraints

Re-engineering road networks

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

The Australian Standard for bridge assessment (AS 5100.7:2017) was updated in 2017

The updated Standard incorporates reduced traffic load factors for vehicles monitored through the IAP and OBM Systems

Bridge load factors reduced from **2.0 to 1.6** for monitored vehicles

Re-engineering road networks

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

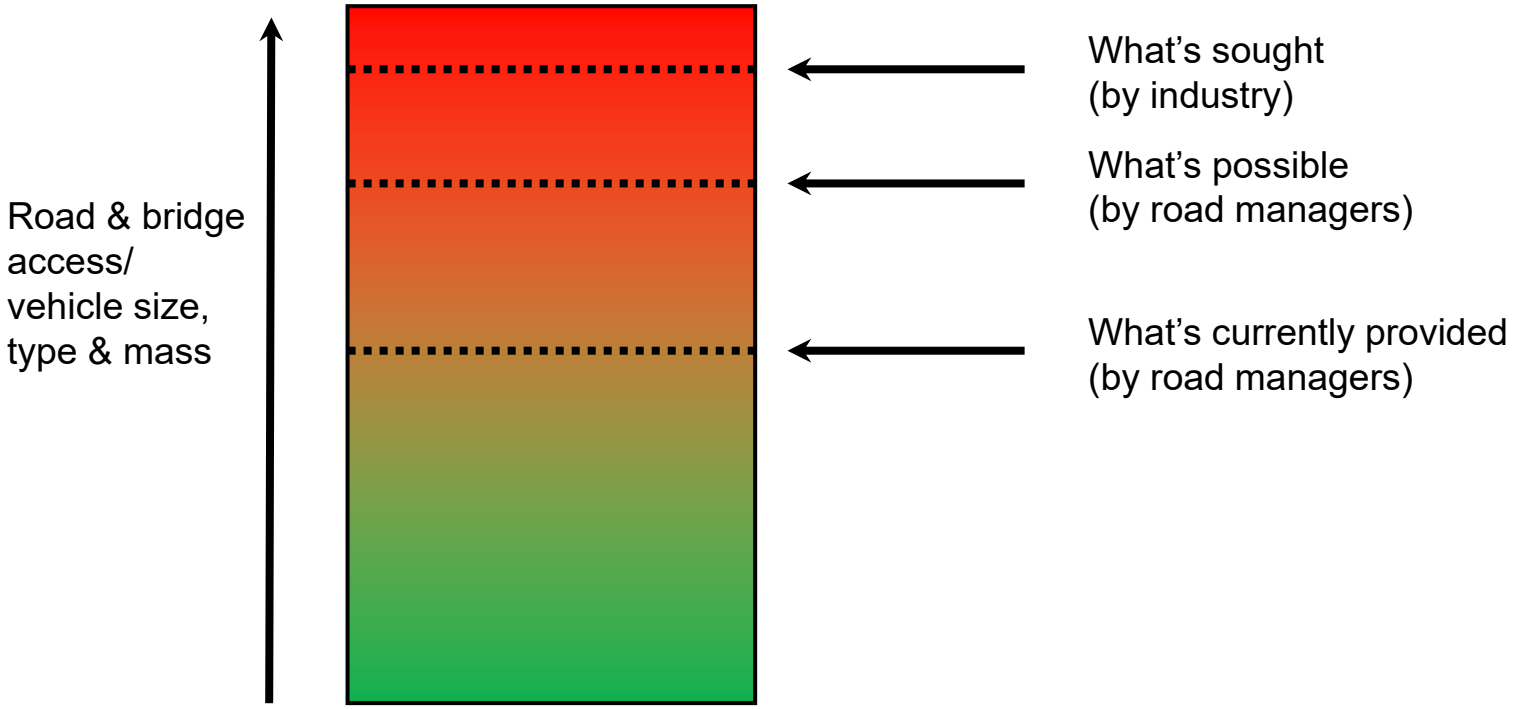
The Australian Standard for bridge assessment (AS 5100.7:2017) was updated in 2017

The updated Standard incorporates reduced traffic load factors for vehicles monitored through the IAP and OBM Systems

Bridge load factors reduced from **2.0 to 1.6** for monitored vehicles

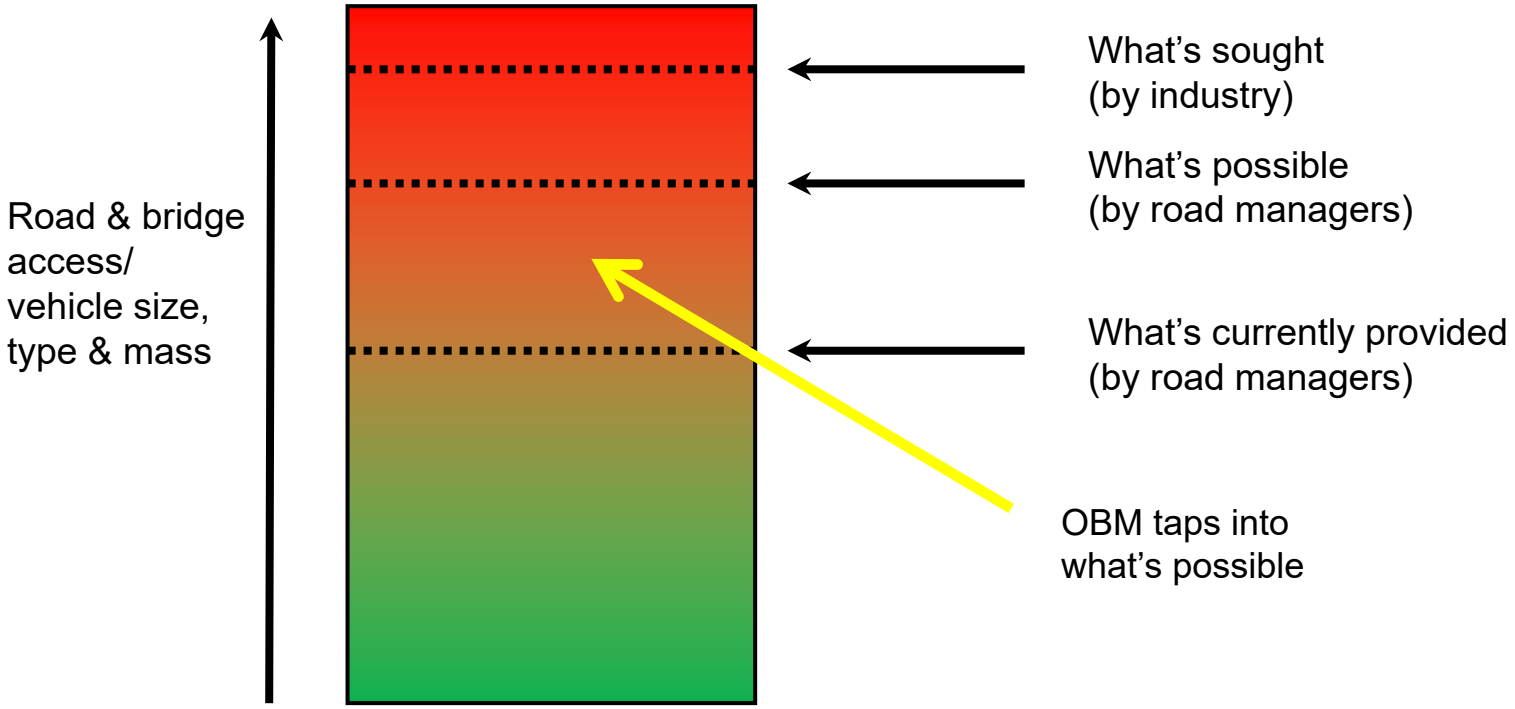
Understanding the shift

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15



Understanding the shift

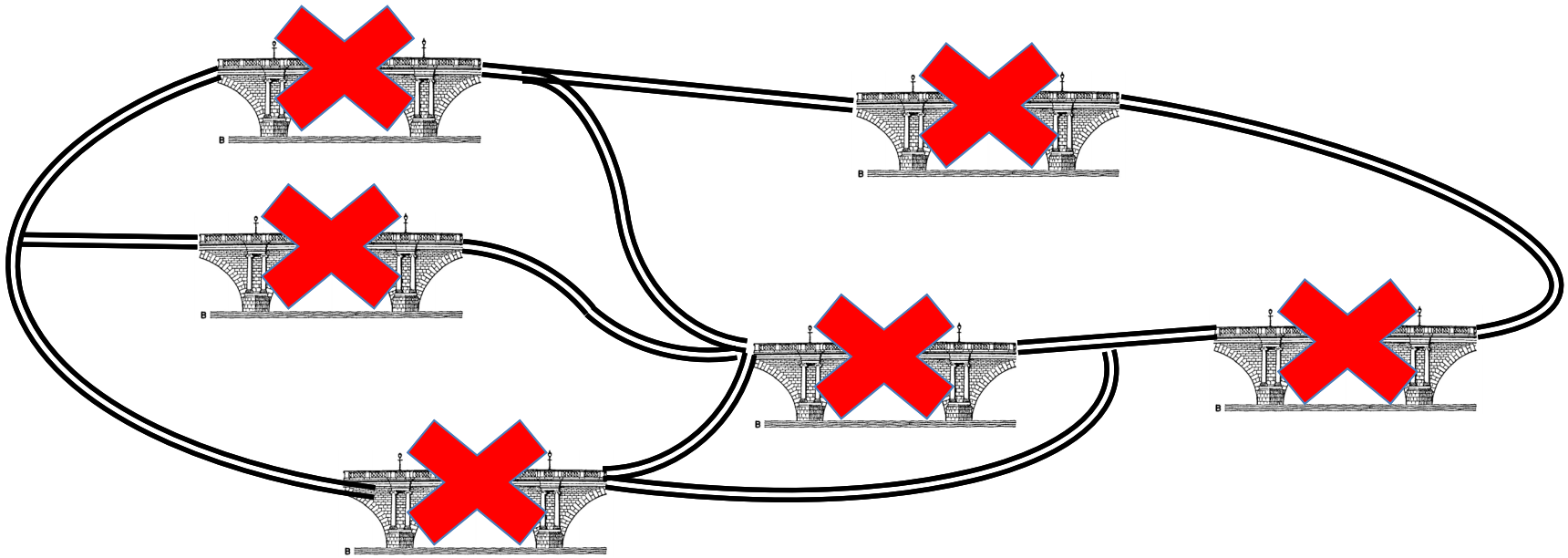
ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

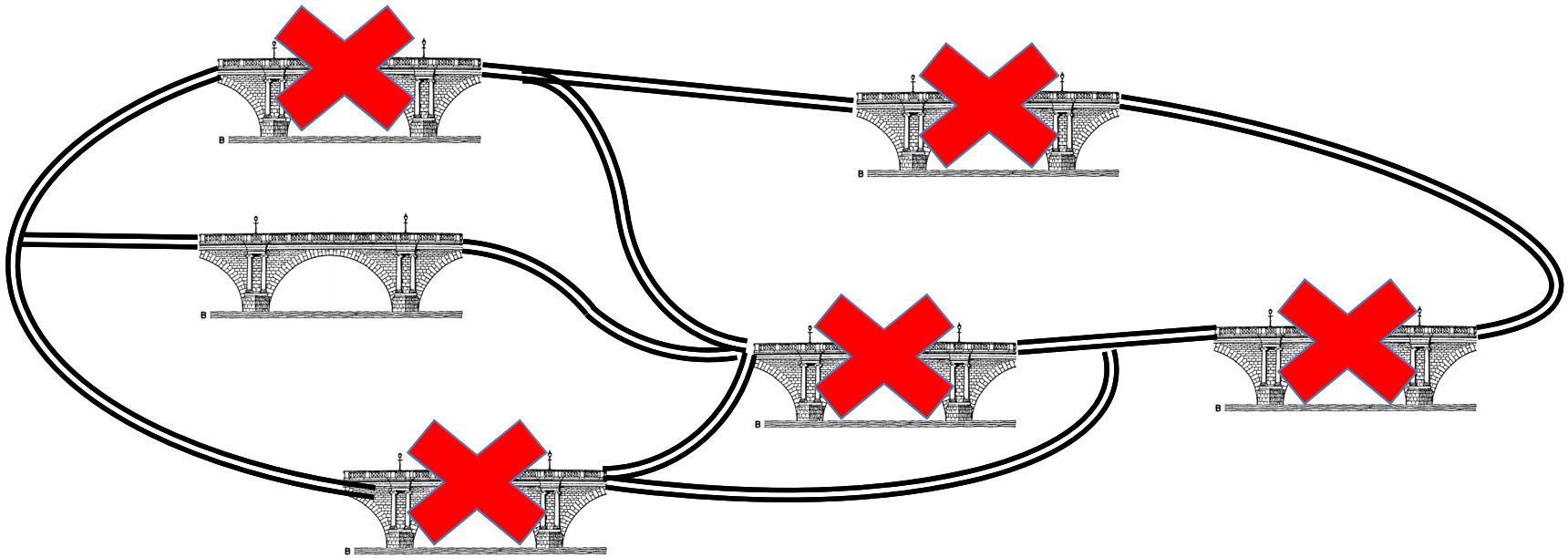
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

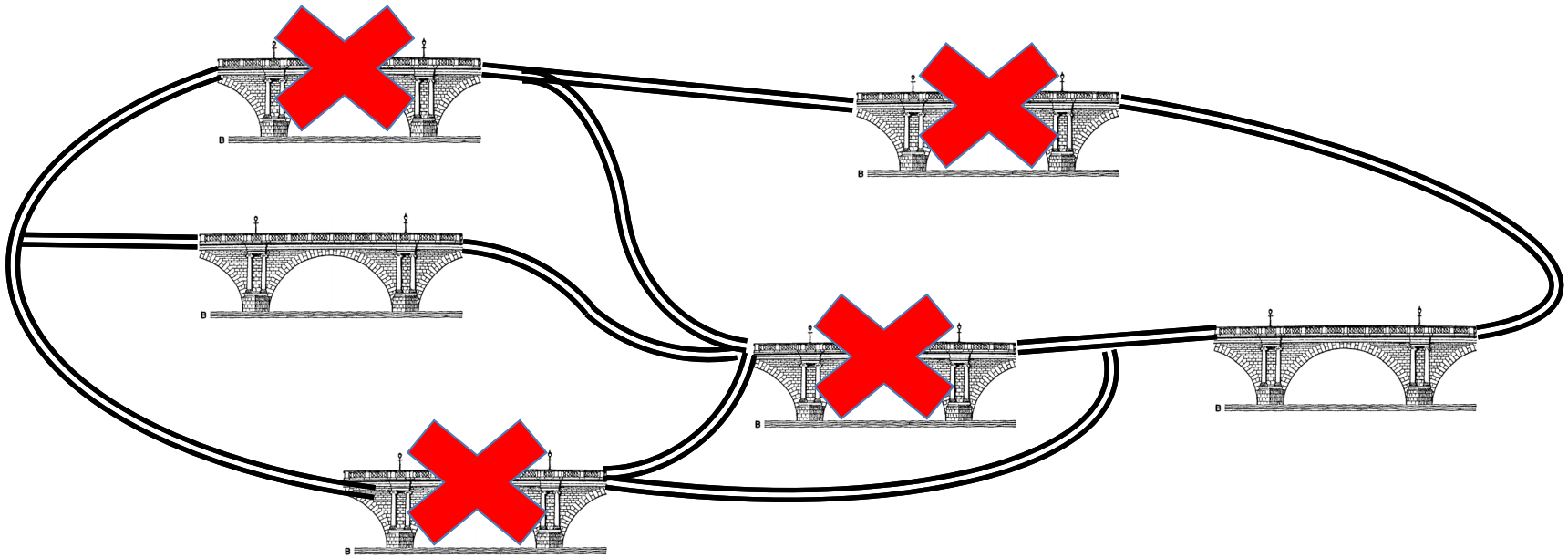
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

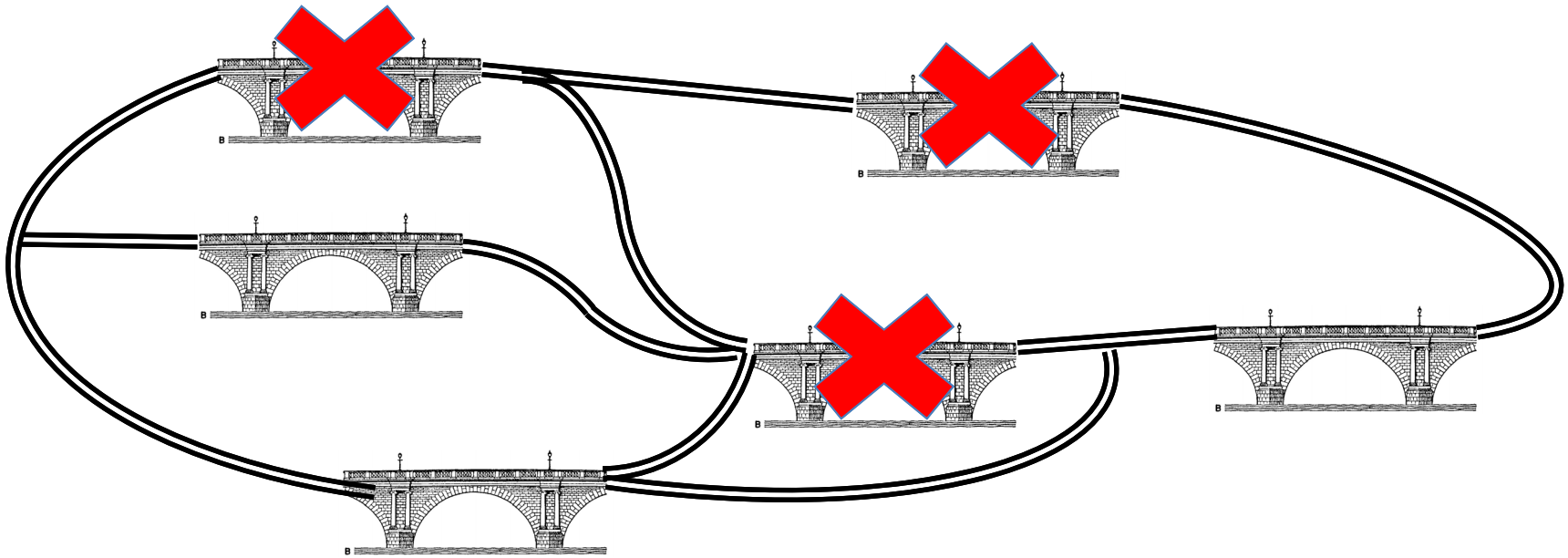
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

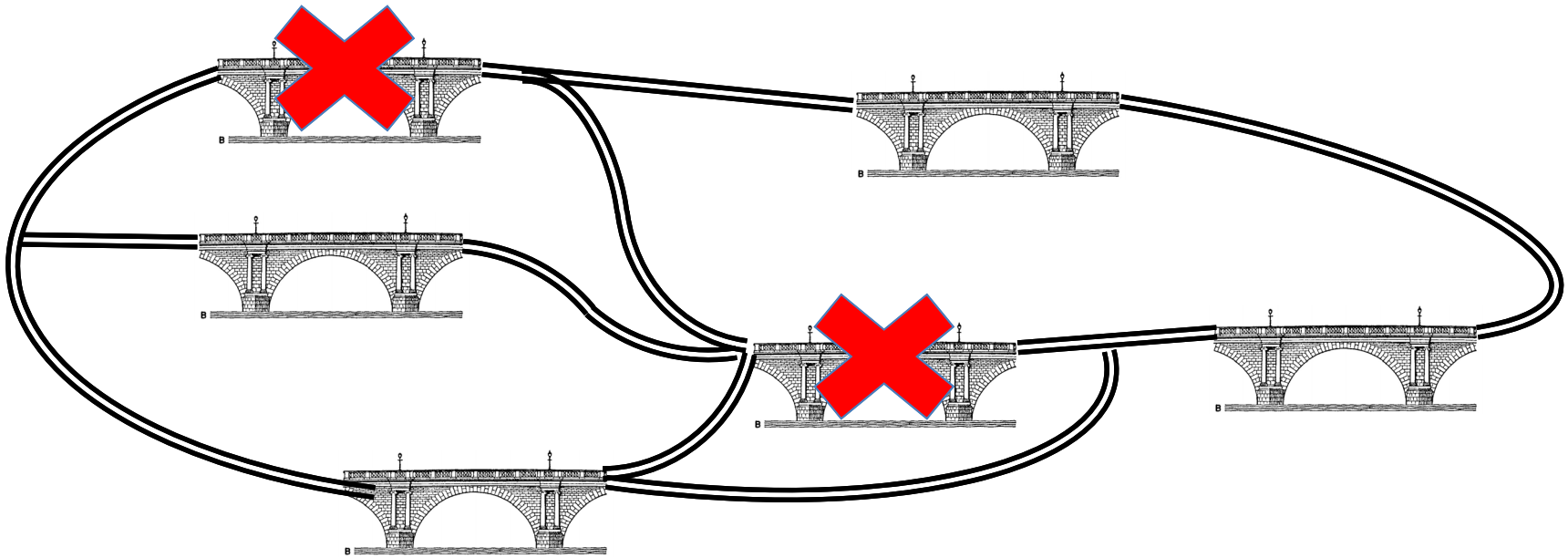
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

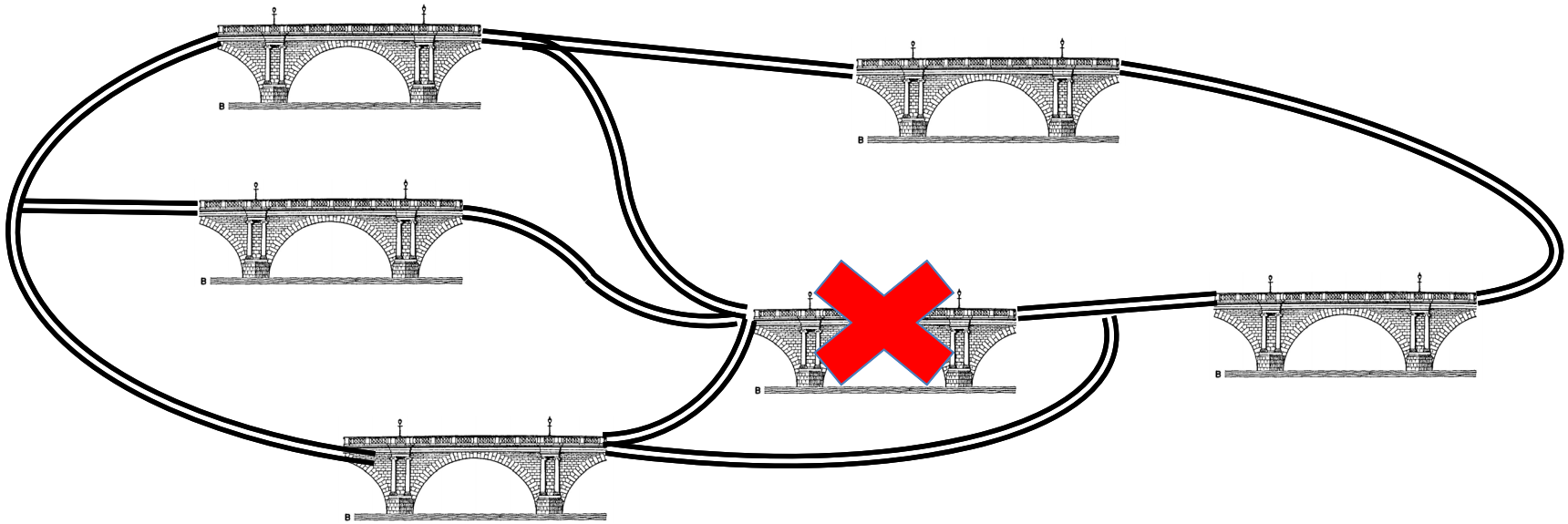
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

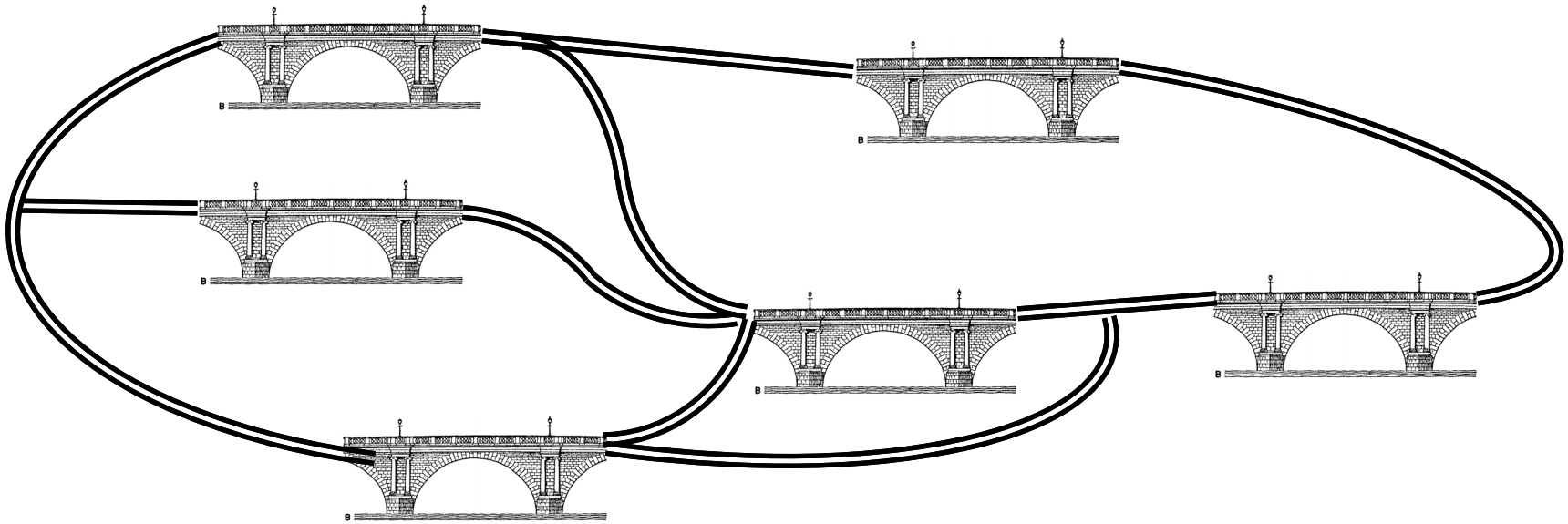
HVTT 15



What does it mean?

ECONOMY ON WHEELS
fast changes, slow structures

HVTT 15



Questions and comments

ECONOMY ON WHEELS
fast changes, slow structures
HVTT 15

Thanks!

ECONOMY ON WHEELS
fast changes, slow structures

HVTT 15

gavinh@tca.gov.au