

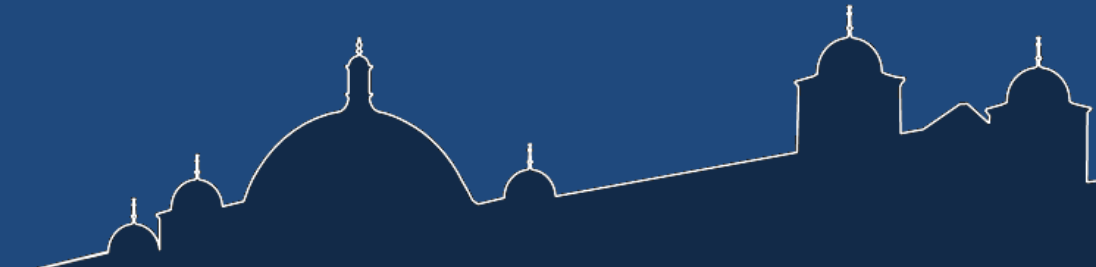


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# Planning pathways to climate- change-ready railways

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BCRRE



# Climate Ready Rail

- Infrastructure for the future
  - New infrastructure
  - Elements of current systems (100+ years life)
- Underlying problem
  - Resilient infrastructure is not enough
  - Resilient infrastructure systems are required
    - Robustness, Redundancy, Recovery
  - Asset management approaches are critical

# Infrastructure system components

- Structures
- Control, Power and Communications
- Vehicles
- Staff and Passengers
  - Wider society stakeholders
  - Tacit knowledge of disruption
  - 'Value' and 'Risk' perceptions

# Resilience and adaptation

Climate is changing

International agreements (Paris, SDG, Sendai)

National commitments and NAPs

Space for coherent systemic action framework

Sector specific actions are happening

Estimates of costs of business/disruption exist

# What this looks like in Rail

- Rail Adapt sponsored by UIC
- Workshops in London/Beijing
- 90 people / 50 organisations / 20 countries
- Informed by a background document





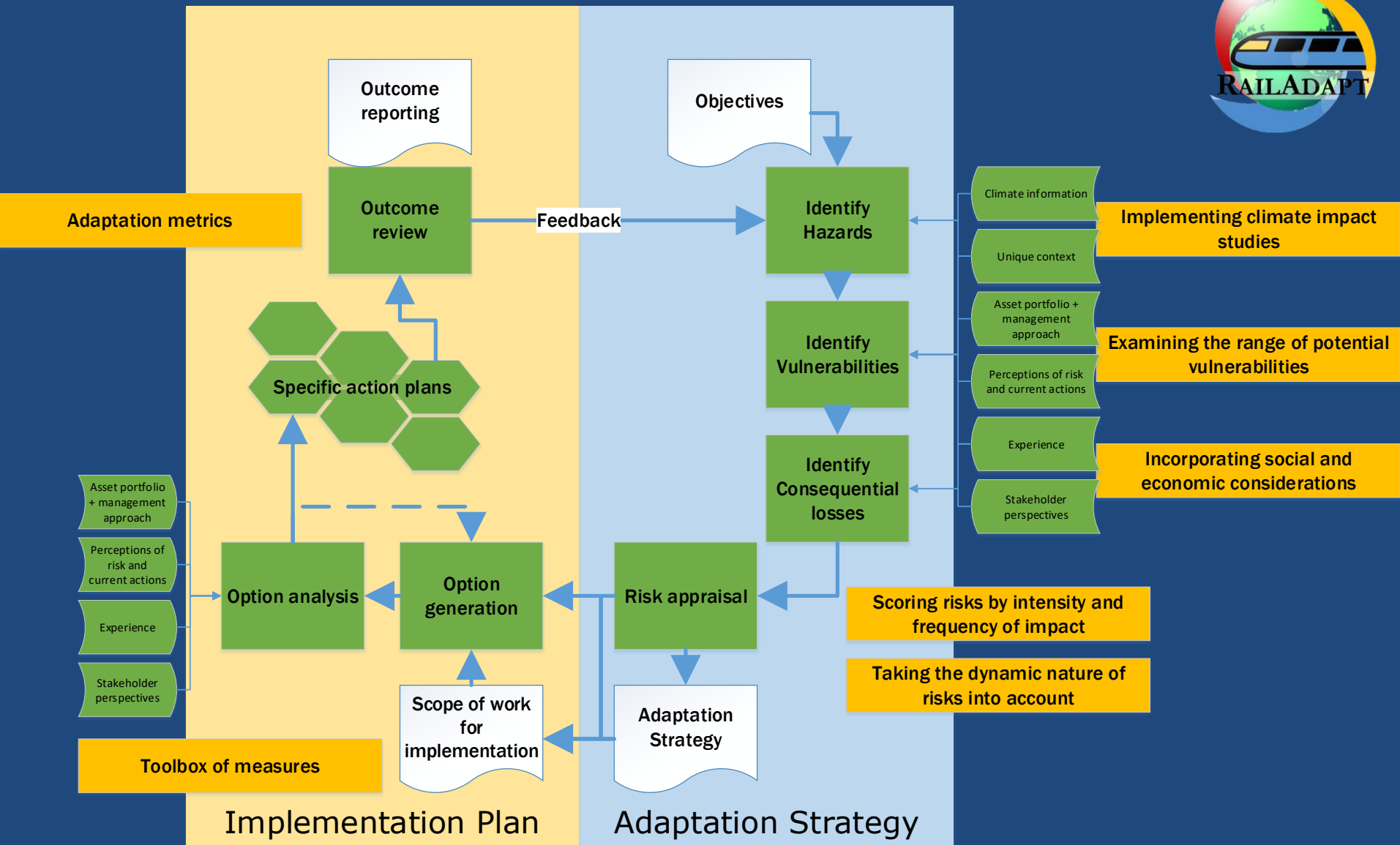
# Principles 1/2

- Avoid reinvention (i.e. duplication)
  - Activities, processes, codes of practice etc.
- Link mitigation, adaptation, sus development
  - Mirroring common Sendai, Paris, SDG approaches
- Link broadly within an organisation
  - Avoid stand alone 'department for adaptation'
- Link broadly outside an organisation
  - Mutual benefits and wider expertise

# Principles 2/2



- In mobility field work across modes
  - e.g. Mutual support in times of disruption
  - e.g. Commonly certified contractors
- Adaptation is not a 'project' or 'extra'
  - Needs to be iterative and business-as-usual





# Option examples



- New infrastructure
  - Design codes, standards and specifications
  - Smart self-monitoring / repairing systems
- Existing short-life infrastructure
  - Enhanced recovery capability e.g. spare capacity
- Existing long-life infrastructure
  - Enhanced monitoring, inspection and renewal

# Conclusions

- Cross-sector and inter-agency working
- Strategy that enables various options
- Giving variety of potential responses
- Future requirements are:
  - Consistent evaluation techniques and metrics
  - Whole system modelling capturing disruption

