A ‘safe system’ process model for level crossings

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Ireland
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UNECE Expert Group tasks

- Enhance safety at level crossings
- Evaluate laws and safety performance
- Evaluate factors leading to unsafe conditions
- Strategic action plan for road/rail interface
  - Develop framework to implement
  - Use ‘safe system’ approach
  - Monitor and report
- Workshops to support core objectives
- Identify future strategic and research needs

‘Safe system’ process model?

areas:

- Infrastructure design & management
- User behaviour management
- National policy and law
- Safety enhancement

elements and *process*:

- economics, engineering, environment, ergonomics
- enable + educate + encourage (=> empower)
- enforcement, emergency preparedness, expectations
- *engage, evaluate, enhance*

RSC

Level crossing

Operation Lifesaver
'3 key elements'

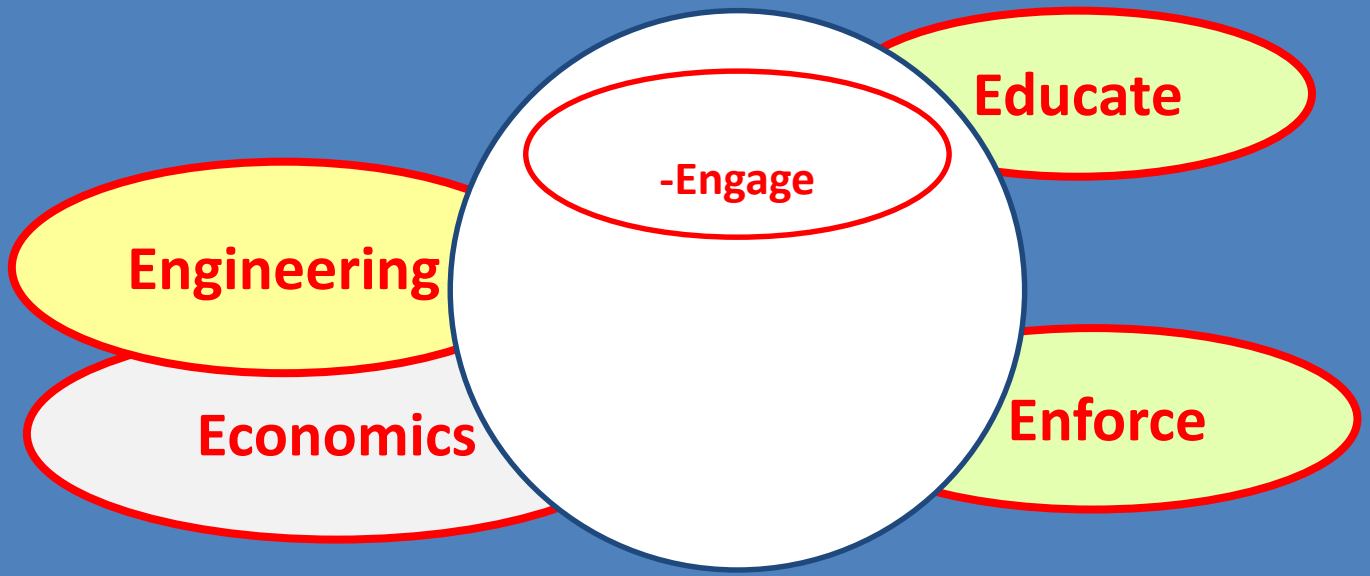
Educate

Engineering

Enforce

Level crossing safe system

UNECE
'approach' &
'5 key elements'



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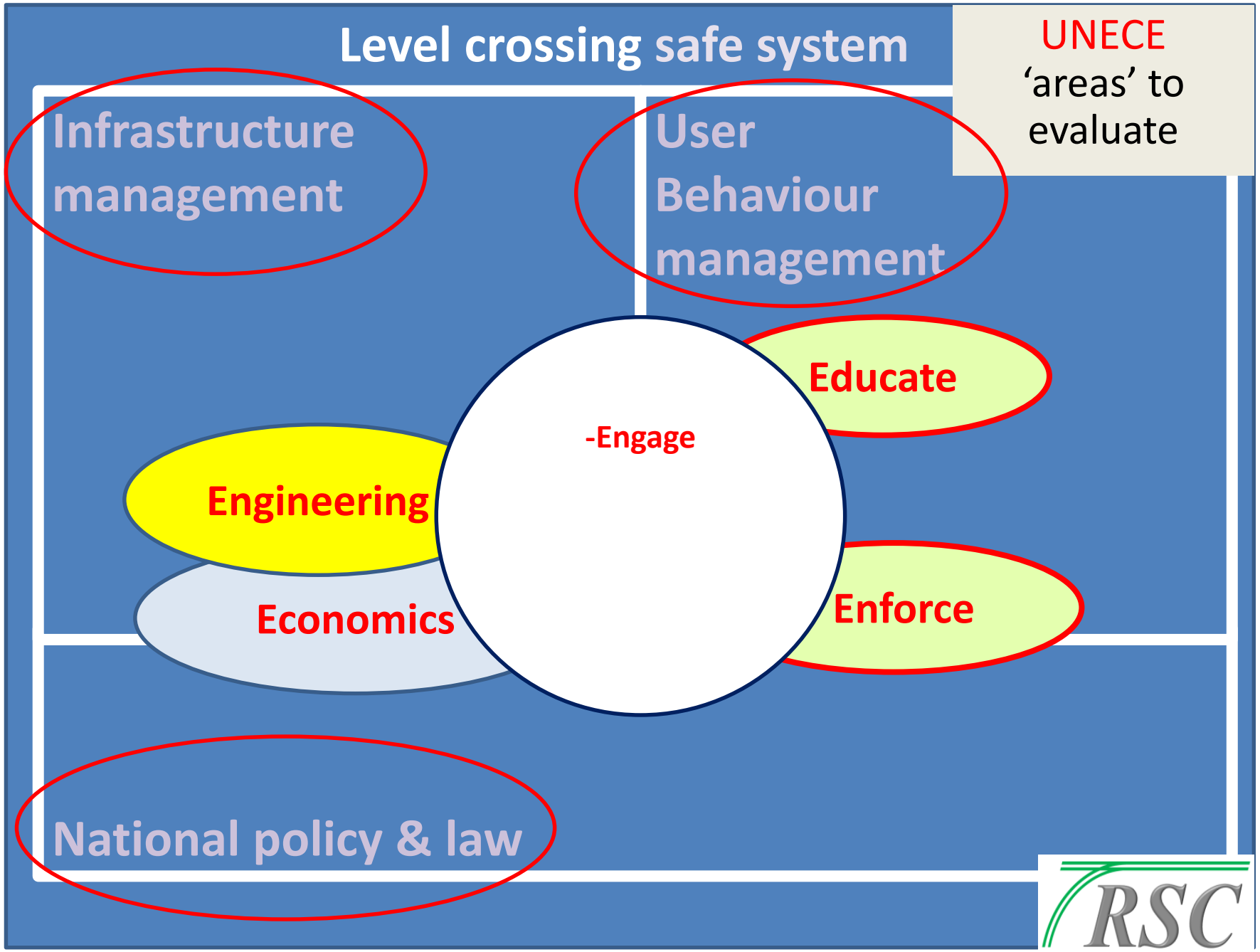
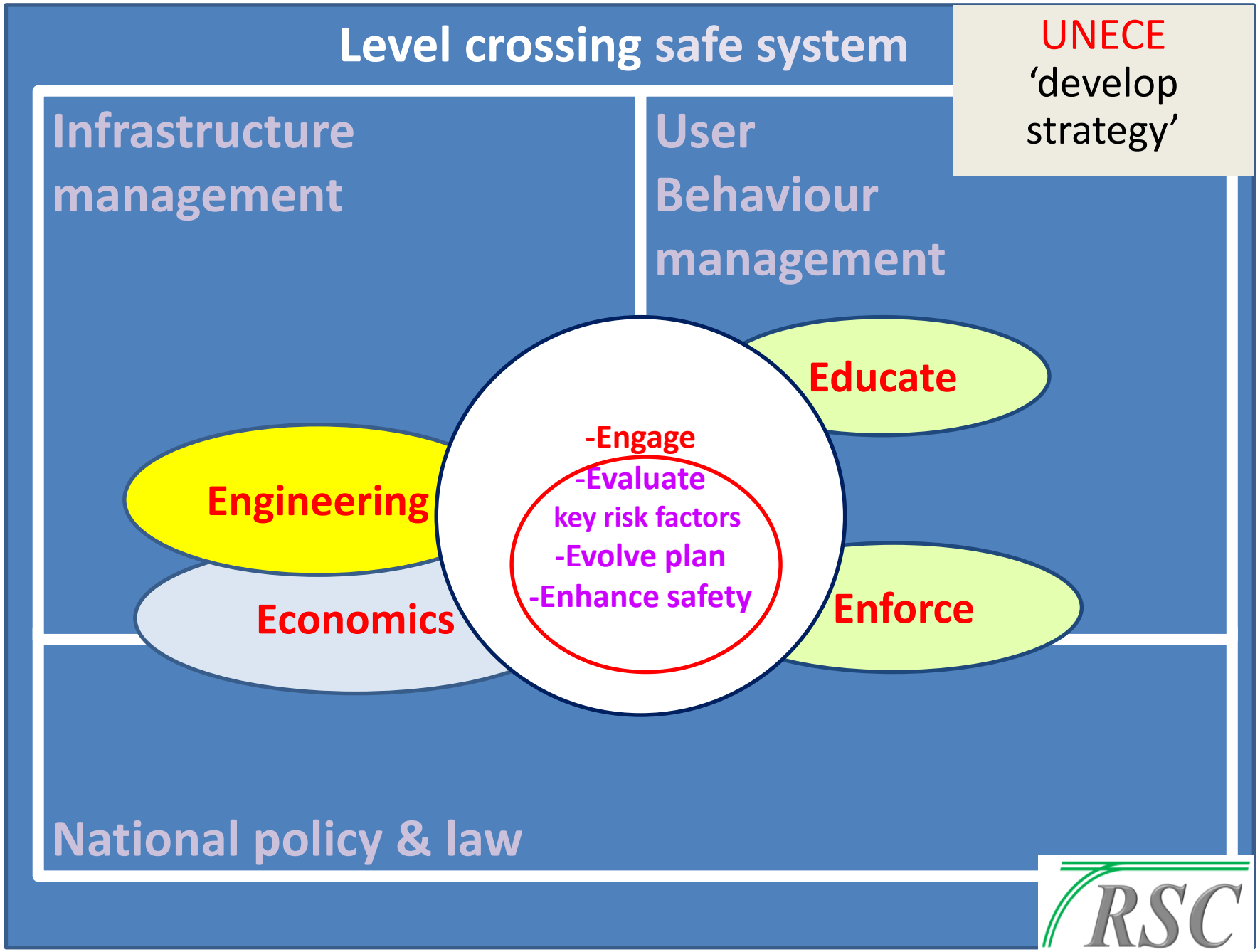
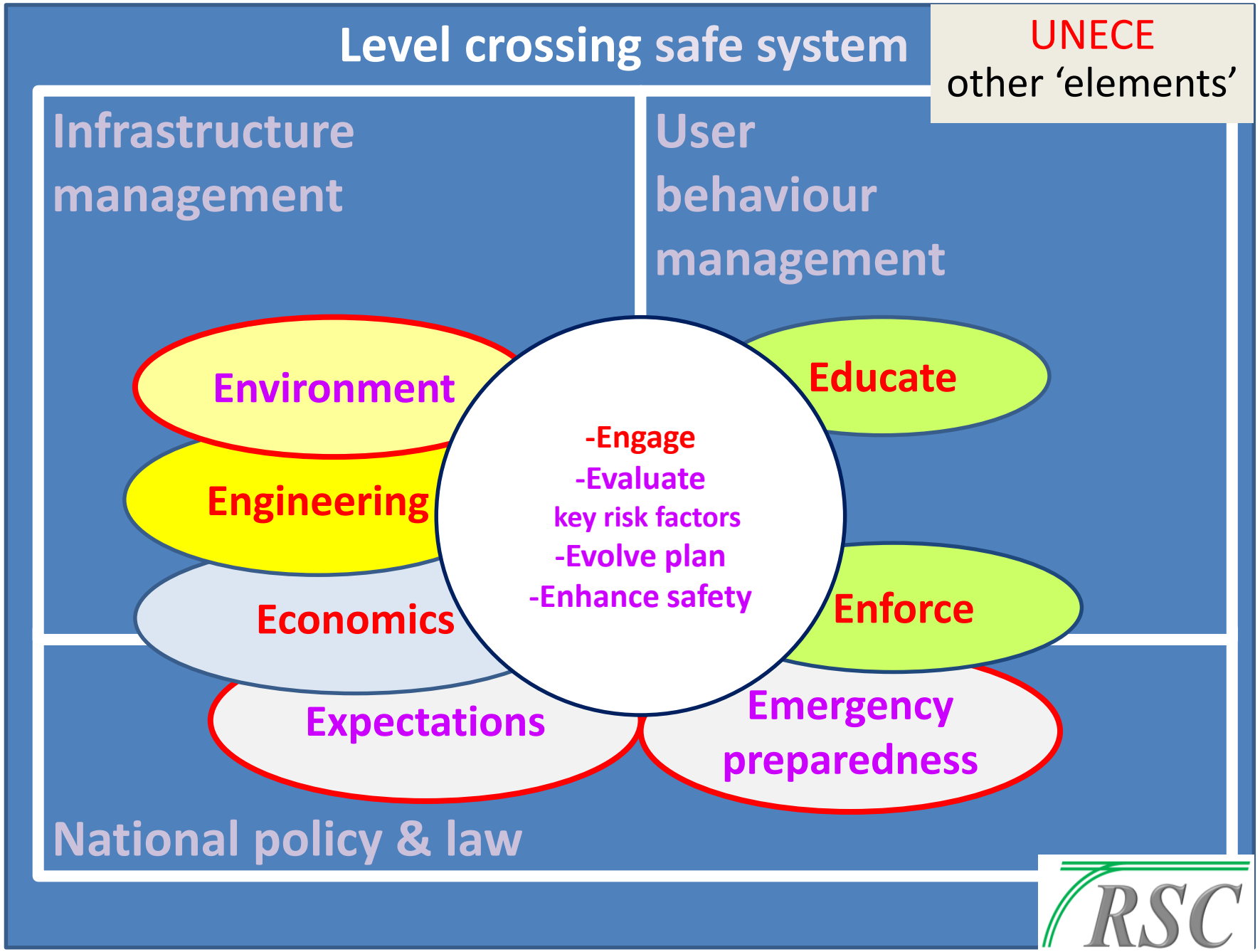
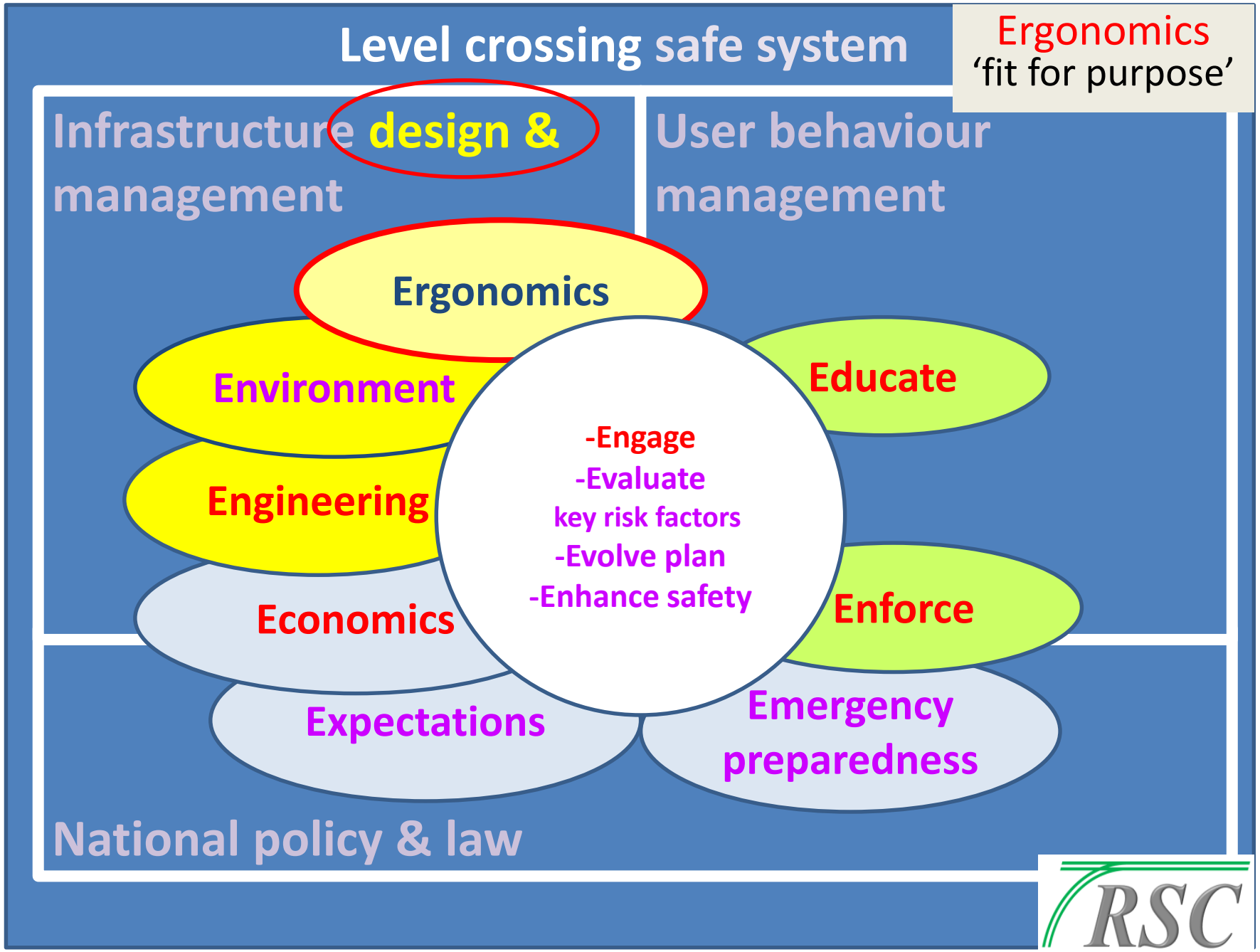
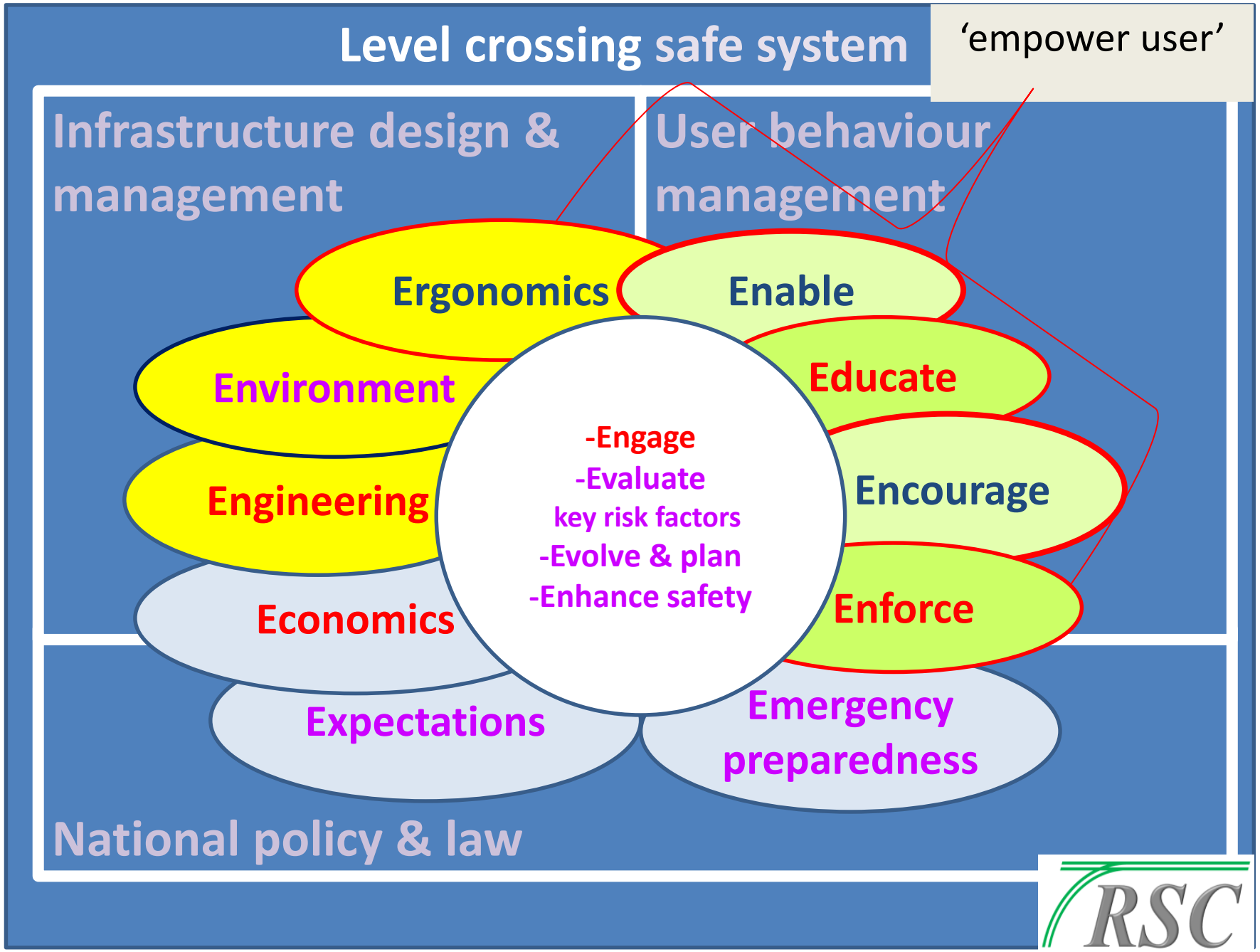

Level crossing safe system
UNECE
'areas' to
evaluate
Infrastructure
management
User
Behaviour
management
Educate
-Engage
Engineering
Economics
Enforce
National policy & law
RSC


Level crossing safe system
UNECE
'develop strategy'
Infrastructure management
User Behaviour management
Educate
Engineering
-Engage
-Evaluate
key risk factors
-Evolve plan
-Enhance safety
Economics
Enforce
National policy & law
RSC


Level crossing safe system
UNECE
other 'elements'
Infrastructure management
User behaviour management
Environment
Engineering
Economics
Expectations
-Engage
-Evaluate
key risk factors
-Evolve plan
-Enhance safety
Educate
Enforce
Emergency preparedness
National policy & law
RSC


Level crossing safe system
Ergonomics
'fit for purpose'
Infrastructure design & management
User behaviour management
Ergonomics
Environment
Engineering
Economics
Expectations
Educate
Enforce
Emergency preparedness
-Engage
-Evaluate
key risk factors
-Evolve plan
-Enhance safety
National policy & law
RSC


Level crossing safe system
'empower user'
Infrastructure design & management
User behaviour management
Ergonomics
Enable
Environment
Educate
Engineering
Encourage
Economics
Enforce
Expectations
Emergency preparedness
-Engage
-Evaluate
key risk factors
-Evolve & plan
-Enhance safety
National policy & law
RSC

Theory of planned behaviour

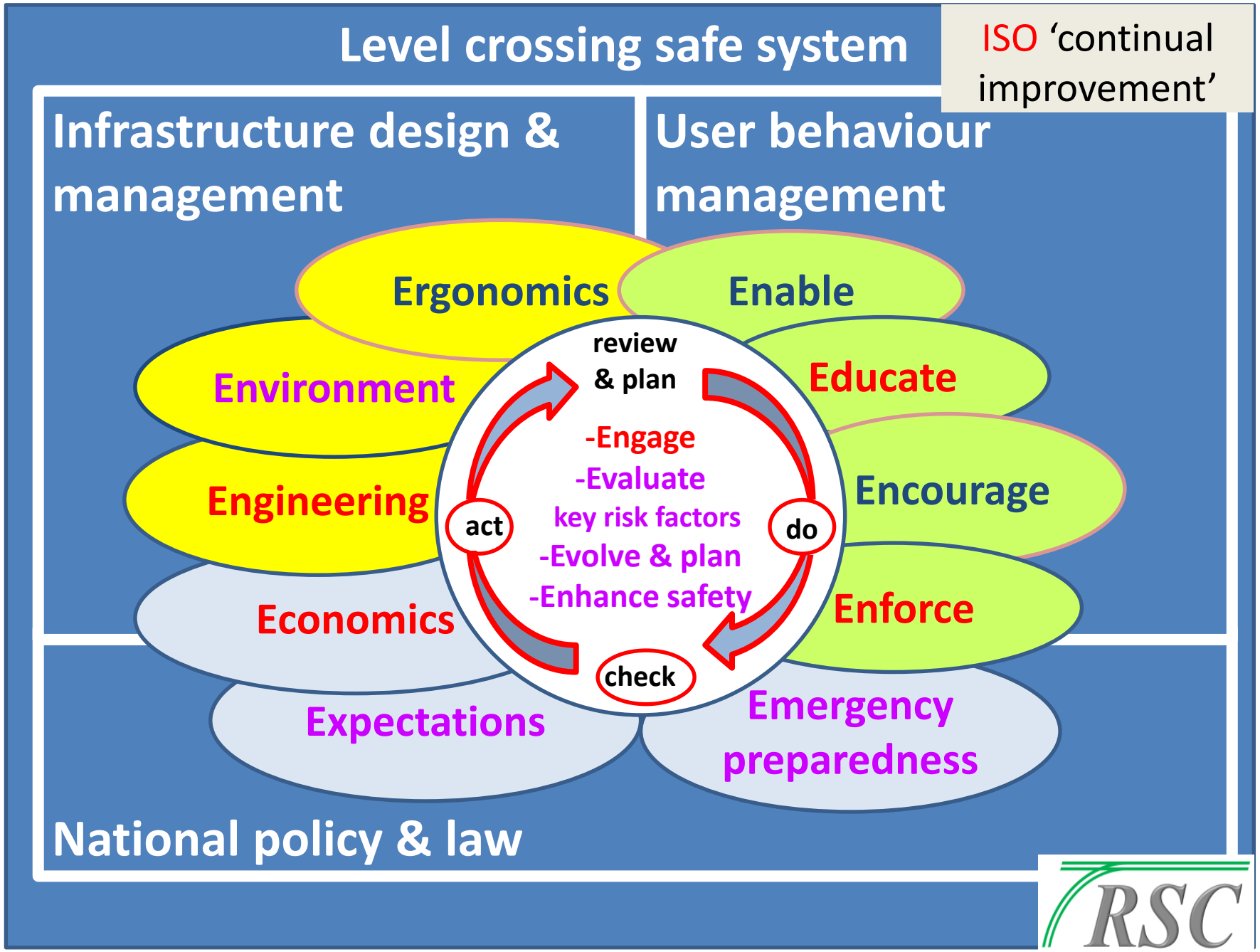
Beliefs ->

-> attitude, acceptability & ability

-> intention

-> behaviour

Source: Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes,* 50, p. 179-211.


Level crossing safe system
ISO 'continual improvement'
Infrastructure design & management
User behaviour management
Ergonomics
Enable
Environment
Educate
Engineering
Encourage
Economics
Enforce
Expectations
Emergency preparedness
review & plan
-Engage
-Evaluate
key risk factors
-Evolve & plan
-Enhance safety
act
do
check
National policy & law
RSC

Level crossing ‘safe system’

- system approach
- multi-disciplinary
- Safe by design, fit for purpose
- empower users
- manage risks
- enhance safety

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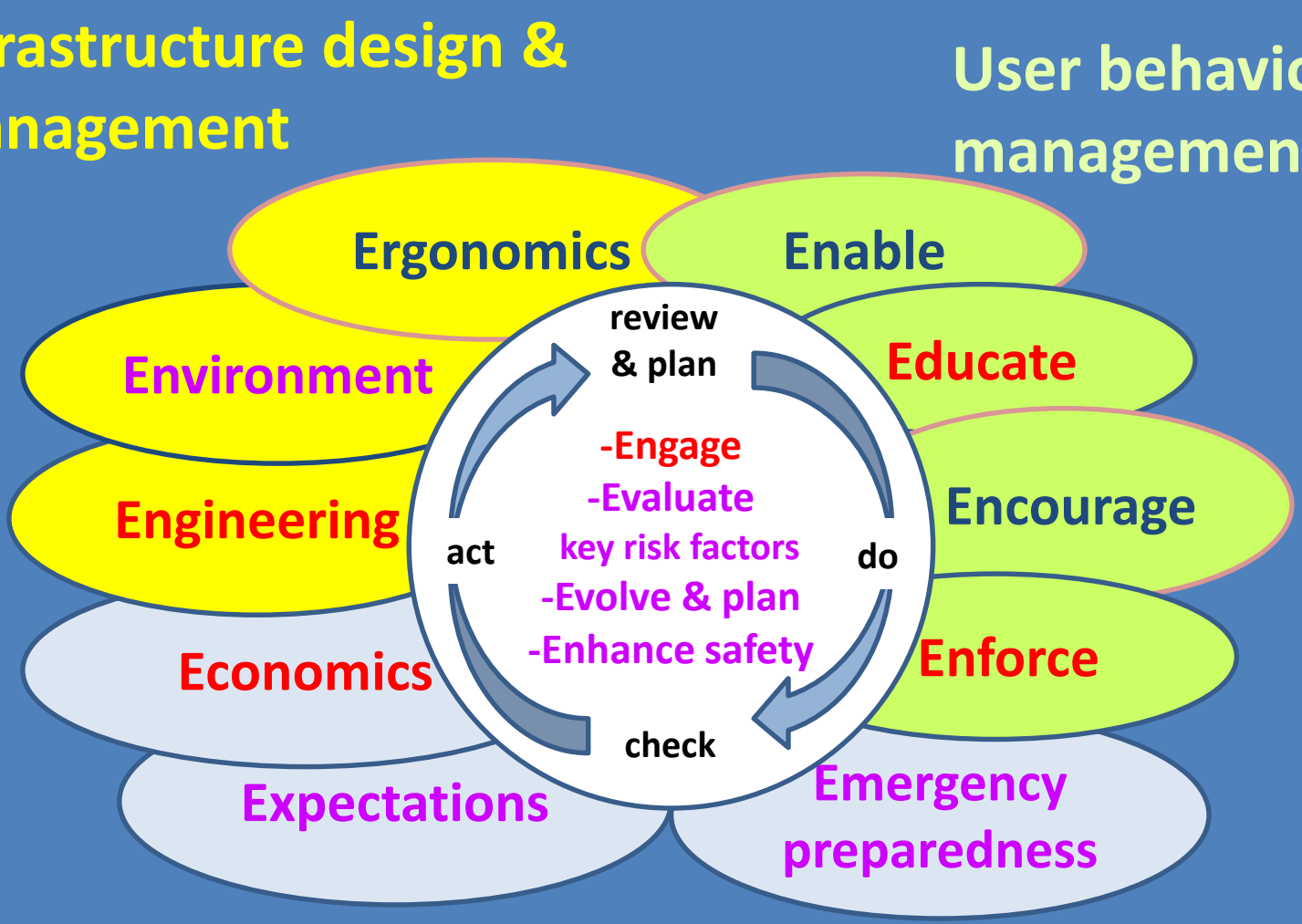
Level crossing safe system



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