

**Inland Transport Security  
Discussion Forum**

**Analysis and economic assessment of  
rail transport security**

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# This presentation aims to...

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- Set out the rationale for using economic appraisal in transport security
- Examine the context of economic appraisal in counter terrorism railway security
- Examine the cost and benefits of security measures
- Cost benefit analysis
- Effective security measures in the rail environment
- Consider rail security as part of a wider counterterrorism environment
- Conclusions.

# Rationale for economic appraisal

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- Will assist policy officials and business to make informed decisions
- There is a need to compare policy options in an analytical manner
- Appraisal is widely used in the transport sector e.g. safety, road schemes
- Business expectation – policy officials should know the cost of requiring security measures
- Increasing decisions are taken based upon economic values
- The current financial uncertainty will place greater scrutiny on decisions.

# The context - economic appraisal in counter terrorism security

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- Transport is a known terrorist target – previous attacks on air and rail sectors
- The threat can vary across the sector – domestic, international and freight
- The threat can vary across different countries
- National and international terrorism and also extremist groups
- Terrorism threat is dynamic – CBRNE
- There is a comparison with a safety case but there are significant uncertainties.

# Financial costs

- Implementing security measures - capital and operational costs
- Who pays - private or public sector cost – it is different across Europe
- Private sector – user pays principle
  - railways, passengers, associated businesses
- Public sector – public purse
  - regulating, policing, enforcement
- Accounting principles - optimism bias, cost of capital, depreciation, maintenance, training, net present values.

# Financial benefits

- Benefits - Micro and Macro level
- Micro level
  - Preventing loss of lives, infrastructure damage, delay costs etc
- Macro level
  - Retaining confidence in financial markets
  - Retaining international tourism
- Operational analysis / scenario testing of incidents
- General crime benefits – serious crime, antisocial behaviour.

# Cost benefit analysis

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- The main challenge in conducting a cost benefit analysis is to have sufficient data on past events to predict future trends
- Lack of data provides inherent uncertainty in any economic analysis
- There is some history – successful attacks on the railways, e.g. Madrid, London
- Using other sources of information i.e. from the intelligence services – but this is subjective and public transparency is an issue
- Terrorist events are high impact low probability events
- Is statistical confidence in predicting future events unrealistic?

# Cost effective security

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- The mass transit environment - the rail network has unique challenges for effective security
  - These include ease of access to the rail network and its integration in the built environment
  - What level of delay, inconvenience, confidence would passengers accept?
- Proportionality -
  - Appropriate to types of service - domestic, international, freight  
Appropriate level nationally, internationally
- Tolerability of risk -
  - Risk is a factor of threat, vulnerability and impact
  - ALARP used in H&S.

# Other related issues

- Deterrents - effective security measures should also deter terrorists and other criminals but this is very difficult to measure
- Displacement - effective security measures could change the threat type or move the threat to another sector
- Strategic initiatives
  - Protect – to strengthen our protection against terror attack
  - Prevent – to stop people from becoming terrorists or supporting violent extremism
  - Pursue - to stop terrorist attacks
  - Prepare – where an attack cannot be stopped, to mitigate its impact .

# Conclusions

- Economic appraisal of security measures should be used to assist policy makers to make informed decisions
- Certain aspects of cost benefit analysis and value for money appraisal can be applied to security measures
- Understanding the financial cost is relatively straight forward but quantifying the potential benefits is very difficult
- Lack of data and the dynamic nature of the terrorist threat are real obstacles to predicting incident rates and therefore robust benefits
- There is no existing economic model that fully meets the needs of counter terrorism security appraisal – this is the challenge!

**Questions?**