

# Transport Telematic in Practice

## System Approach to the Telematics Systems' and Services' Proposals and Realizations

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# Content

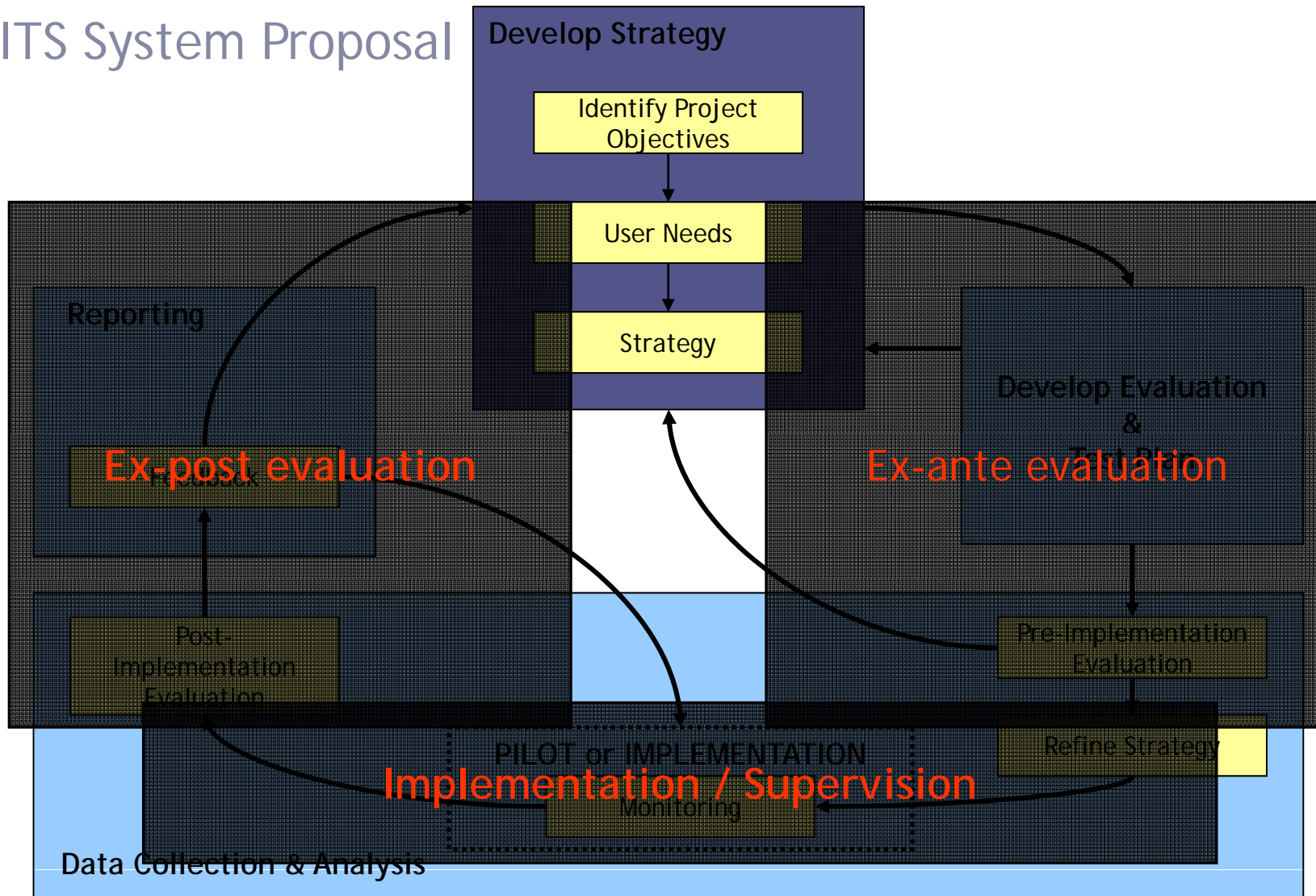
- Introduction
- ITS System proposal cycle
- Ex-Ante Evaluation of ITS Projects
- Implementation / Supervision
- Ex-Post Evaluation of ITS Projects
- Conclusion



# Introduction

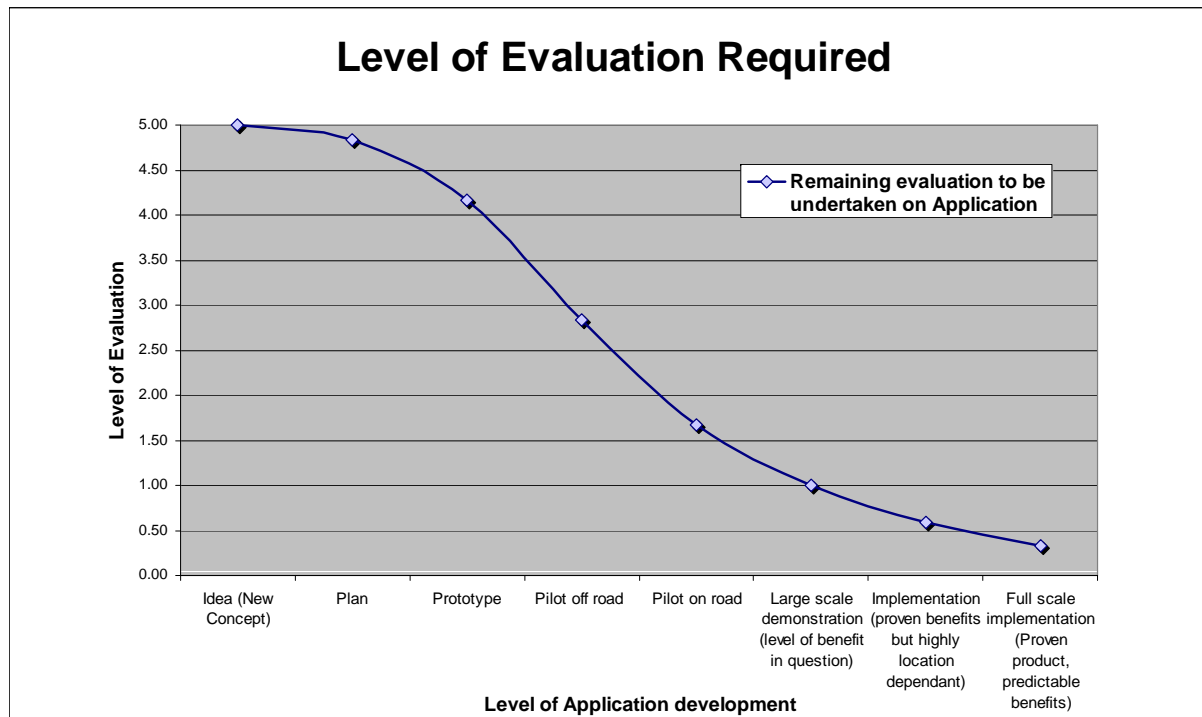
- Need of ITS strategy
  - National level
  - Regional level
  - Local level
- Definition of objectives
  - Different level of detail with respect to the level of strategy
- Technology independent
- Harmonization of different levels
  - Horizontal
  - Vertical

# ITS System Proposal



# Introduction

- ITS Projects' Life-Cycle

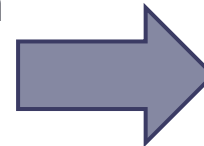


# Ex-Ante Evaluation of ITS Projects

- Pre-Investment Phase Analyses

- Opportunity Study

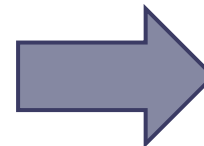
- Investment opportunities identification
    - Economical potential
    - Risk Assessment



Pre-selection

- Pre-Feasibility Study

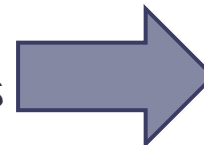
- Mid level
    - Similar structure as the FS
    - Lower level of worked up information



Final Selection

- Feasibility Study

- Detailed material
    - Precise definition of all project aspects



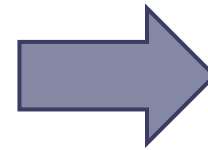
Go / No Go

- Differences in the level of detail

- Effective management of sunk-cost

# Ex-Ante Evaluation of ITS Projects

- Legal feasibility
  - Legal constrains
- Schedule feasibility
  - Project delivery time
- Operational feasibility
  - Organizational aspects
- Technology and system feasibility
  - Different solutions
  - Different performance
- Economic feasibility
  - Project sustainability
  - Business Case Set Up



Complex description of all project's aspects in the view of project objectives

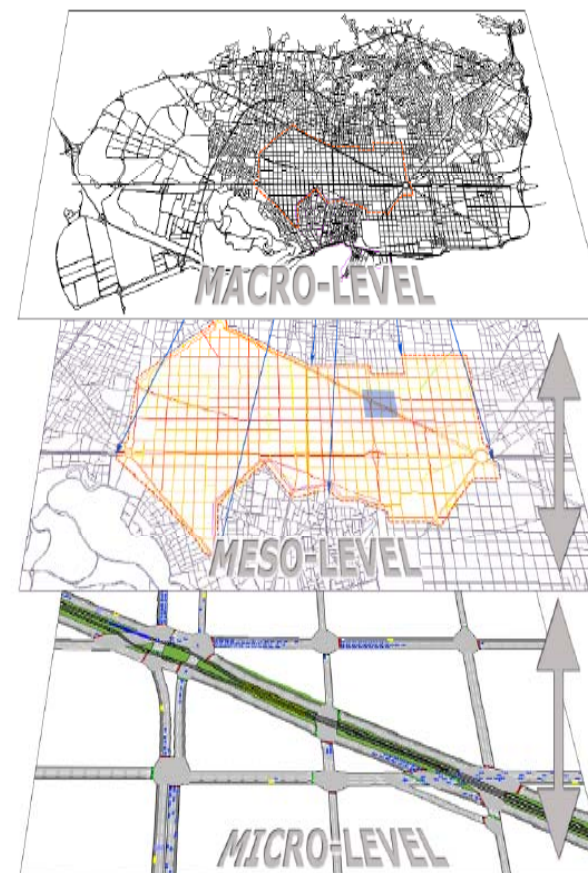
# Ex-Ante Evaluation of ITS Projects

- ITS applications & services are „publically beneficial“
  - Quantitative impacts: number of stops, traffic flow, etc.
  - Qualitative/socio-economical impacts: time costs, level of stress, environmental impacts, etc.
- Problems with estimation of ITS impacts
- Unknown impacts related data
  - At all
  - Short time lines only

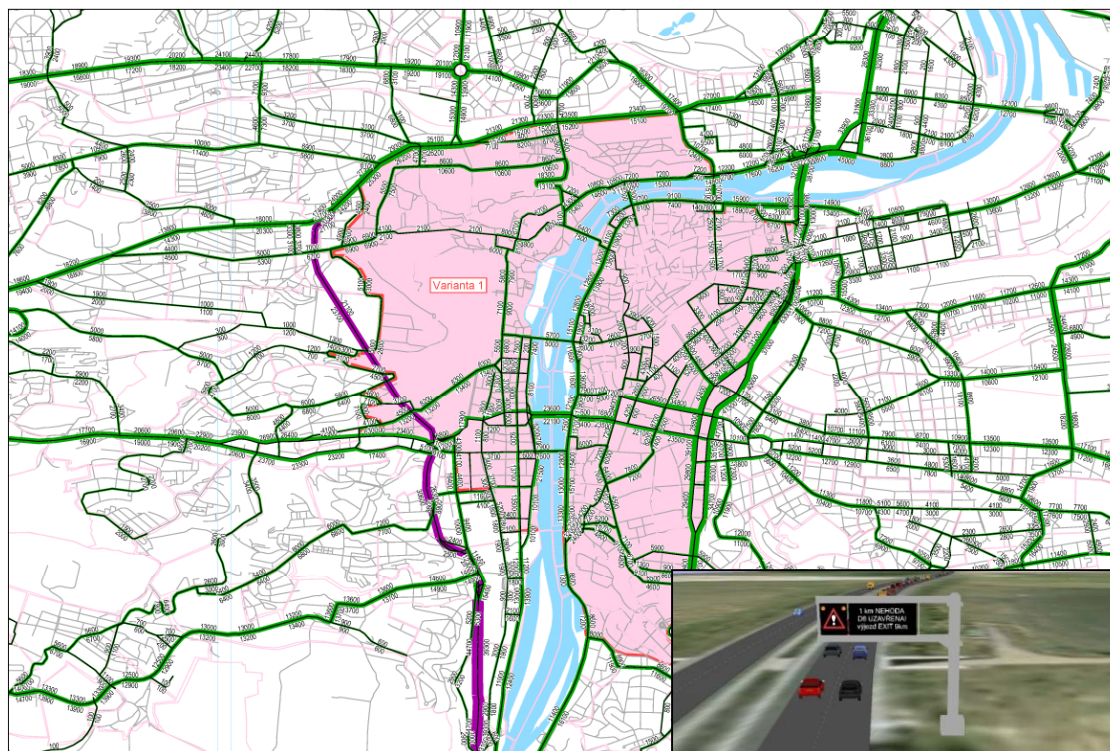


# Ex-Ante Evaluation of ITS Projects

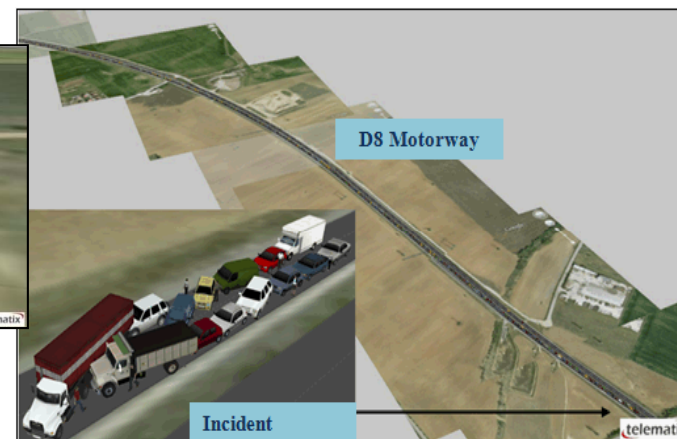
- Deployment of SW simulation tools
  - Macro-scopic: VISUM, SATURN, Omni-Trans, ..
    - Electronic Fee Collection on Motorways
    - Urban Road Charging
    - etc.
  - Micro-scopic: Vissim, Aimsun, Paramics, ...
    - Incident management systems
    - Ramp-metering systems
    - Etc.



# Ex-Ante Evaluation of ITS Projects



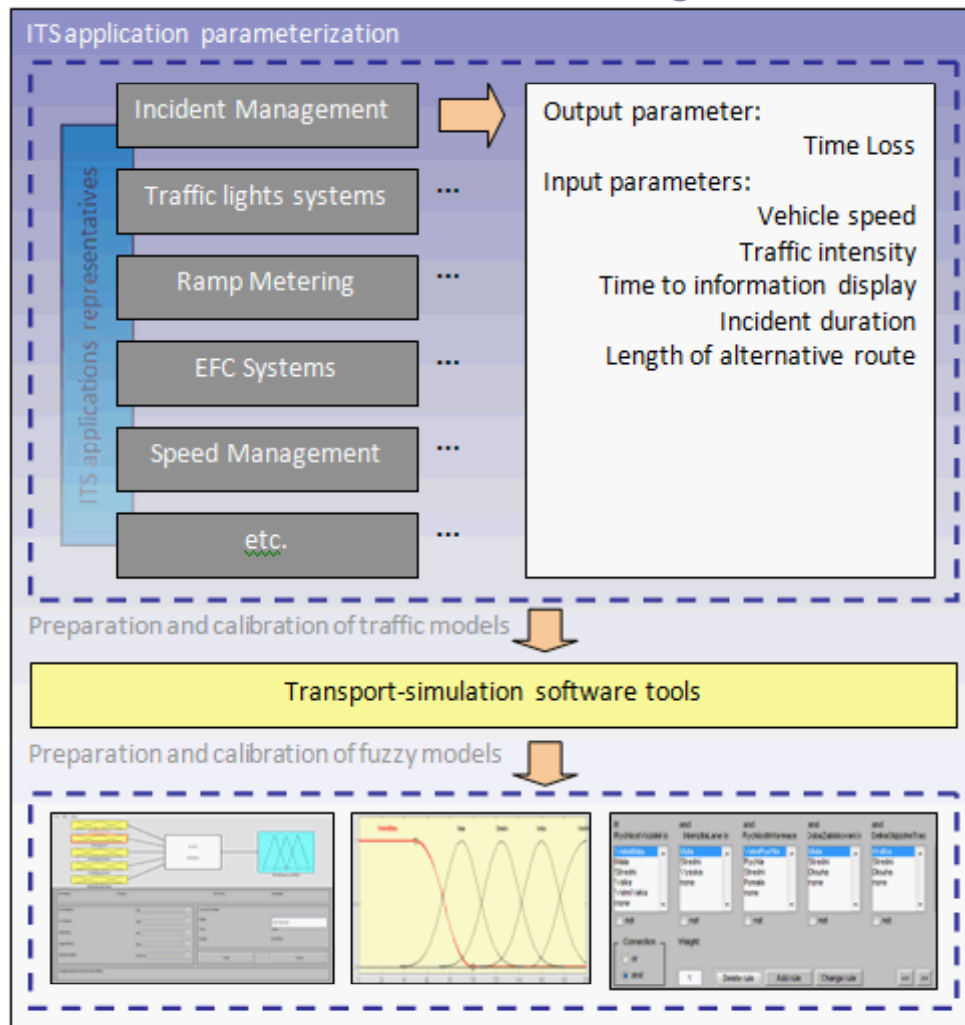
Príloha 5 - VARIANTA 1 (120) 08/2008	Intenzity automobilové dopravy (bez autobusů PID) Příprava pražského mýtného systému
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# Ex-Ante Evaluation of ITS Projects

- SW simulation outputs processing & interpretation
  - Deterministic way: MS Excel, etc.
    - Applicable for quantitative impacts enumeration
    - Basic understanding of ITS app. objectives required
  - Special math tools: Fuzzy linguistic approximation, etc.
    - Applicable for qualitative impacts enumeration
    - Advanced understanding of ITS app. objectives required

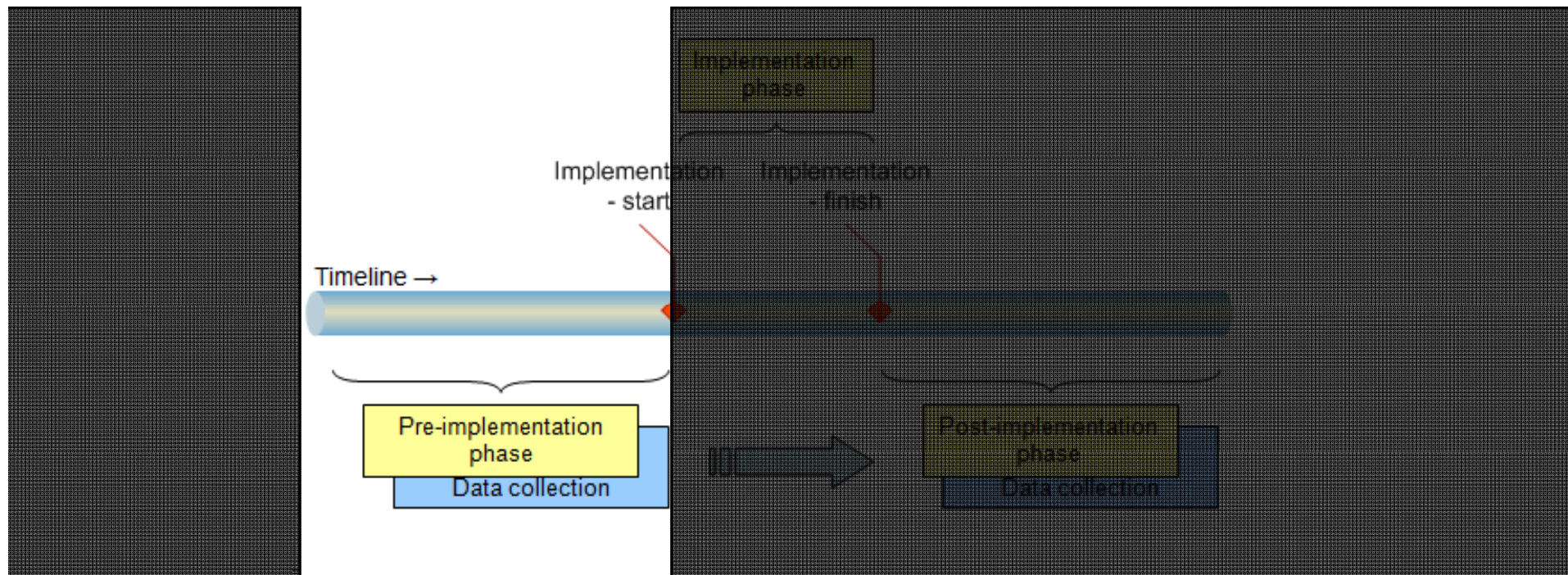
# Ex-Ante Evaluation of ITS Projects



# Ex-Ante Evaluation of ITS Projects

- Technologies to be used
  - Investment phase
  - Operation phase
- Alternatives definition
  - Technological differences
  - Pros/Cons
- CBA input parameters enumeration
  - Costs
  - Benefits

# Implementation phase - supervision



## Implementation phase - supervision

- Supervision is related to the infrastructural projects
  - Roads infrastructure
  - Railway infrastructure
  - ...
  - ITS infrastructure
- Supervision's objectives
  - Monitoring
  - Inspection
- ITS related specifics
  - Additional professions needed
  - Need to deal with functionality testing
  - Focus on the surrounding systems
  - Compliance with , strategies, architectures, etc.

## Implementation phase - supervision

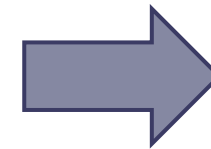
- Supervision's specific targets
  - Independency
  - Expert guidance
  - Monitoring of the physical work flows
    - Contractor
    - Sub-contractors
  - Monitoring of the work procedures quality
    - Contractor
    - Sub-contractors
  - Background material preparation for
    - Technical check
    - Functional check
    - Financial check



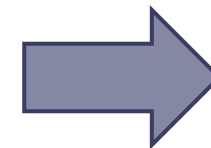
## Implementation phase - supervision

### ■ Supervision's related experts

- Team leader
- Low-voltage systems expert
- High-voltage systems expert
- Urban engineering expert
- Transport infrastructure expert
- Financial expert
- Telematics systems expert
- Telecommunication expert



General  
infrastructural  
projects

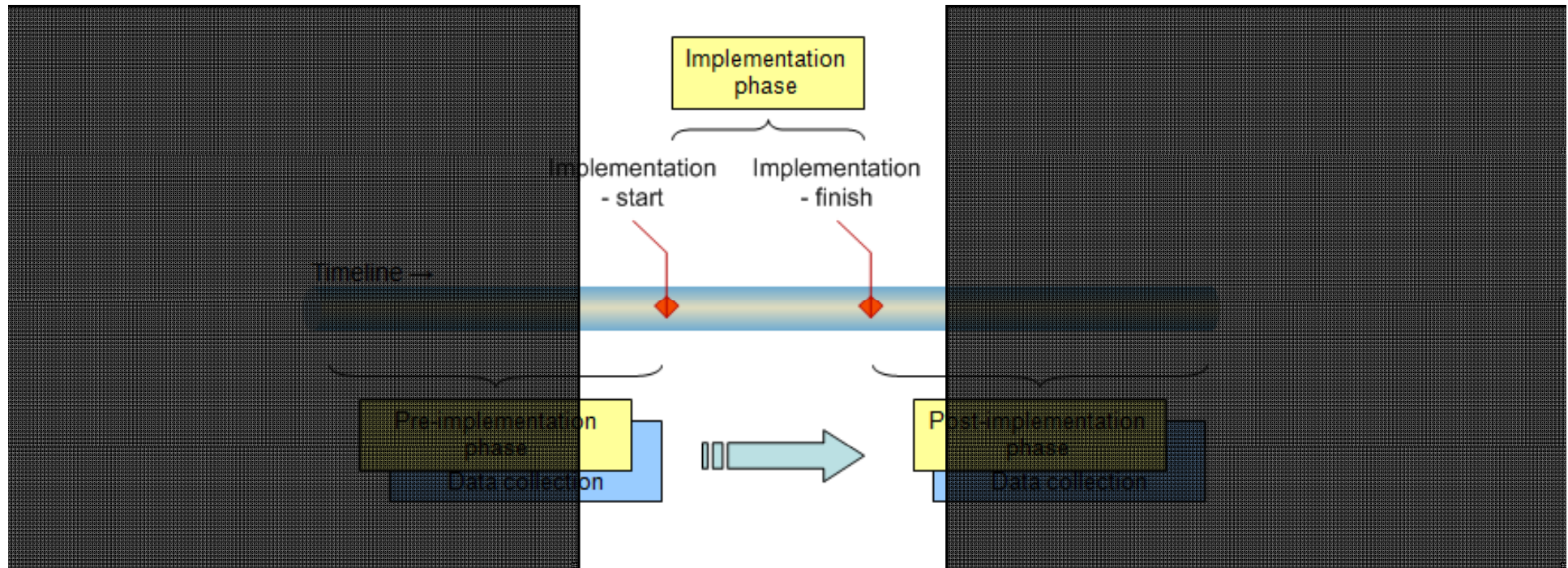


Related to ITS

## Implementation phase - supervision

- Monitoring and inspection of the
  - Formal compliance
  - Strategic/Conceptual compliance
  - Technical and functional compliance
  - Financial compliance
  - Other
- Steps undertaken
  - During the physical realization
  - After the physical realization
- Sometimes need for retrospective check

# Ex-Post Evaluation of ITS Projects



- Objective:
  - Determine how well project goals and objectives are being achieved in reality

## Ex-Post Evaluation of ITS Projects

- Real data measurements & collection
- Need before data or without measurement (do nothing)
  - Interviews
  - Surveys
  - Measurement of performance / empirical parameters for models etc.
- Perform results and process analysis
- If costs, performance and impacts really predictable, less necessary
  - but... reality is complex, especially in ITS
  - even if it works it doesn't mean that it has (enough) impact

## Conclusion

- ITS Strategy needed for different levels - it enables a systematic & harmonized ITS development in the country
- Ex-ante evaluation helps to propose and define ITS system parameters properly and allows to make ITS as efficient as possible
- Implementation needs to be supervised to ensure full and proper system deployment
- Ex-post evaluation helps to trim the system and forms the knowledge for future ITS projects



Thank you for your attention

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