

NVF - VIA NORDICA 2008

Safe Tunnels for Environment and Transport

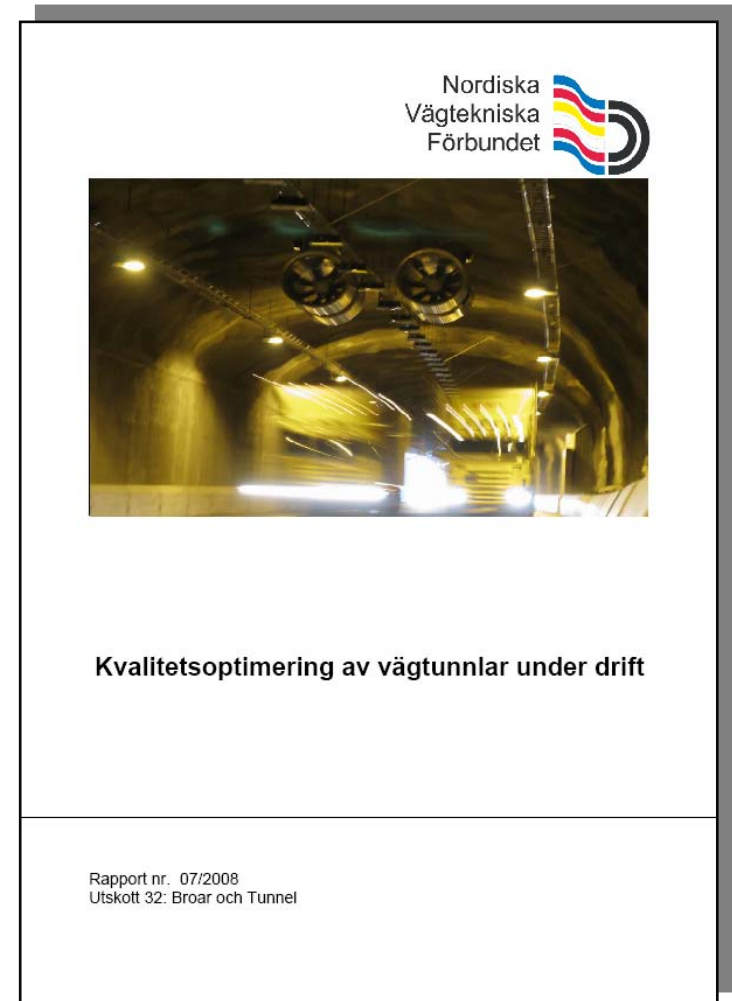
OPERATIONAL AND MAINTENANCE ASPECTS

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Report from Technical Committee 32 – Quality Optimization of Road Tunnels in Operation

Is quality optimizing of
operation and safety
possible?



Trends and influences

- New EU directive on tunnel safety
 - More focus on organization
- High operational & maintenance costs for tunnels
 - Installations
 - Performance and prioritizing
- High level of investments in infrastructure
 - Increasing costs
- More private financial actors in infrastructure
 - Profit in operation

Main Objectives for the Traffic System

External

- Passengers safety
- Accessibility and capacity
- Service and traffic information
- Environment
- Economy

Internal

- Property protection
- Safety in maintenance work
- Technical reliability
- Reparability

Organization for its Mission

- From planning to transmitting
 - More focus on long-term objectives
 - Operational & Maintenance competence involved already from planning phase
 - A maintenance strategy should be developed already in the planning phase to state that the value of the construction will not decrease
 - Formalize the transmitting

Organization for its Mission - Project Phases



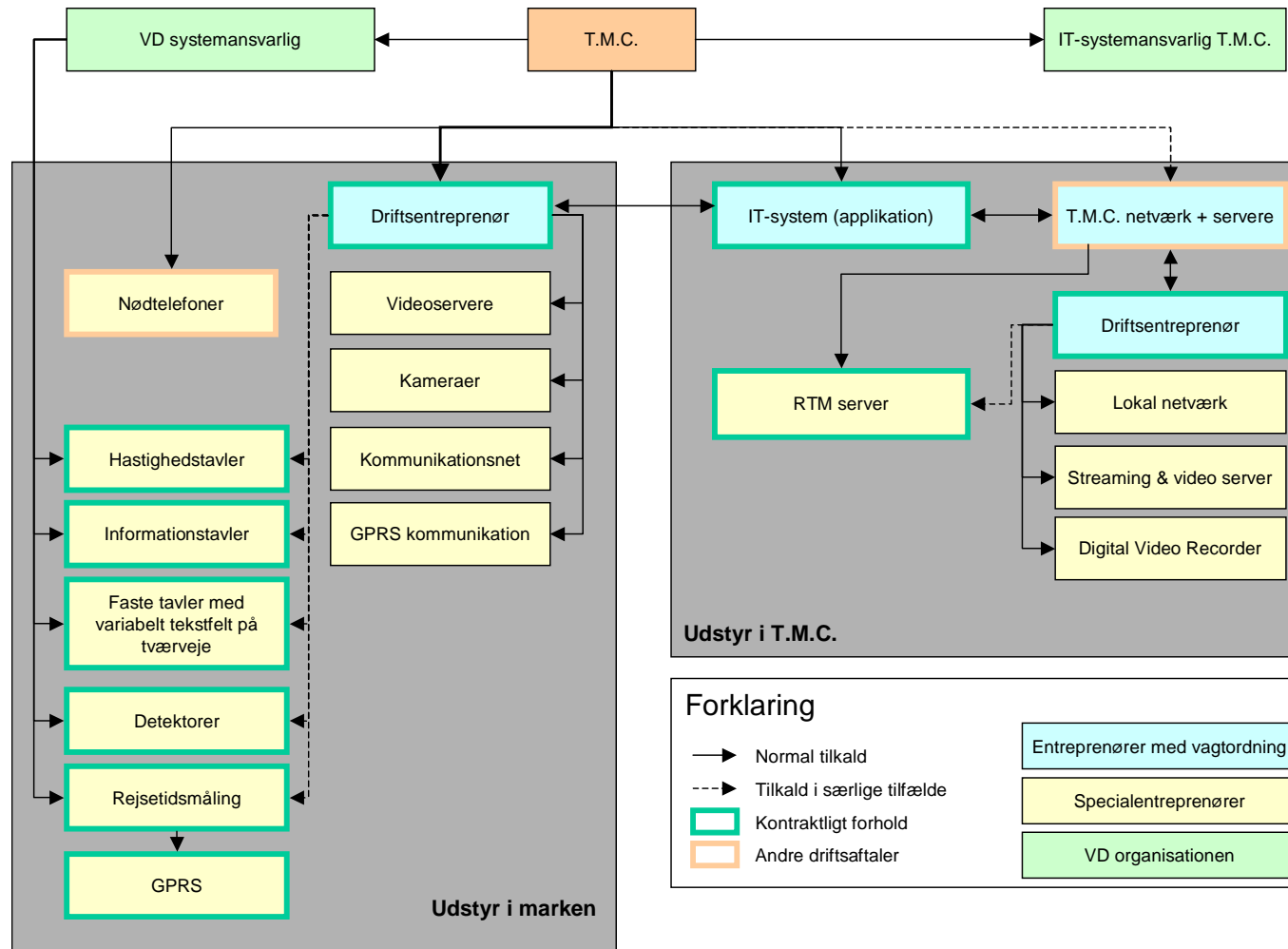
Formalize the Transmitting phase in the project

Organization for its Mission

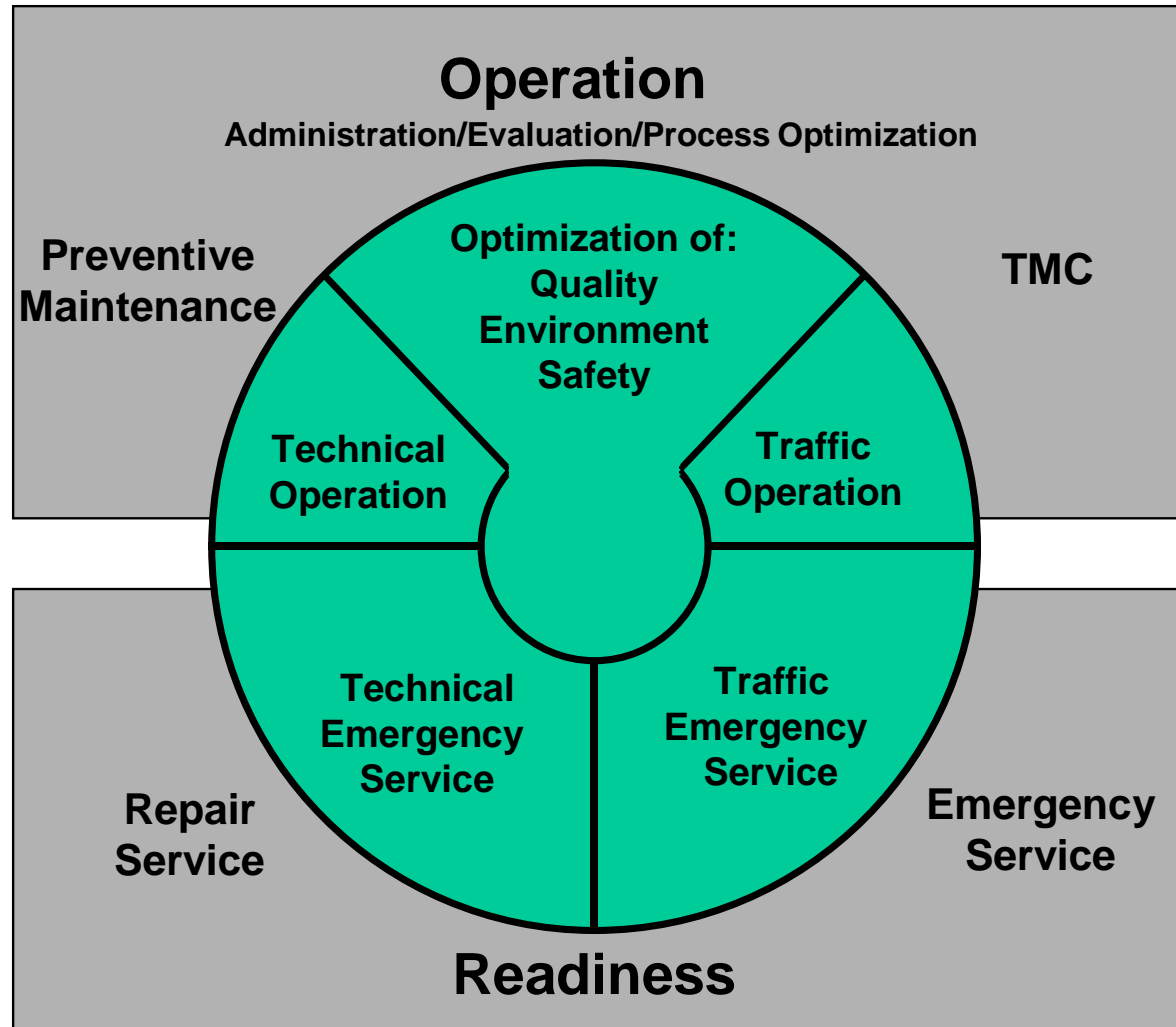
- During operation
 - Different tasks depending of situations
 - Different organizations involved in accidents
 - Main objectives for controlling the operation (Safety, Accessibility, Information, Environment, Economy)
 - Interaction between technical functions and organization

Insufficient organization ||  ***events moves to catastrophes***

Organization for its Mission - Technical systems



Organization and Assignments



Evaluation Process

- Establishment of main objectives and base data for the operation
- Select a measurement method
- Collection of operational data
- Evaluation & Analysis
- Action
- New objectives

How to Perform the Operational Optimization

- Continuous improvements according to ISO 9000
 - performed by the operational organization itself
- Quality Control function
 - regular campaign activity
 - focus on specific areas of improvement
 - use of operational data and resources
 - base for decision by the organization

A Quality Control function can be a cost effective booster

Economic Business Model

- Statements
 - Limited capital available for infrastructure projects
 - Private capital will be more and more involved in infrastructure
 - Private companies move towards profit
 - Competition between actions or projects
 - Clear objectives and profit-awareness will engage people in an organisation
- New Business Models
 - Based on profit and loss account and on balance-sheet
 - Revenue from traffic in the model
 - Capital cost included

Business Case

Traffic system:

100 000 vehicles per day.

Action:

New lightning (1 MSEK)
for energy savings (0.15
MSEK/year)

Consequences:

Loss of revenue first year,
capital costs

INCOME		
	Revenue	X
	Reduced traffic	-2 741 667
COSTS		
	Normal expenses	Y
	Capital cost	Z
	Capital cost for action	140 000
	Savings from action	-150 000

Non-revenue from traffic and capital costs will be considered

Project Portfolio Management

- A tool to handle projects
 - The portfolio handles a group of related projects
 - The tool shall meet the organization's strategic goals and objectives
 - The components of a portfolio can be measured, ranked and prioritized
 - Focus on value, risk and resources
 - Measure the value and compare to goals and objectives
 - Prioritize projects in a long-term perspective

Portfolio Manager – Optimization of a group of projects

Project Portfolio - Example

Compared to todays standard:

	Improvement
	No change
	Worse

Project	Scope	Toll Gate	Completed	Investment	Pay-Off Time	Obejctiv Factors							Resourses	Total Score /Priority
						Drivers Safety	Accessibility	Service/info to drivers	Environment	Economy	Property protection	Internal Issues		
New lightning	New lightning to reduce energy consumption.	2	2008	1 000 000	15								3	23
New ventilation	New fans instead of increasing maitenance	1	2009	15 000 000	8								5	20
Cleaning	Automatic cleaning device for tunnel	0	2012	70 000 000	99								2	9

Summary

- The base for a successful operation is founded in the planning and requirement phase of the project.
- Use operational data for evaluation and continuous improvements.
- Use a quality controller to boost your organization.
- Visualize all costs, including traffic revenue, in proposed actions or projects.
- Consider main traffic system objectives to prioritize in your project portfolio.