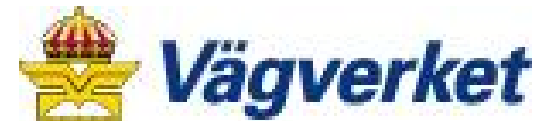




## Risk Management for Road in General and its Application.

**Johan Hansen**

- Swedish Road Administration
- Coordinating Risk Manager
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# Risk Management for Road in General and its Application.

- Sweden is a country in the north of Europe
- Population of 9 million
- Land area 450,000 square metre
- The climate consists of four seasons. Every season has its special condition for managing roads.
- The Swedish Road Administration manage approx. 100,000 km road network
- The SRA's vision and organizational concept is **“We make the good journey possible.”**





## Risk Management Emerging - again

- The **emerging fields** are called enterprise risk management (ERM), corporate governance, business continuity planning, corporate responsibility, critical issues management, etc.
- The already widely established risk management discipline is sometimes referred to as **traditional risk management** (TRM). TRM normally includes **Safety, security or loss prevention**

**However, they are all simply part of risk management under the hat of general management.**

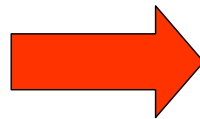
# Risk Management for Road in General and its Application.

## RISK

An Undesired Incident or Event Could Happen

### The Human Being

**Bad things could happen (static risks)**



**Good things might not happen (dynamic risks)**

**Attitude:**  
**Preserving**  
**Traditional RM**

**Nature** (flooding, heavy snowfall, landslides, etc)

**Diseases**

**War**

**Accidents**

**Attitude:**  
**Developing**  
**Enterprising RM**

Idea

Market

Development

Achieving Project Goals

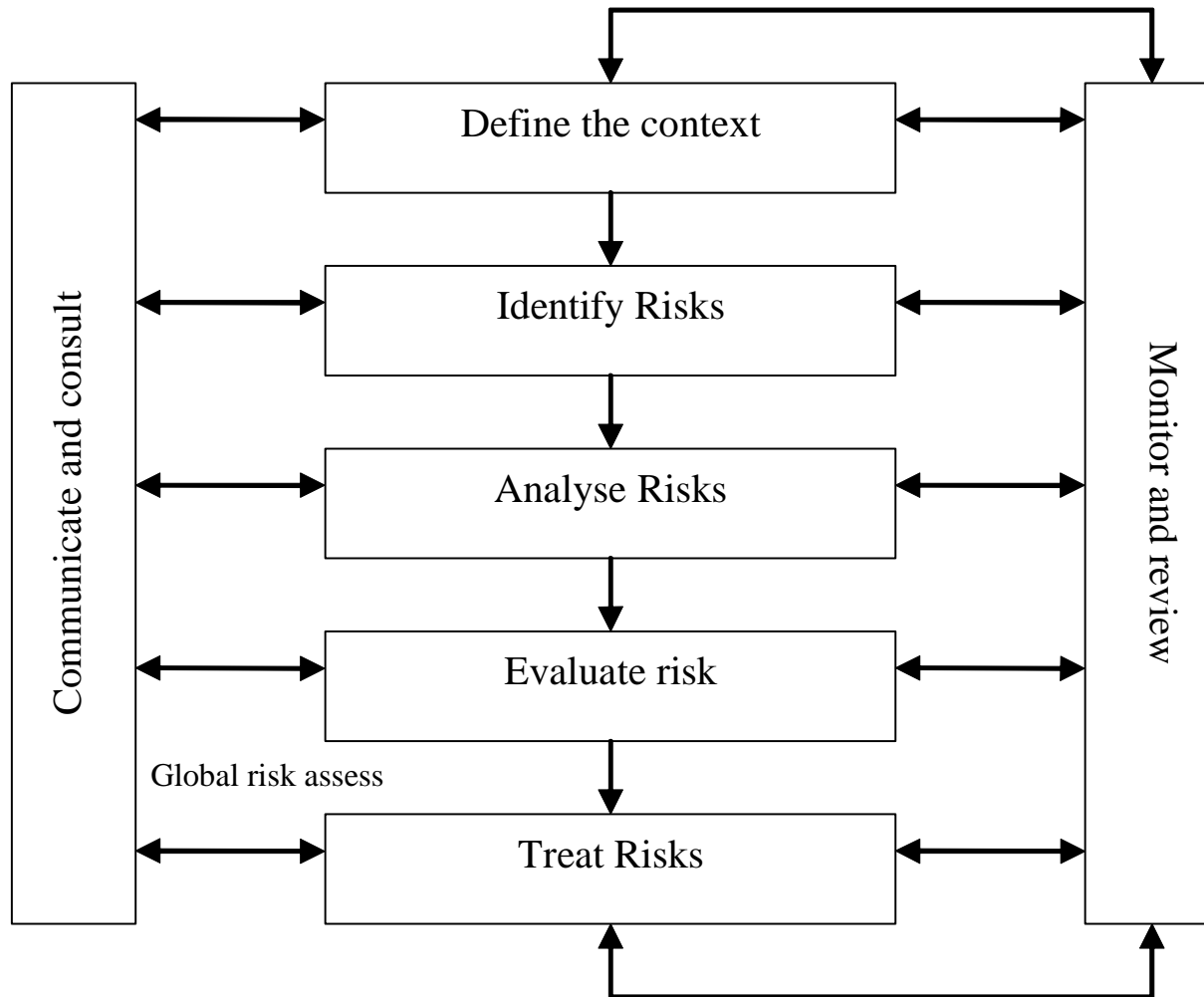
Organization Performance



# Risk Management for Road in General and its Application.

**Risk-taking is an  
unavoidable element  
in all activities.**

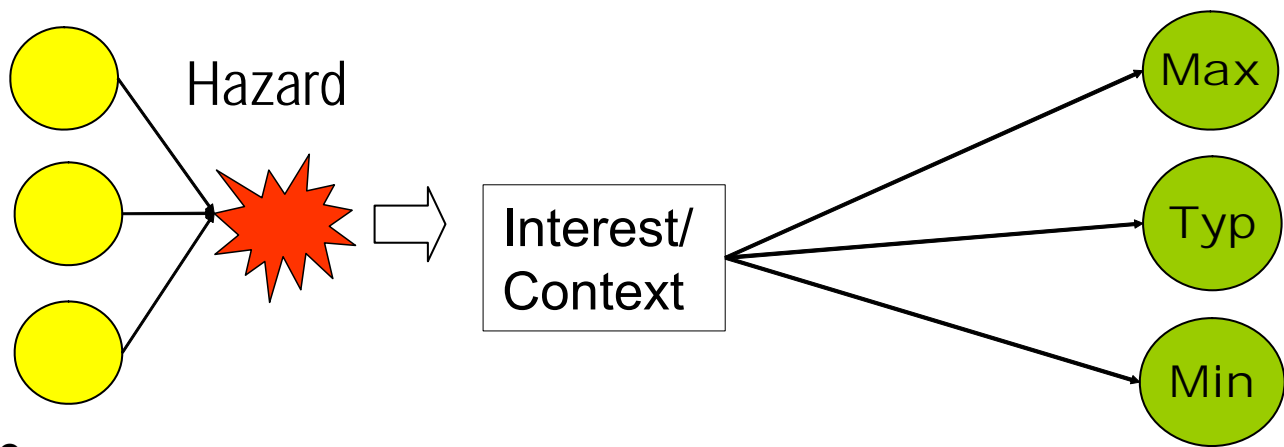
# Risk Management Process



# Overall Scenario Method for Risk Analysis

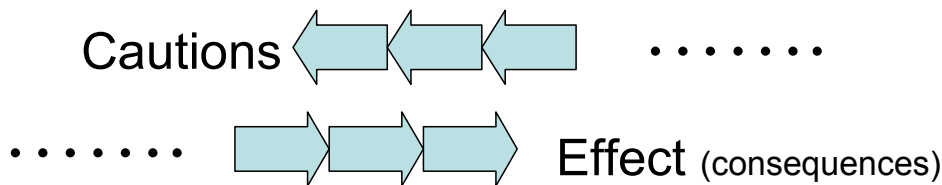
Risk Factor  
(frequency/probability)

Consequence  
(damage/losses/disturbances)

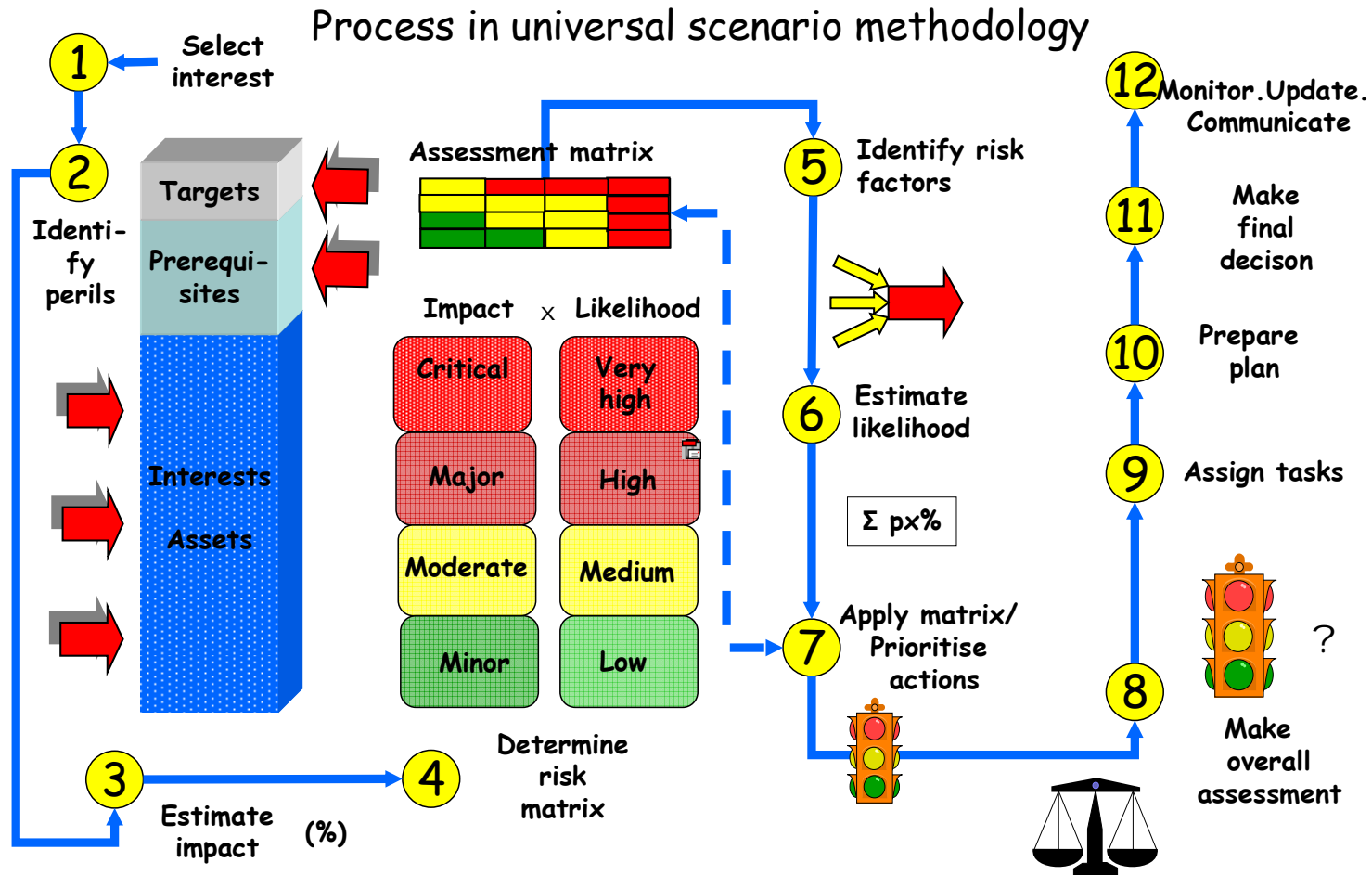


"The whole story"

"All future"



# The Scenario Analysis Step By Step





# Standard Risk Matrix

The Standard Risk Matrix is a 4x4 grid. The vertical axis is labeled 'Likelihood' with categories: Very high, High, Medium, and Low. The horizontal axis is labeled 'Impact' with categories: Minor, Moderate, Major, and Critical. The cells are color-coded: Yellow for Investigation, Red for Action, and Green for Acceptance.

	Minor	Moderate	Major	Critical
Very high	Investigation	Action	Action	Action
High	Investigation	Investigation	Action	Action
Medium	Acceptance	Investigation	Investigation	Action
Low	Acceptance	Acceptance	Investigation	Action

## Accesses in Road Transport System

ACCESSES where negatively consequences and losses can occur:

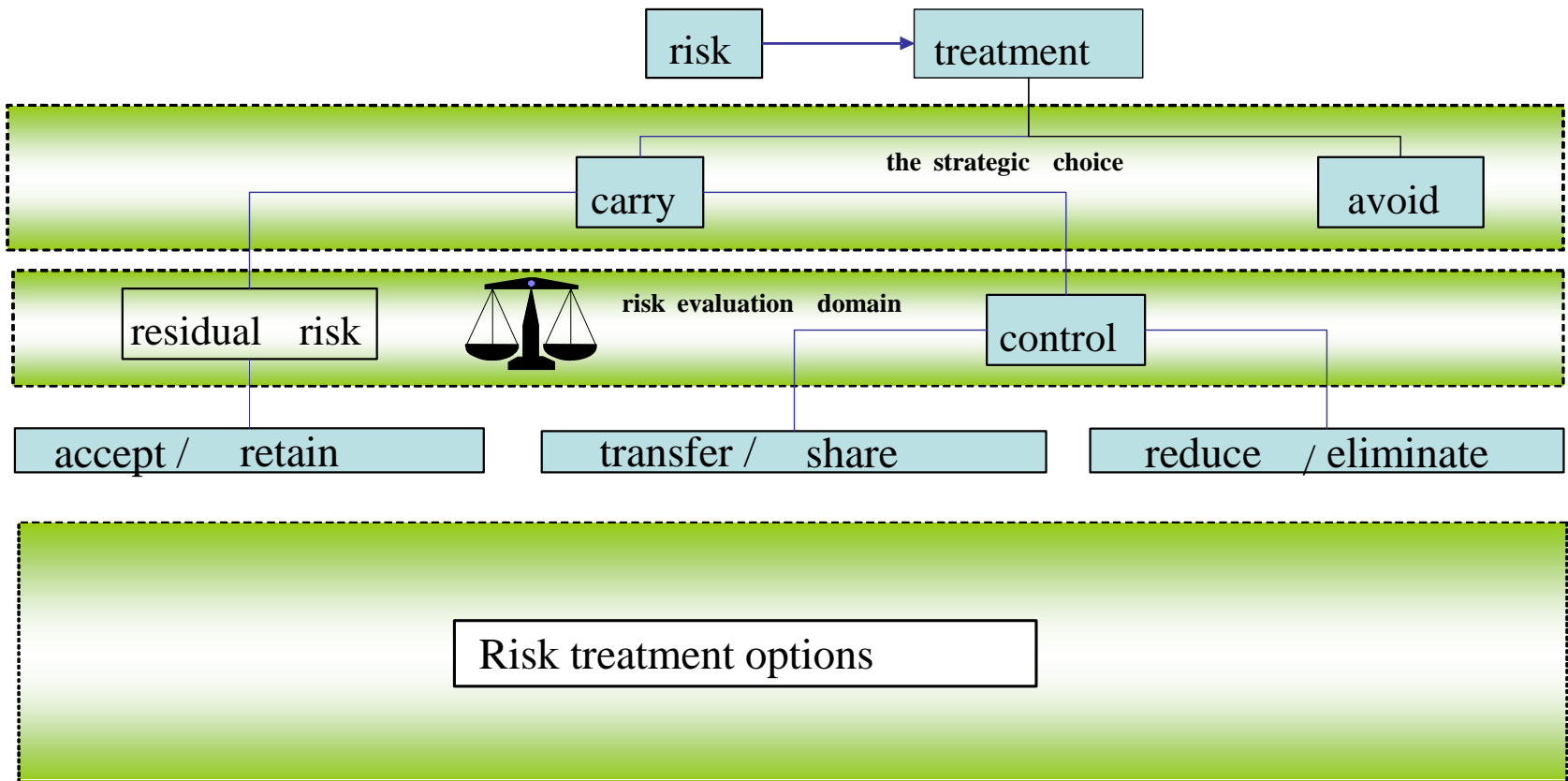
- Property (the road system and external)
- Financial (internal capacity)
- Transport capacity (larger city, countryside)
- Human (staff, road user and third party)
- Intangible assets (image, human resources, etc)
- Environment

# Consolidated Risk Matrix and Profile

- Each level in the organization must decide their own evaluation support for each cell.
- Preferably from a organizational *top evaluation support*.

				Risk response			
Likelihood/frequency	Very high	Event occurs several times per year within the realm of the organisation	4	Investigation	Action	Action	Action
	High	Event has occurred within the realm of the organisation	3	Investigation	Investigation	Action	Action
	Medium	Event has occurred in the country	2	Acceptance	Investigation	Investigation	Action
	Low	Event never occurred in the country	1	Acceptance	Acceptance	Acceptance	Investigation
	Aspect				1	2	3
Type of asset	Intangibles	Confidence /reputation	Negative media coverage and attention	Single column	Local	Regional	National
			Management time and effort/ negative attention	Unit	Unit management	Executive top management	Board/ investors /ministry
	Property	Damage	Infrastructure/ Equipment/ Buildings etc.	≤ 1 million US Dollar	≤ 50 million US Dollar	≤ 200 million US Dollar	> 200 million US Dollar
			Road users	Minor injuries	Multiple injuries	Single death or multiple serious injuries	Multiple deaths and serious injuries
	Personal	Employees	Increased accident rate				
			Operations	Short down n-time	Single unit down n for short period	Single unit down n more than 50% for more than 1 day	Single governing unit down n more than 50% for more than 1 day
	Finance	Transport capacity	Reduced transport capacity	Secondary road shut down n for a few hours or one area shut down n	Main road shut down n or secondary road shut down n for > 12 hrs or one area for a few hrs	Main road shut down n for several hrs or secondary road for > 24 hrs or one area for > 12 hrs	Main road shut down n for > 24 hrs or one area for > 48 hrs
			Environment	Impairment	Single occurrence/gradual	Temporary minor	Temporary serious
				Minor	Moderate	Major	Critical
				Impact			

# Risk Treatment Logic

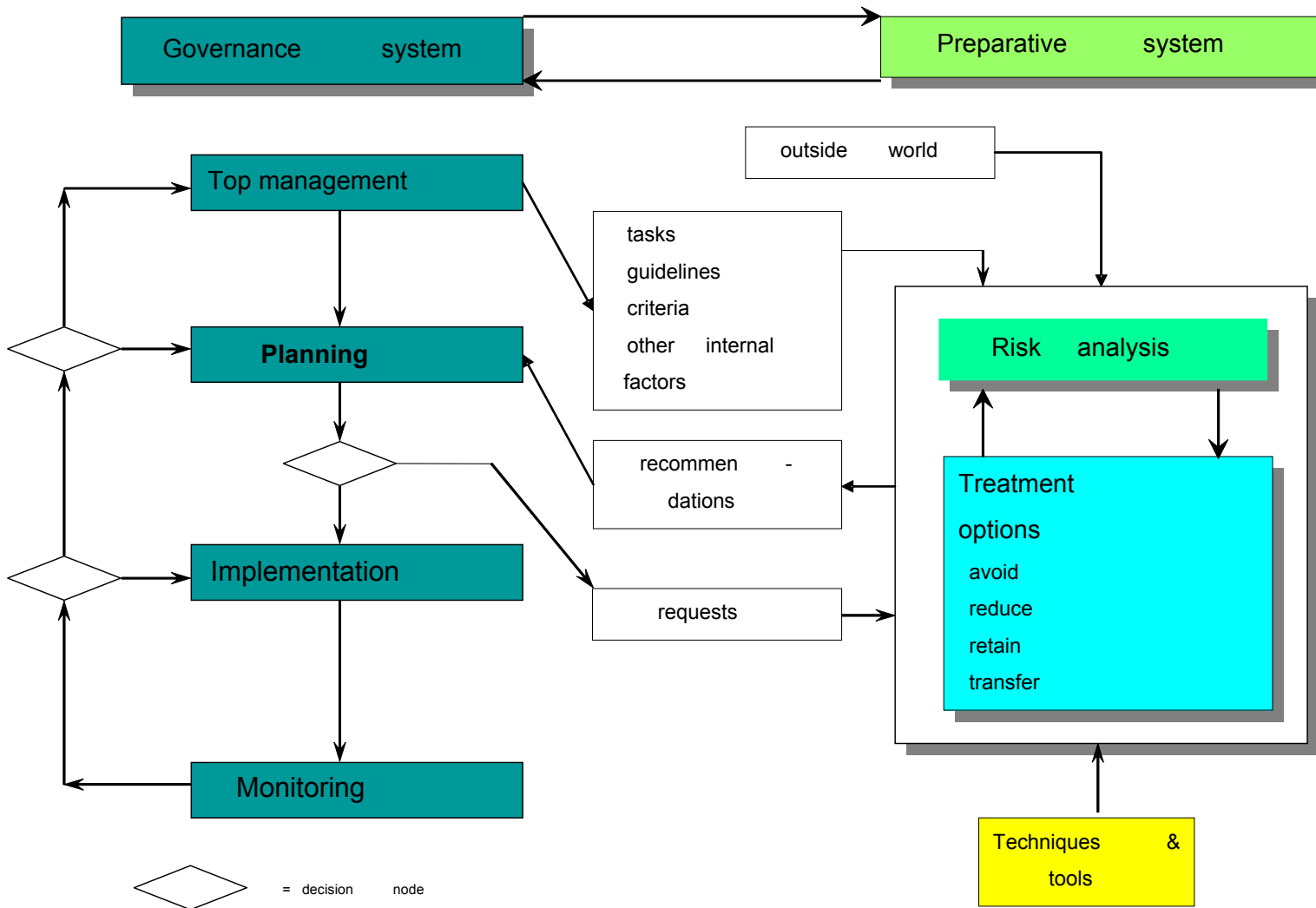


Despite control action exposures that are not avoided or eliminated still exists

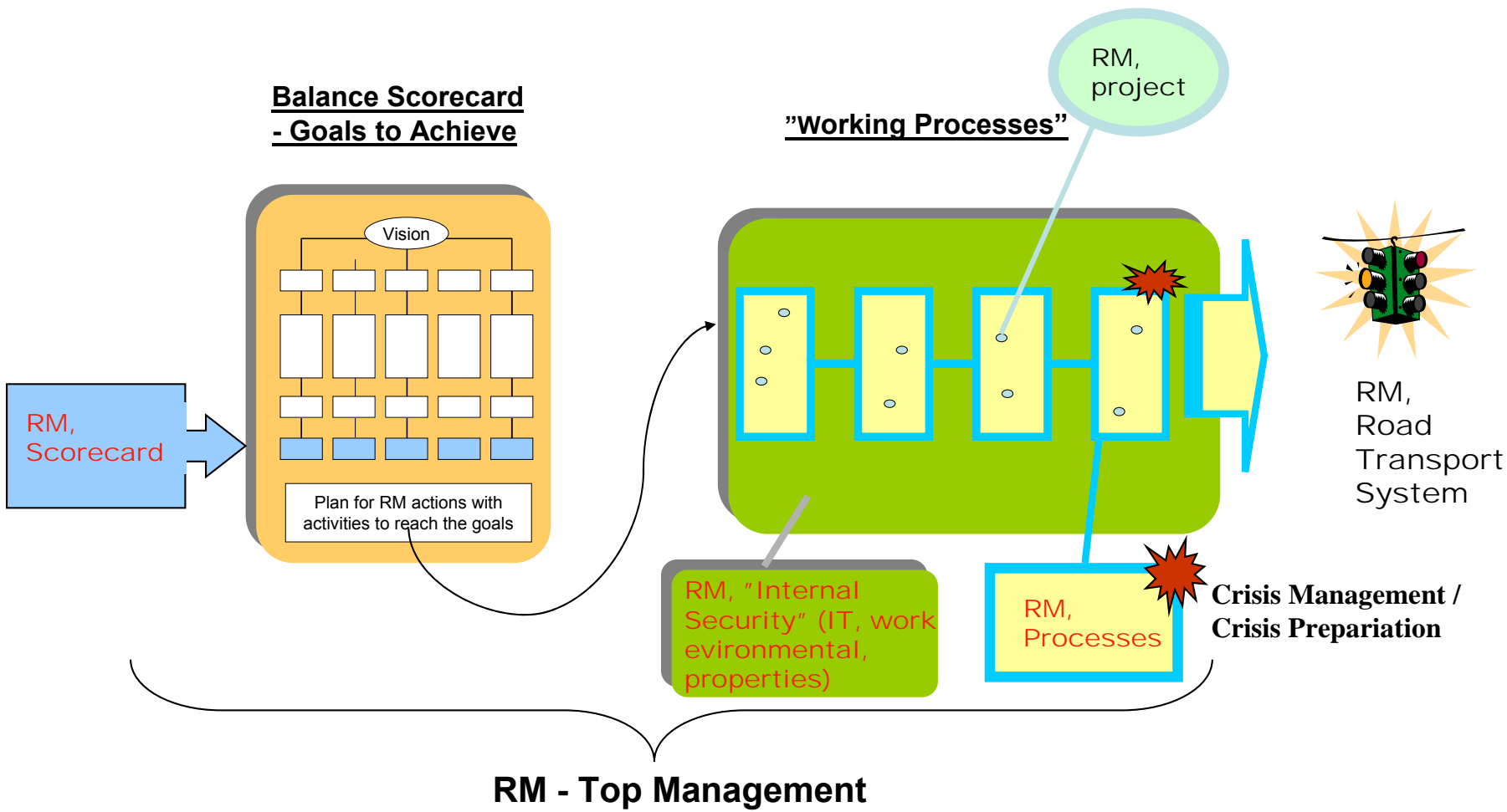
# Opportunity Matrix

					Attrac- tiveness
<b>Probability</b>					
<b>Very high</b>	consider	Implemen tation	Implemen tation	Implemen tation	
<b>High</b>	consider	consider	Implemen tation	Implemen tation	
<b>Medium</b>	Removal	consider	consider	Implemen tation	
<b>Low</b>	Removal	Removal	consider	consider	
	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>	<b>Considerable</b>	
	<b>BENEFIT</b>				

# Integrated Risk Management



# Integrated Risk Management - example Swedish Road Administration



# Risk Management Sub Areas

Normal Condition / Serious Condition / Crisis

## Guidelines for Risk Management

Risk Management in:

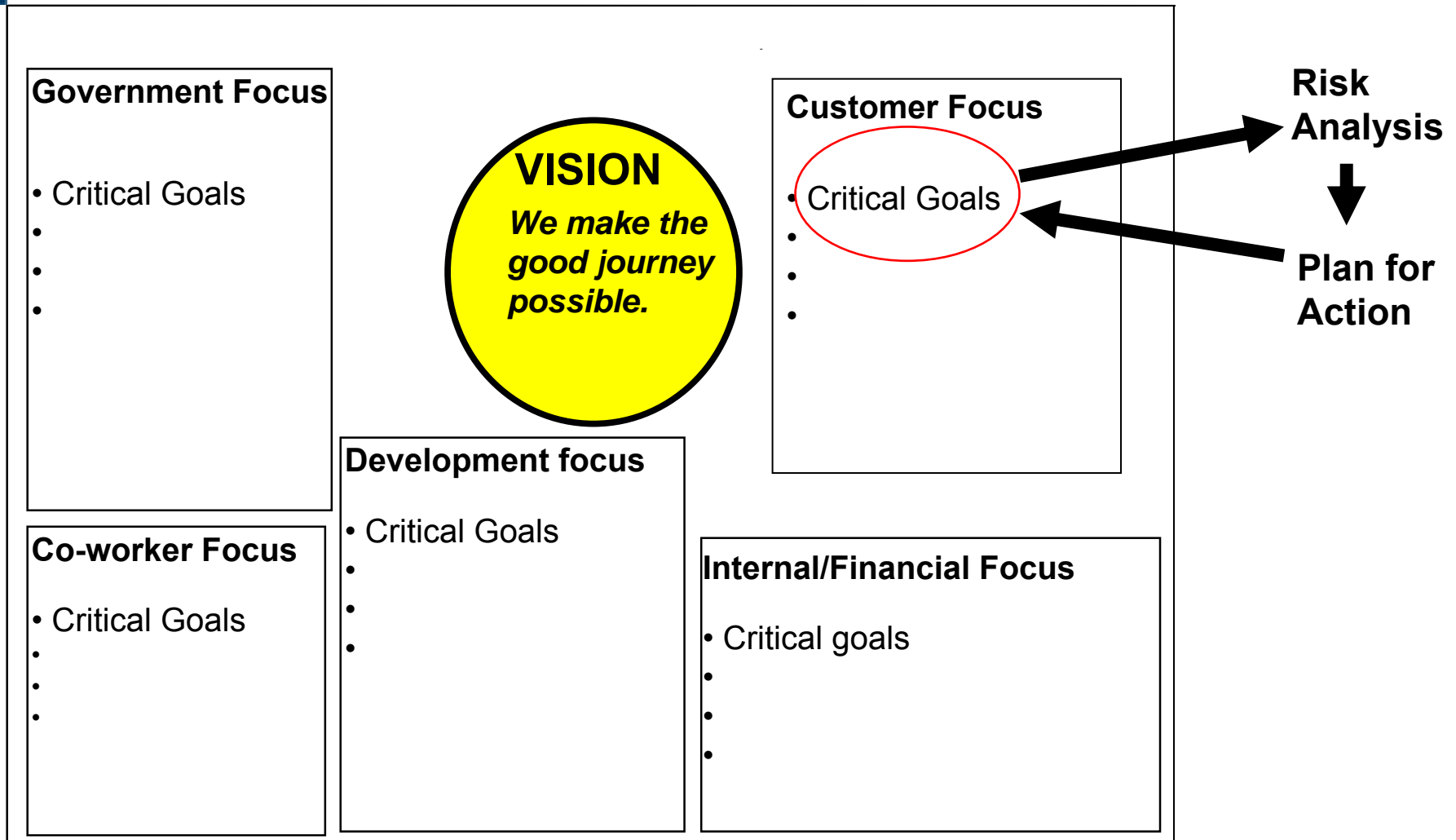
- Balanced Scorecard
- Project
- Network Management
- Internal Safety (IT-security, Working Environmental, Offices)

• Crisis Management

**RM - Top Management**



# Risk Management Integrated in Balanced Scorecard



# Crisis Management – Main Scenarios

- Hazard within the Road Transport System
- Hazard from Surroundings
- Hazard from the Road Transport System



## Risk Mangement - Finally

**Risk Management Must Have Active Support From the Management – Otherwise It Will Not be Successful.**



**It will not always be as it's meant to be....things do happen!**