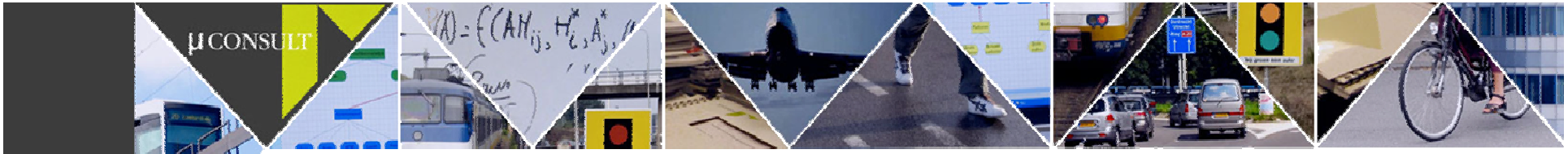
Pricing kilometres in The Netherlands

- Prof. Dr. Henk Meurs
  - Radboud Universiteit Nijmegen/
  - MuConsult Amersfoort



Objective: Share the intended Dutch approach to pricing road transport

- Content
  - Introduction
  - Current tax system
  - History of road pricing in the Netherlands
  - Characteristics of the system proposed
  - Effects on car fleet, mobility, emissions and revenues
  - Acceptance of the measures by the Dutch population;
  - Current state of affairs;
  - Conclusions
- Limitation to transport of persons; no attention to freight



Current tax system cars

- Purchase tax on new cars (BPM):
  - 2008: 25% of new price of cars
  - Revenues: euro 3.4 billion annually
- Vehicle ownership tax (average Euro 630 per year)
  - yearly tax on ownership with regional surcharge
  - Variation by weight, fuel type, province
  - Revenues: euro 4.0 billion (including 1.1 billion reg. surcharge)
- Fuel taxes (excluded from km-price system)
  - Revenues 6.9 billion
  - Gasoline/LPG taxes mild

- Major revision in 2009 (up to 2012):
  - Purchase taxes based on emissions (CO_2, etc)
  - Small shift from purchase taxes to ownership taxes

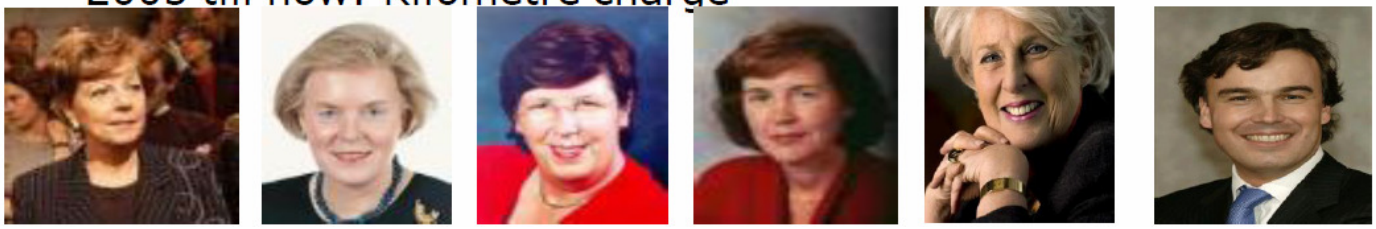
Consequences current tax system

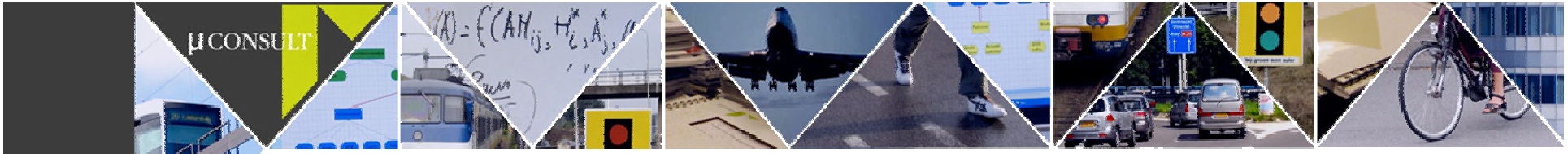
- Taxes to large extent based on ownership of cars
- Overconsumption of car kilometres
- Car use causes main problems:
  - Congestion
  - Safety
  - Pollution
- Equity issues:
  - Heavy users pay too little
  - Small users too much

- Hence shift in tax system necessary:
  - Pay different for mobility
  - Pricing of kilometres rather than ownership

History of road pricing in The Netherlands

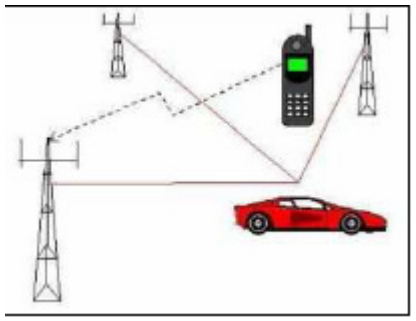
- Previous attempts:
  - 1988: Road Pricing I
  - 1992: Rush-Hour disc
  - 1994: Road pricing II
  - 1999: Rush-hour surcharge and road pricing in the form of tollbooths on all access and exit roads of the four major cities in the Randstad conurbation (road pricing)
  - 2001: convert fixed government charges to a payment per kilometre by no later than 2006
  - 2005 till now: Kilometre charge





Crucial step: Nouwen committee (2004)

- Participants:
  - Regional and local authorities
  - CEO's private sector
  - Major pressure groups
    - Economic, environmental, motorists, etc
- Study of 10 pricing alternatives
- Result:
  - Joint proposal for main characteristics of system
  - Formulation of preconditions eg:
    - No increase in revenues
    - Revenues to infra budget
    - No excessive administrational costs
    - Privacy guaranteed
    - Support in society



Major alternatives investigated by Nouwen

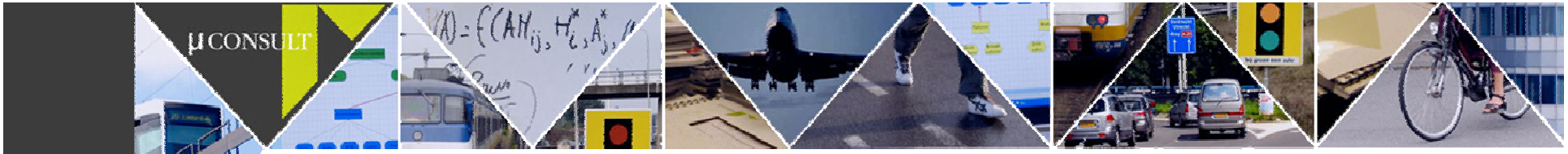
	Decrease travel time loss (hours)	Environment and safety	Costs (Investments)	Introduction	Welfare (Euro, billions)
1 Congestion charge at busy times and places	Up to 55%	Tot 3%	200 mio	**2009-2011**	1,3
2 Fixed charges per kilometre	Up to 40%	Tot 10%	3 miljard	**2011-2016**	1
3 Toolbooths (6 places)	Ca. 15%	Ca. 0%	100 mio	**2009 and further**	Ca. 0
4 Fuel tax increase	Ca. 15%	Up to 10%	0	**2006**	2,4

Proposals Nouwen and subsequent joint fact finding

- Charge kilometres driven with cars with base price;
- Surcharge on congested roads
- Vary price by type of car:
  - Environmental characteristics
- Introduce system over period of time (eg 6 years):
  - Limited capacity wrt installation
    No distortion of car market

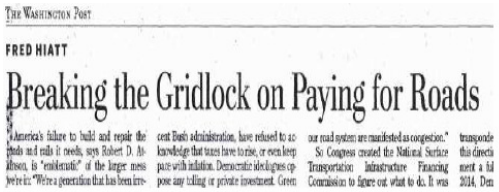
Political discussions:

- Multiple objectives (congestion, environment and support)
- Relate price to emissions (CO_2, etc)
- Replacement of all ownership taxes vs partial reduction
- Costs of system (< 5% of revenues)



Price per kilometer

- An average price of 6.7 cents per kilometer.
- Differentiation based on:
  - CO_2
  - Fuel type
  - Particle filters (diesel)
- Dispersion according to the existing road taxes and purchase taxes.


The Washington Post

FRED HIATT

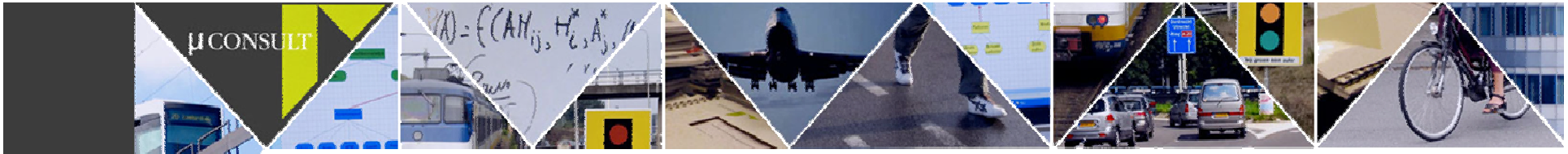
Breaking the Gridlock on Paying for Roads

"America's failure to build and repair the roads and rails it needs, says Robert D. Atkinson, is 'emblematic' of the larger mess we're in: "We're a generation that has been irre- cent Bush administration, have refused to ac- our road system are manifested as congestion." transporte
knowledge that taxes have to rise, or even keep So Congress created the National Surface this directi
pace with inflation. Democratic ideologues op- Transportation Infrastructure Financing ment a fu
pose any tolling or private investment. Green Commission to figure out what to do. It was 2014. Den

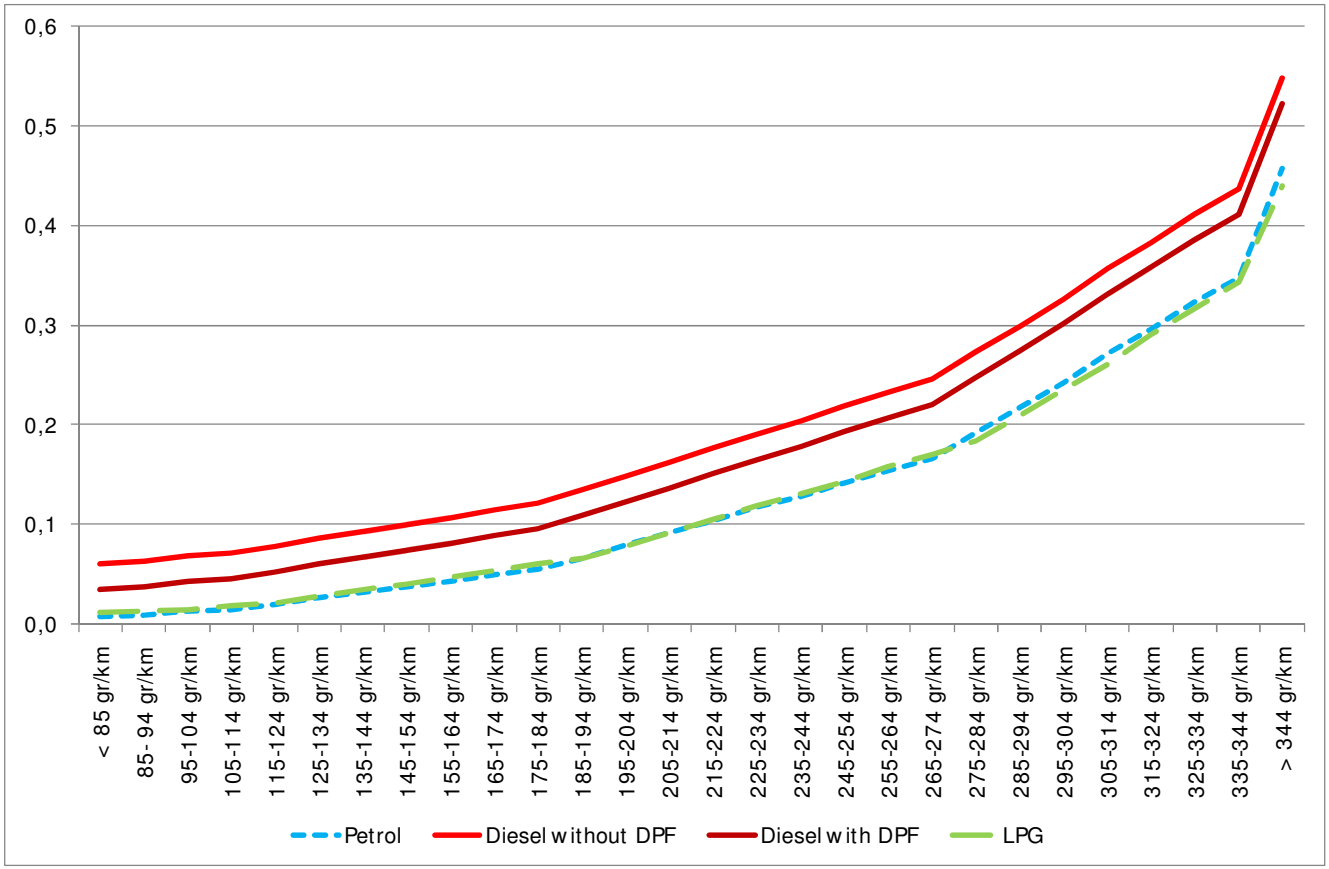

The Washington Post

LaHood Talks of Mileage-Based Tax

White House Dismisses Controversial Idea to Fund Transportation Projects



Kilometre charge: base price levels



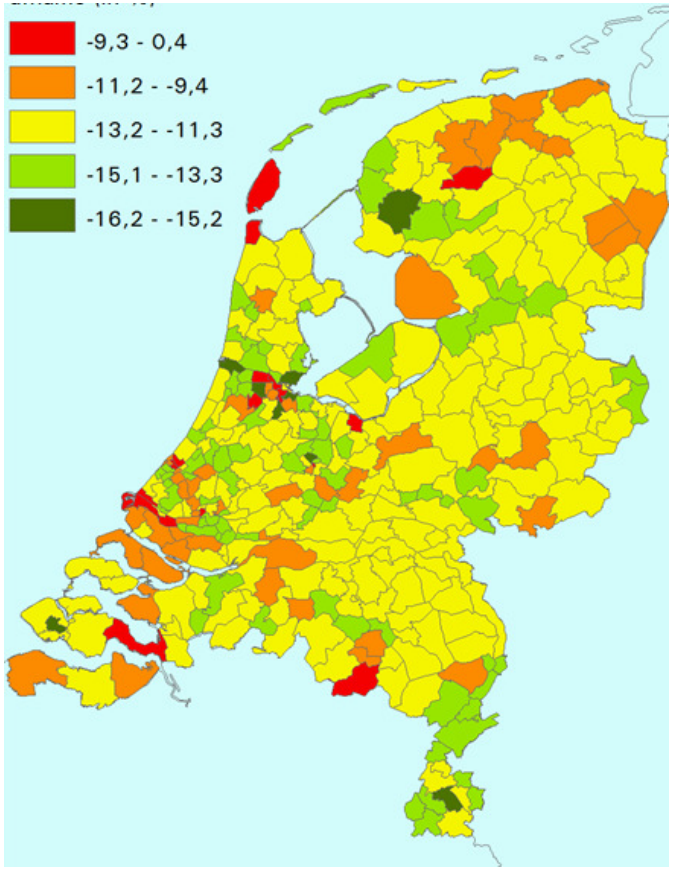
Forecasting effects

- Mobility:
  - Number of kilometres driven: -12-15%
  - Travel time losses: - 40-60%
  - Kilometres on public transport: + 6%

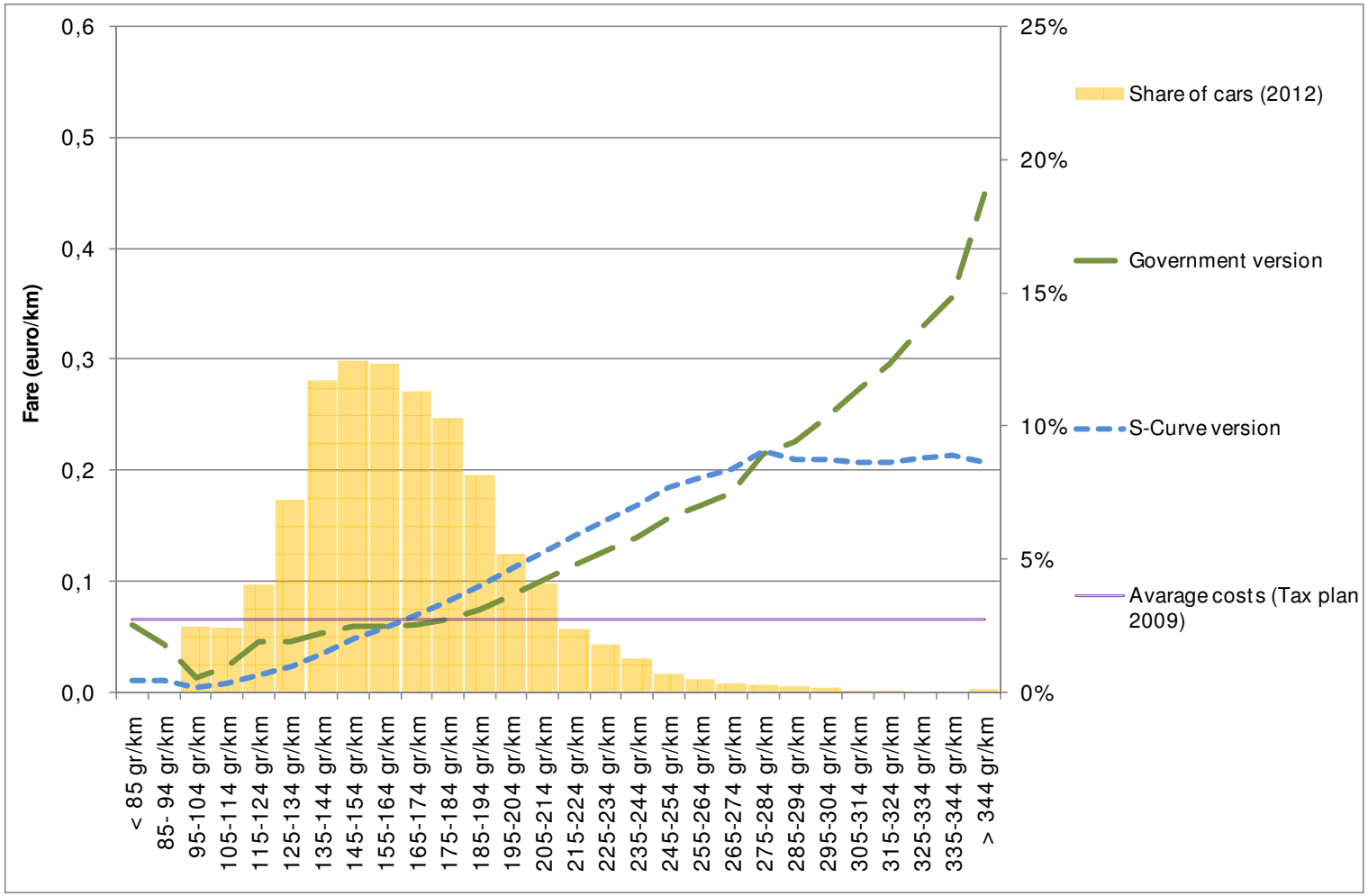
- Environmental:
  - CO_2 : -10%
  - Particulate matter: - 10%
  - NOx : - 19%

- Other:
  - Traffic safety: + 7%
  - Car fleet: +2-3%

Regional differences limited eg urban/rural



Two alternatives price systems: selected vs environmental optimized



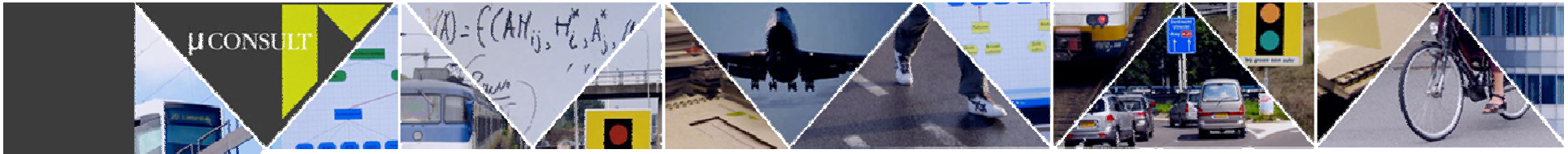
Effect of two alternatives (2030):

	Reference	Kilometre Charge	
	Tax plan	Government	S-Curve
2020			
Total milage (x10⁹)	130	114	115
Average CO_2/km	158	160	158
Total CO_2 (MegaTon)	20,8	18,6	18,5
		(-10,5%)	(-11,1%)
2030			
Total milage (x10⁹)	144	126	128
Average CO_2/km	142	146	144
Total CO_2 (MegaTon)	20,6	18,8	18,6
		(-8,7%)	(-9,7%)

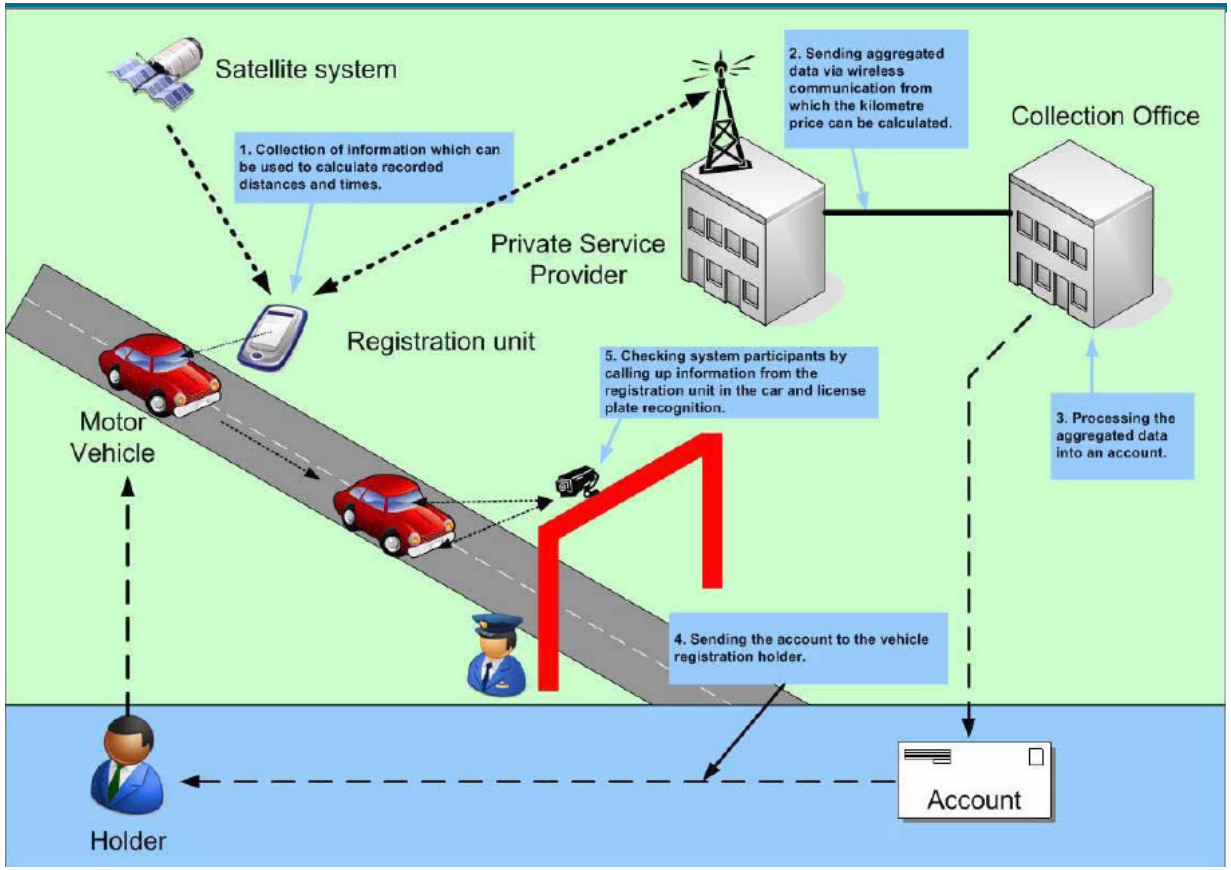
- S-curve compared to government proposal:
  - *More* effective on average and total CO_2 (cleaner cars have lower charge, dirty cars higher)
  - *Less* effective on total kilometers (lower charge for more cars means less reduction in milage)

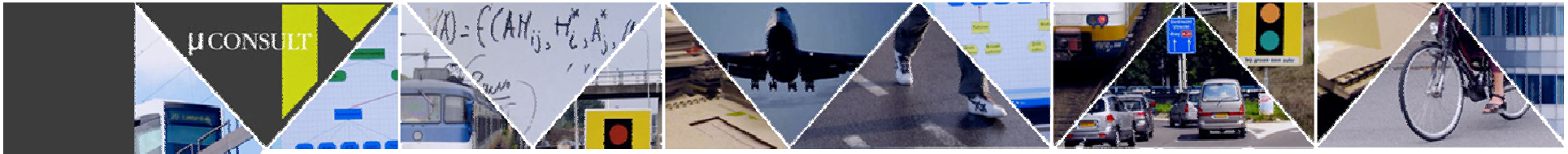
The system characteristics

- Major technical characteristics:
  - OBU using satellite technologymandatory
  - Start with GPS; then Galileo
- Two tracks:
  - Private service providers
    - Competition between suppliers
    - End to end, including all services ?
    - Optional Value added services
      - Travel information
      - Assurance services
  - Public track
    - Limited services
    - Back up for private market failure
    - Transition period



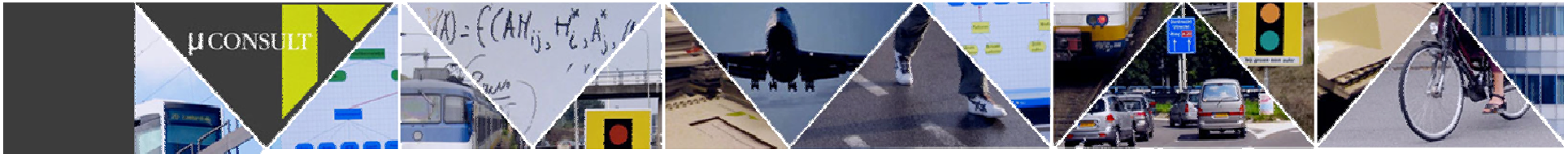
Communication aspects with GPS and GSM





Major implementation issues

- Privacy:
  - Public track:
    - Smart On board unit: calculates and communicates trip totals
    - Once a week sends totals to collection office
  - Private track:
    - If users permits more information (value added services)
    - Totals to collection office
- Enforcement:
  - Trusted Element (compare SIM-card on mobile)
  - Register interuptions and check
  - Mobile and fixed checks
- System faillure:
  - Repair obligation within weeks
  - Estimation of kilometres driven
  - Owner checks registration on PC

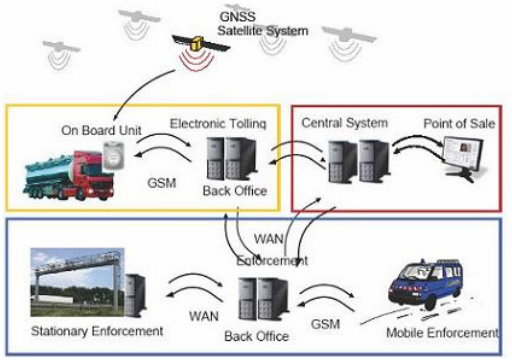


Costs

- Condition of parliament: operational costs less than 5% and investments costs as low as possible

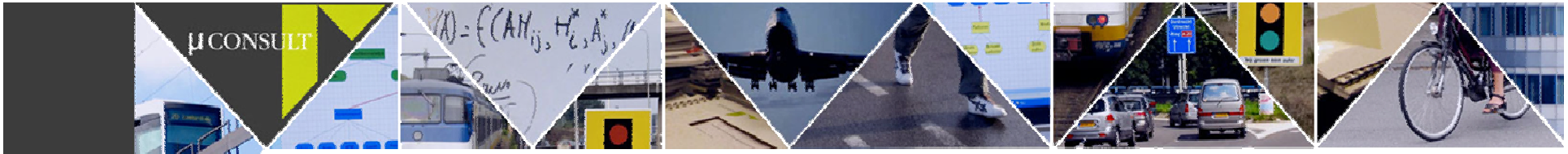
- Outcome:
  - Implementation3.8 billion (Incl. project costs)
  - Exploitation1.8 billion (during scaling-up period)
  - Total(u/t 2018)5.6 billion, including 1.4 billion risks

- Main start up cost drivers for government:
  - Unit Price OBE
  - Installation time per vehicle
  - 9 mio vehicles



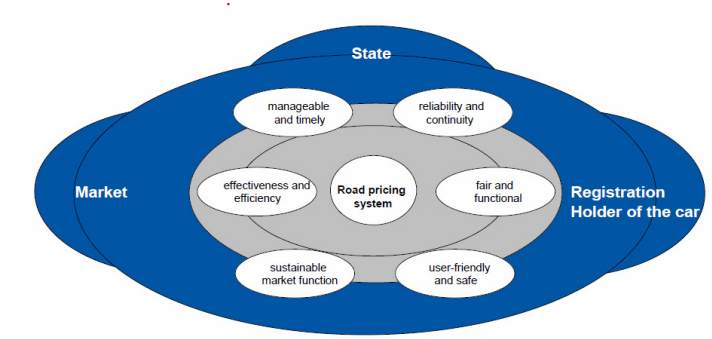
Mobility projects 2009-2012

- Mobility projects in six urban regions aimed at:
  - deal with traffic jams in the short term (decrease number of car kilometres in rush hours by a minimum of 5%).
  - make motorists and employers more aware of possible options (telecommuting, public transport, earlier/later working hours).
  - assess motorist behaviour.
  - provide operational experience with the new technology (including satellite technology).
  - give the commercial sector the opportunity to gain experience with the system.
- Use GPS/GSM systems and pay users to avoid peak hours/routes
- 2000-10.000 participants differing by region



Public acceptability

- Conditions of Nouwen committee are met eg:
  - Revenues to infra fund (roads and public transport)
  - Privacy and enforcement issues
  - Operational costs < 5% (expected)
- Public support measured by Motorist organization:
  - 68% supports principles
  - **But**
    - No peak hour surcharge
      - Alternatives to car usage in peak?
    - Technical system:
      - Privacy
      - Security of information
      - Technical faillures
- Communication and demonstration important



Current state of affairs

- Government fell in March, new elections in June
- Stop further developments until new government is installed
- Right wing and socialist parties oppose system
- Center/center-left supports system
- Mobility projects continued

Conclusions

- Pricing kilometres rather than ownership
  - Pay different for mobility, no more
  - Base price and peak surcharge
- Pricing kilometers has intended effects:
  - Mobility: less kilometres and congestion
  - Environment: less CO2 and other pollutants
  - >60% of owners benefit
- Technical feasible
  - GPS and GSM technology
  - Private and public back up tracks
  - Value added services
- Public acceptance
  - Principles supported
  - Limited confidence in technology and government