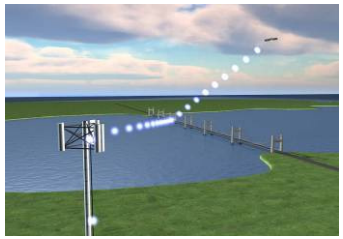
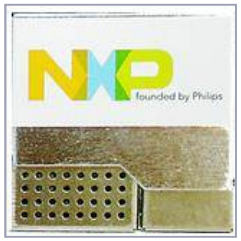
Network of National ITS Association Workshops

Trial Road Pricing Eindhoven, The Netherlands

Maurice Geraets, Senior Director NXP

15 October 2009, Prague



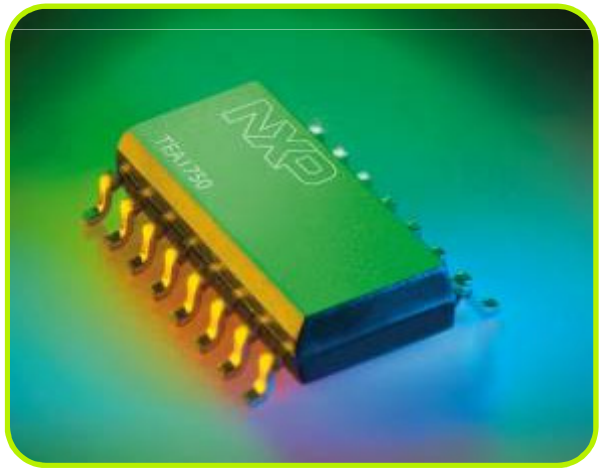


NXP Semiconductors

- **President & CEO**: Rick Clemmer
- **Headquarters**: Eindhoven, The Netherlands
- **Net sales**: $5.4 billion in 2008 *)
- **R&D:** 6000 engineers, $1.2 billion in 2008 *)
- Established in 2006 (formerly a division of Philips)
- 50+ years of experience in semiconductors

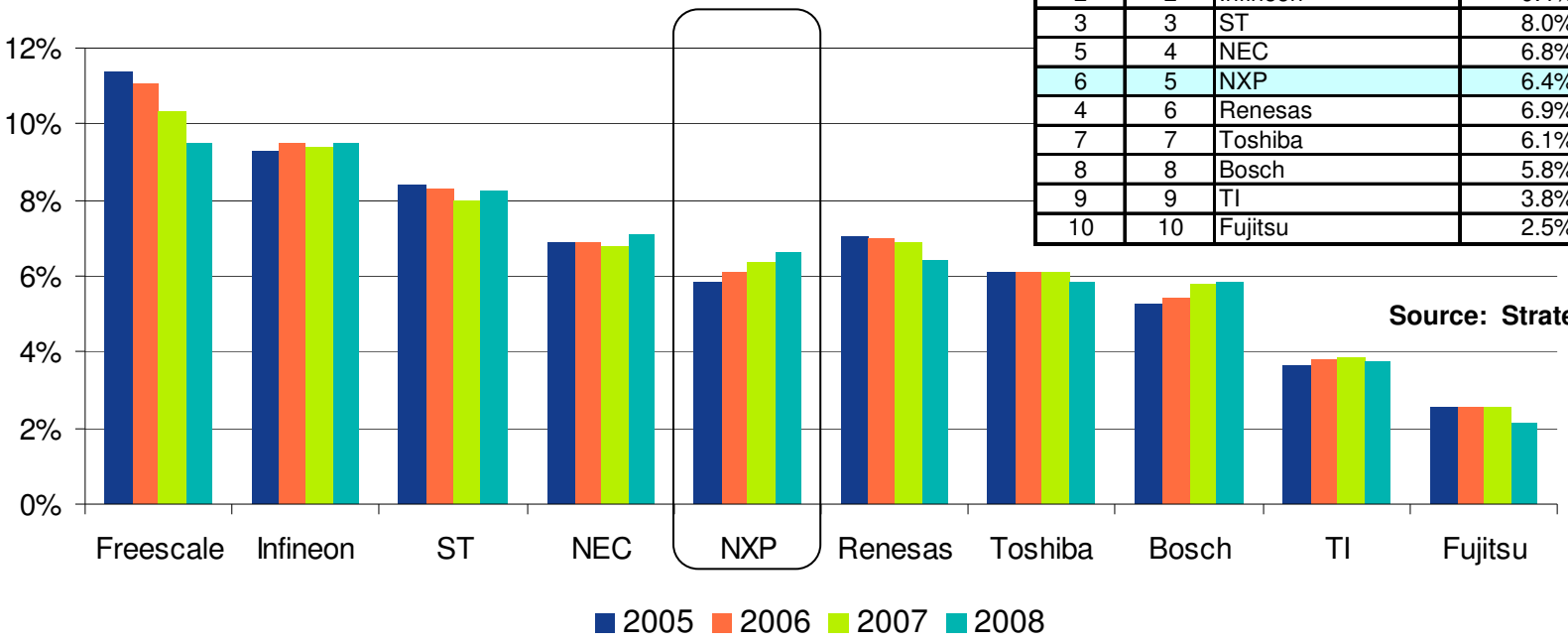
NXP provides engineers and designers with semiconductors, system solutions and software that deliver better sensory experiences

- **Businesses:**
  - Home
  - Automotive
  - Identification
  - Multimarket Semiconductors



*) These figures include the Mobile & Personal business which was largely part of the ST-NXP Wireless JV in 2008

NXP Automotive is Consistently Winning Share



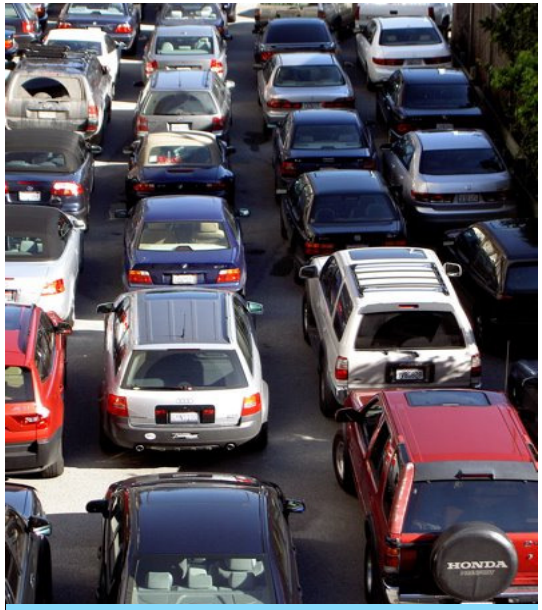
Rank 2007	Rank 2008	Supplier	Share 2007	Share 2008	Growth 2008
1	1	Freescale	10.3%	9.5%	-12.5%
2	2	Infineon	9.4%	9.5%	-4.2%
3	3	ST	8.0%	8.3%	-1.6%
5	4	NEC	6.8%	7.1%	0.1%
6	5	NXP	6.4%	6.7%	-0.5%
4	6	Renesas	6.9%	6.4%	-10.6%
7	7	Toshiba	6.1%	5.8%	-9.2%
8	8	Bosch	5.8%	5.8%	-4.5%
9	9	TI	3.8%	3.8%	-6.6%
10	10	Fujitsu	2.5%	2.1%	-13.1%

Source: Strategy Analytics

NXP has the strongest win of share since 2005

Some of Today's Society Challenges

Ensure safety



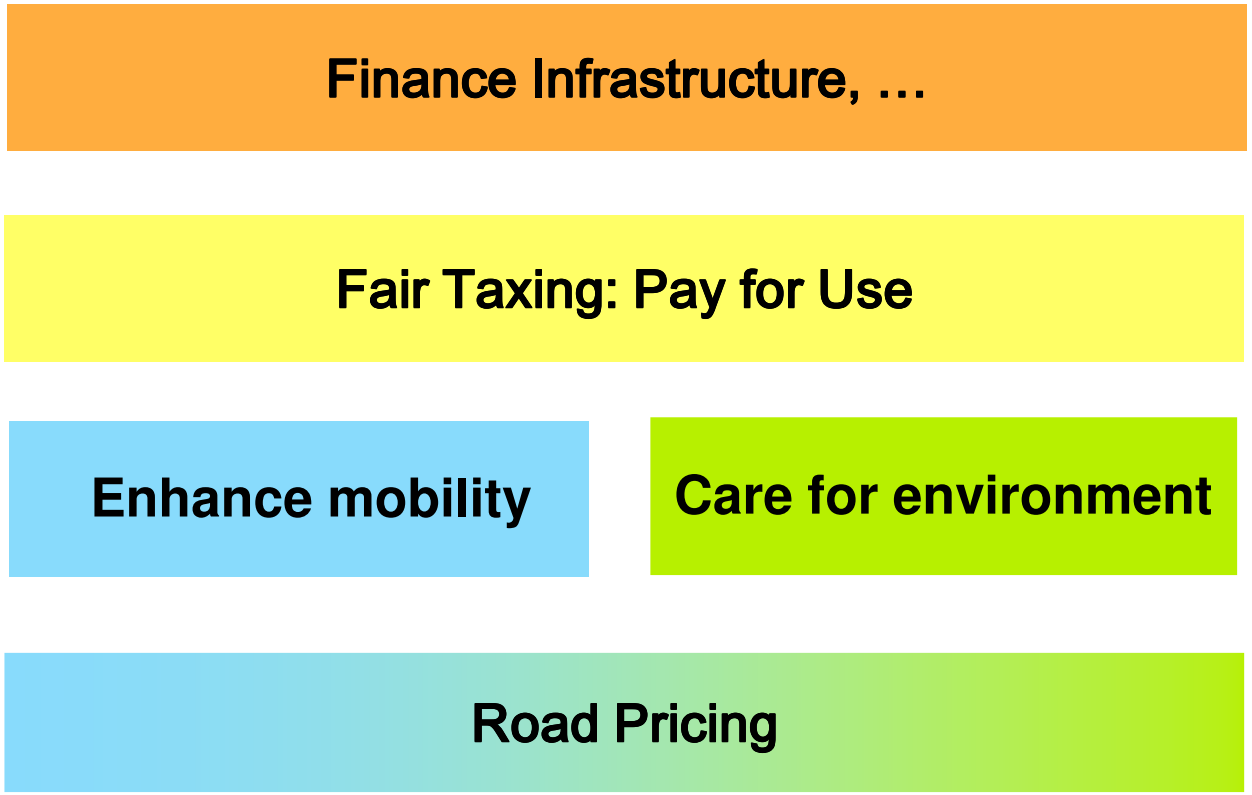
Enhance mobility

Care for environment

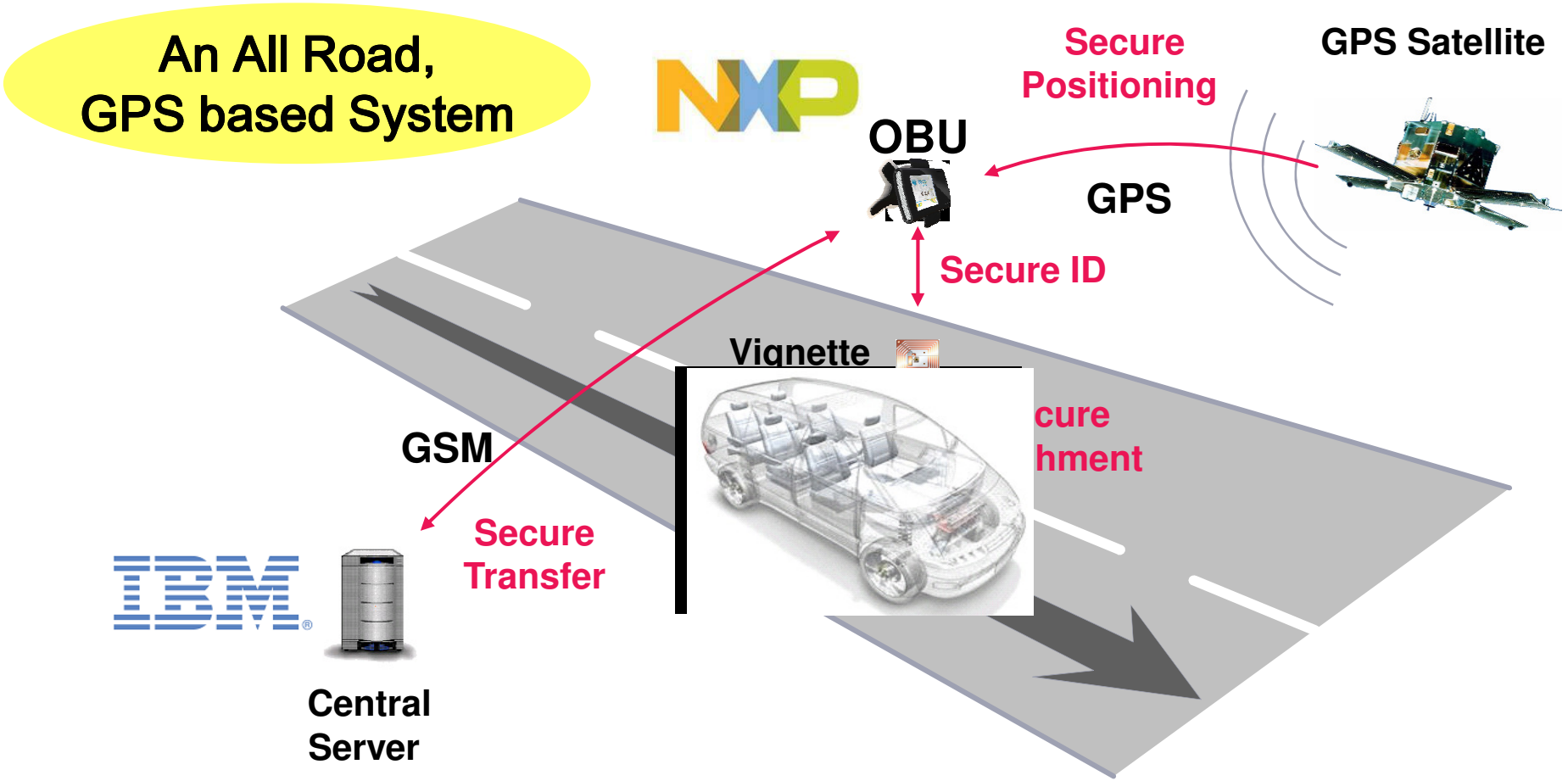
Emergency Call

Road Pricing

Some of Today's Governmental Drivers



Road Pricing: Fair Tax for Road Usage depending on Distance, Time, Place and Pollution Car

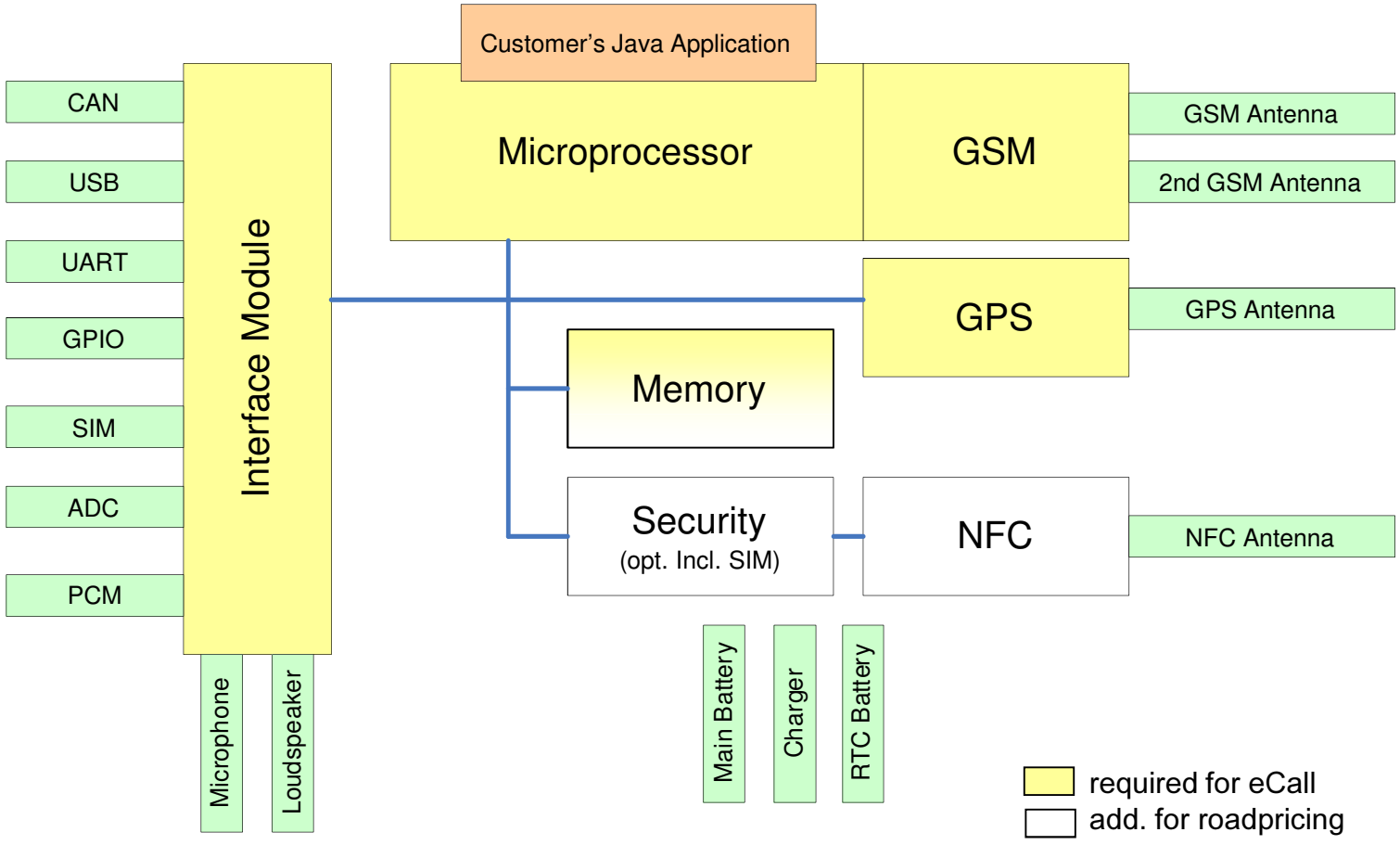


Fair Taxing

Enhanced mobility

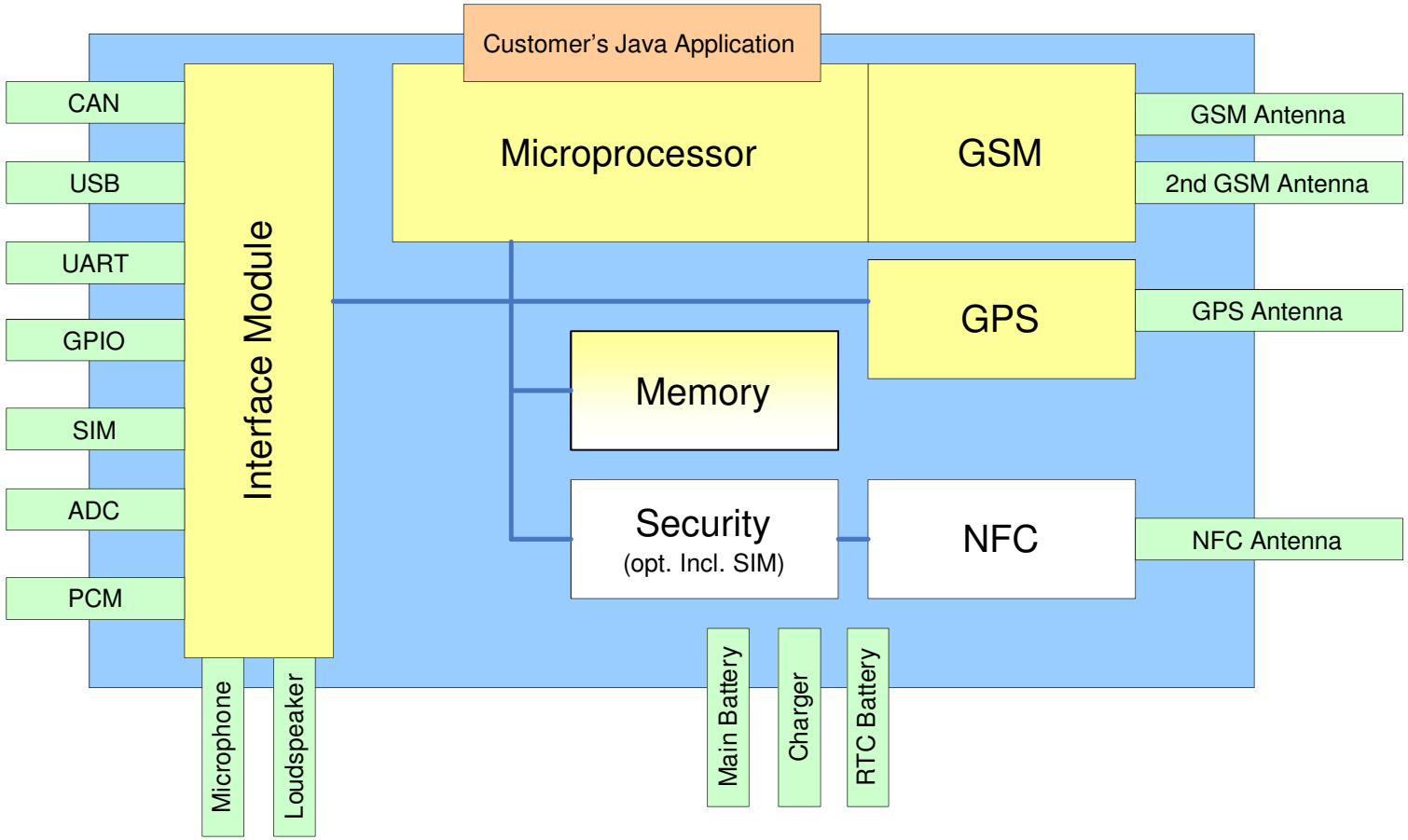
Care for environment

Required for a Telematics OBU



Automotive Telematics OBU Platform

ATOP



NXP's ATOP - Highly Integrated Platform

GPRS

GPS

Credit Card element

Privacy secured

Low cost on board unit (OBU)

Accurate taxing ensured

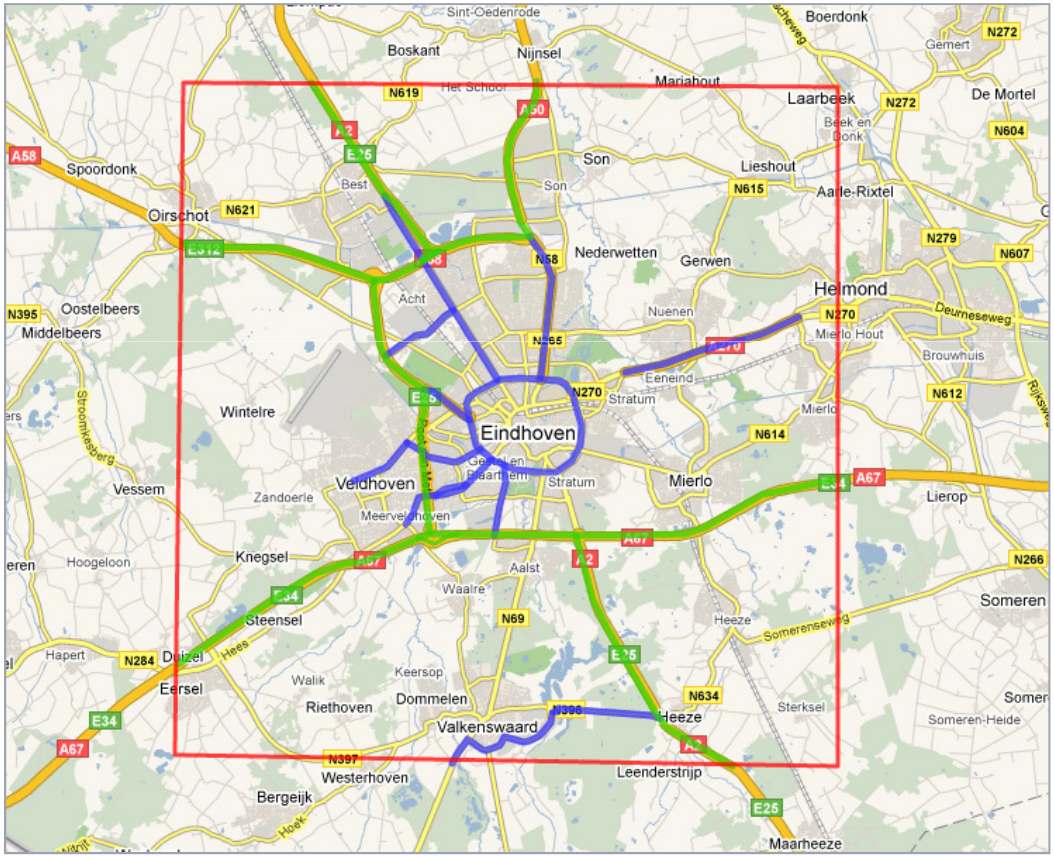
Low cost (self) installment

In line with EU Standards

Vignette ensures OBU in Car

First Trial Road Pricing in The Netherlands

50 NXP and IBM employees: > 100000 kms
Tariff depending on distance, time and place (road type)



Tariff in Eurocent per km	8 – 9 am 5 – 6 pm	Outside of rush hours
City, local roads	20	12
Circular roads	10	5
Highways	5	3
Outside region	2	2

Phases:

1. **Zero measurement**
2. **Improvement competition: rewards**
3. **No rewards, check impact**

> VIDEO

Hello, nxp014 Log On Time: Monday 28 Sep 2009 15:39:42 Home | Log Off | Scheme | Help

Bill Details

Account Owner: nxp014

Account Type: Personal Account

Bill Account: *01234014

Bill ID: nxp014200909

Bill Status: open

Date: 2009-09-28 00:00:00

License Plate Number:

Vehicle Class:

Vehicle Emissions:

Device Provider ID: NX

Device ID: 02603701B1E21#014

Coutry: Netherlands

Scheme: NXP-EIND1

Total Distance: 1370.693Km

Total Amount: €45.21

Journey List | Zone Summary | Road Type Summary

#	Journey ID	Start Time	Start Location	End Time	End Location	Distance (Km)	Amount (€)
41	*02553189	09/26/09 19:06:00	-	09/26/09 19:45:00	Geldrop, Legolas	63.922	1.82
42	*02554440	09/28/09 14:44:00	Geldrop, Ori	09/28/09 15:16:00	Veldhoven, Peter Zuidlaan	14.054	1.47

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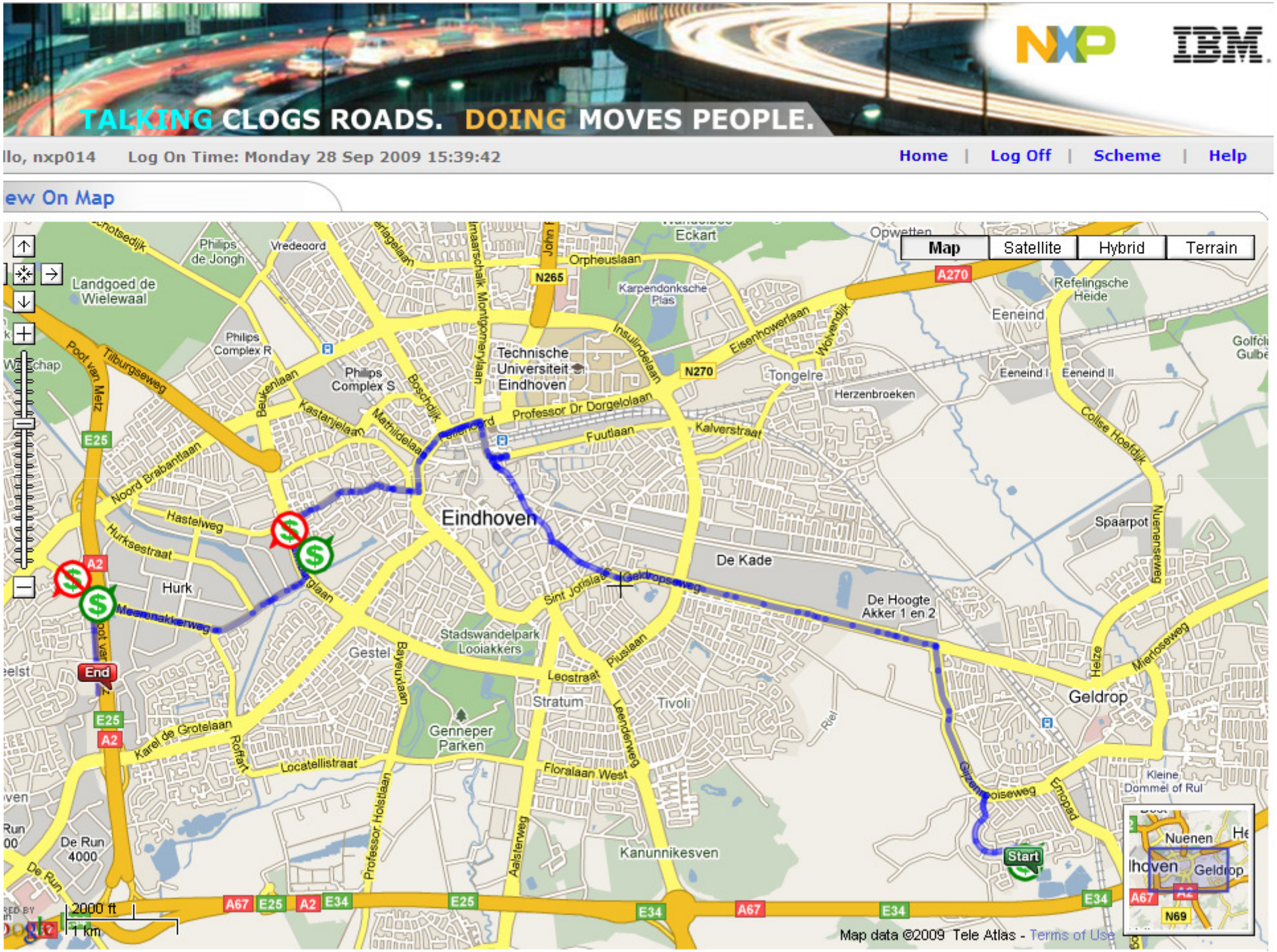
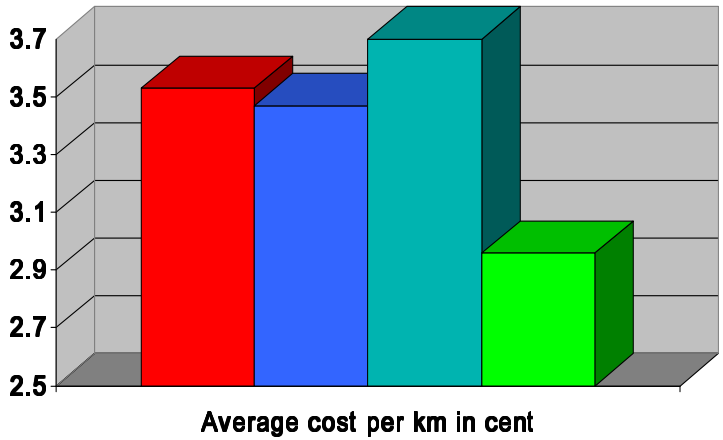

TALKING CLOGS ROADS. DOING MOVES PEOPLE.
NXP
IBM
llo, nxp014
Log On Time: Monday 28 Sep 2009 15:39:42
Home | Log Off | Scheme | Help
ew On Map
Map
Satellite
Hybrid
Terrain
Eindhoven
Technische Universiteit Eindhoven
Landgoed de Wielewaal
Philips de Jongh
Vredeoord
Philips Complex R
Philips Complex S
Karpendonksche Plas
Eckart
Opwetten
Refelingsche Heide
Eeneind
Tongelre
Herzenbroeken
Eeneind I
Eeneind II
Professor Dr Dorgelolaan
Fuutlaan
Kalverstraat
Eisenhowerlaan
Wolvendijk
Insulindelaan
Orpheuslaan
Kastanjelaan
Mathildelaan
Boschdijk
Beukenlaan
Tilburgseweg
Poot van Metz
Noord Brabantlaan
Hastelweg
Hurksestraat
Hurk
Meerenakkerweg
Sint Jorislaan
Geldropseweg
De Kade
De Hoogte Akker 1 en 2
Spaarpot
Nuenenseweg
Collse Hoefdijk
Stadswandelpark Looiakkers
Gestel
Bayeuxlaan
Leostraat
Piuslaan
Stratum
Tivoli
Leenderweg
Geldrop
Heize
Mierloseweg
Genneper Parken
Karel de Grotelaan
Roffart
Locatellistraat
Floralaan West
Professor Holstlaan
Aalsterweg
Kanunnikesven
Gijzenrooiseweg
Emopad
Kleine Dommel of Rul
Start
End
De Run 4000
De Run
Nuenen
Geldrop
N265
N270
A270
A2
E25
A67
E34
N69
2000 ft
1 km
Map data ©2009 Tele Atlas - Terms of Use

Early Conclusions after more than 100.000 kms



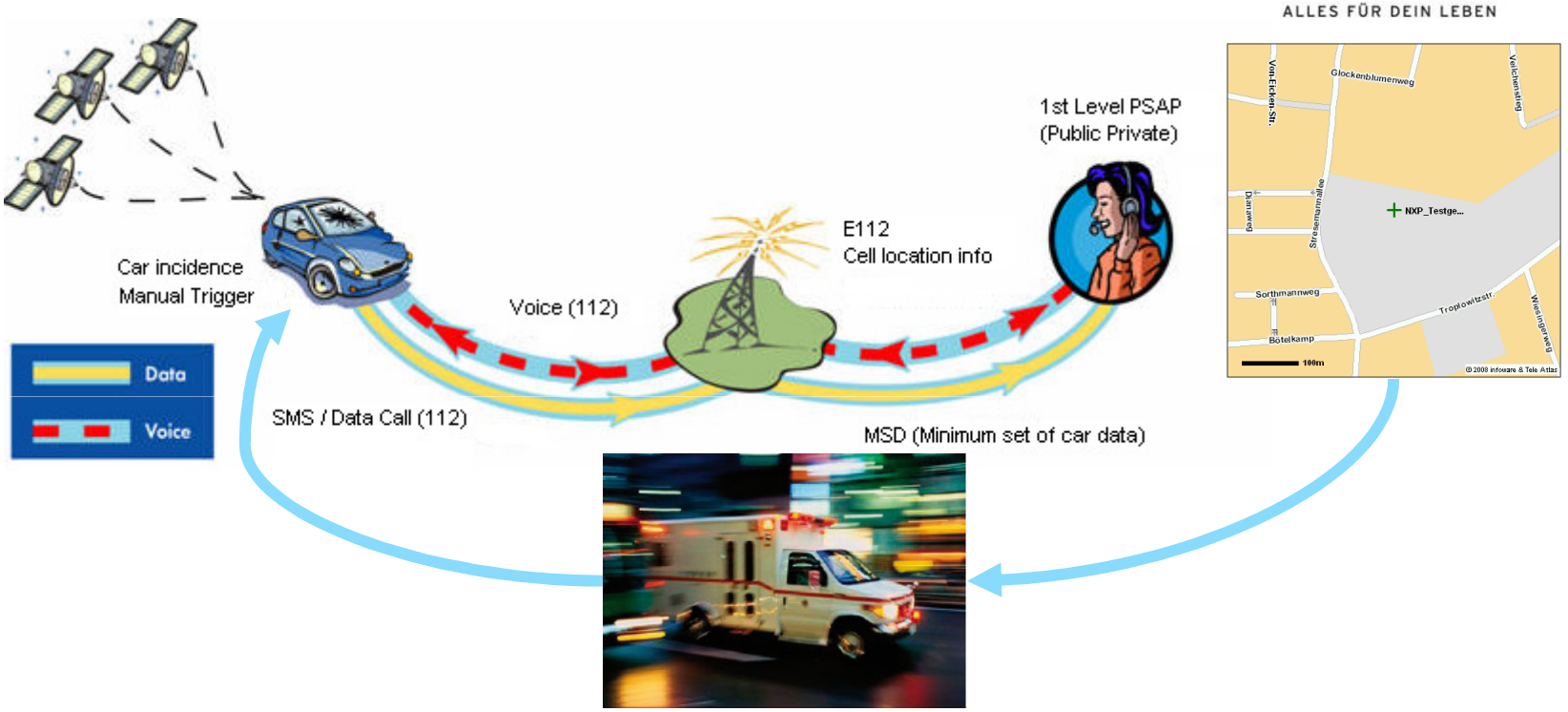
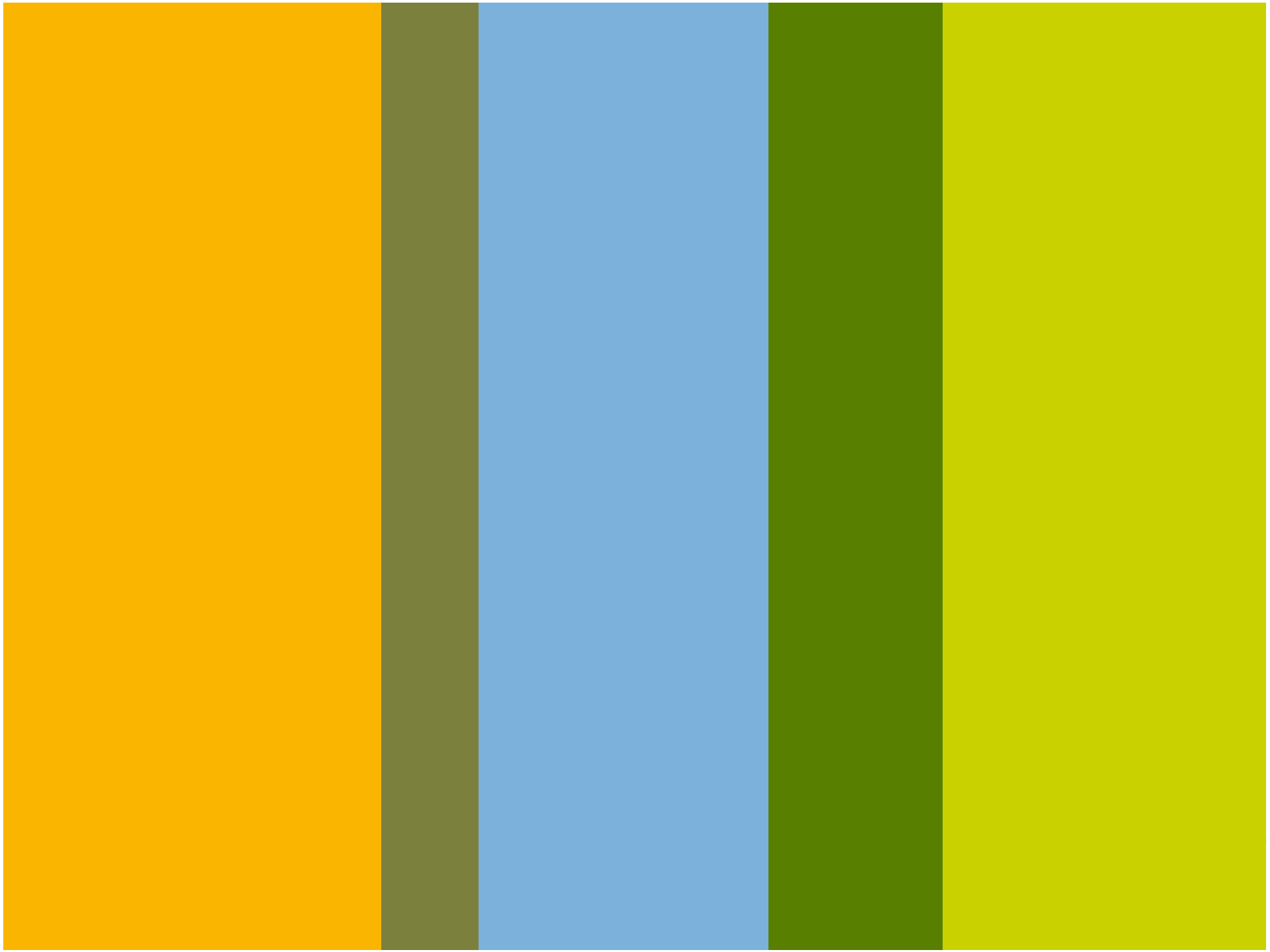
- ~70% of drivers improved behavior by:
  - Using high ways instead of local roads
  - Avoiding rush hours
- These users showed >16% improvement in average cost / km
- For commute traffic:
  users will make trade off between costs and behavior they are used to
- User interaction (display) is essential to influence behavior (taxi meter)
- The maps should be up to date all time to tax correctly, leads to central map
- No major issues in the technology, identified essential requirements:
  Ease of Use, **Robustness**, **Security**, **Privacy**, **Over the Air Updates**

The Core Technology for 'Kilometerbeprijzing' is Available and can also be used for Value Added Services

Strong Support from Government and Press

Improve Safety

Emergency Call



Saving thousands of lives per year, in a cost efficient way
Easy integration of automatic accident alert system in cars