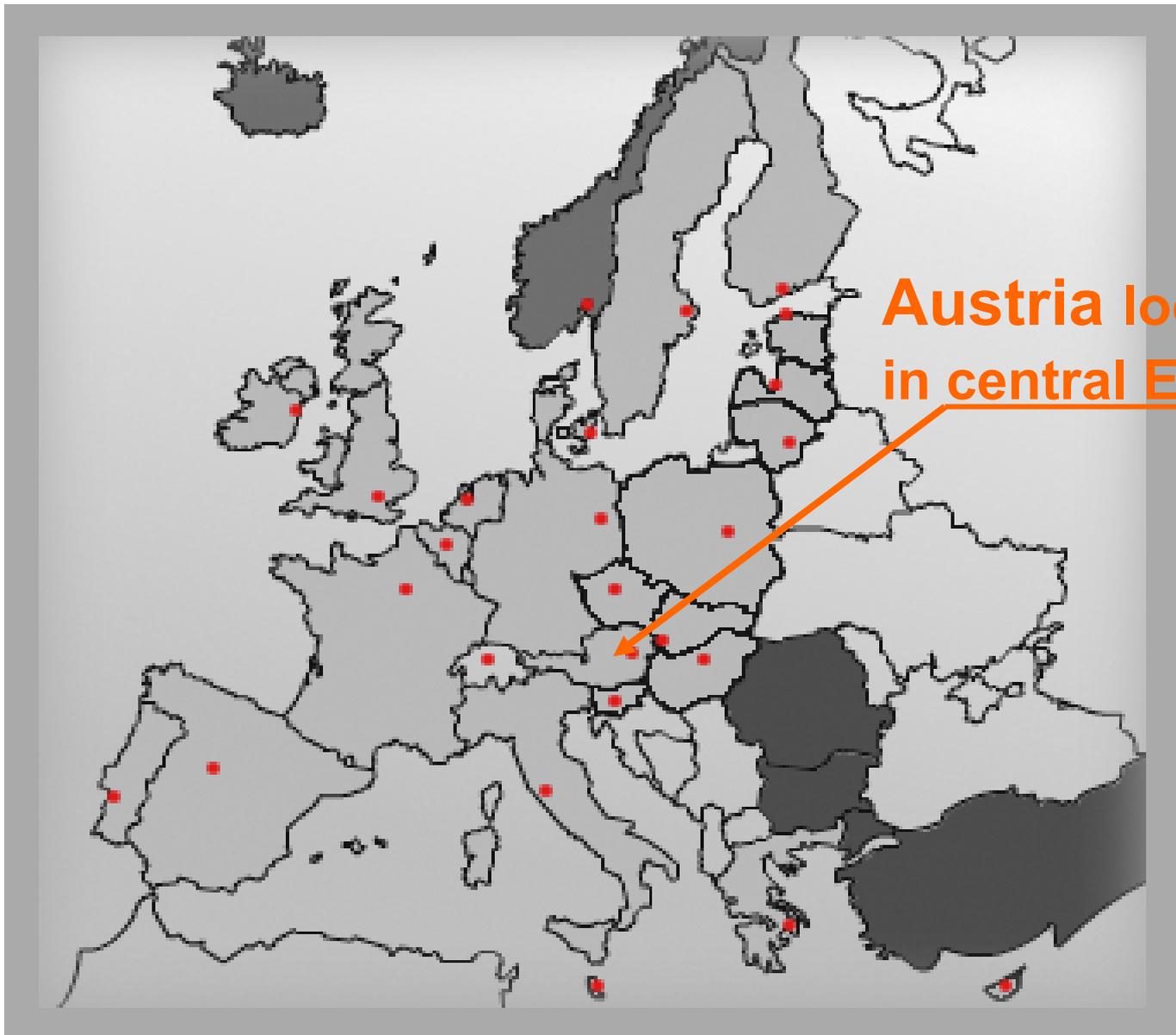


# Toll Collection in Austria an electronic system on an existing network

Friedrich Schwarz-Herda



## International Seminar on Road Pricing

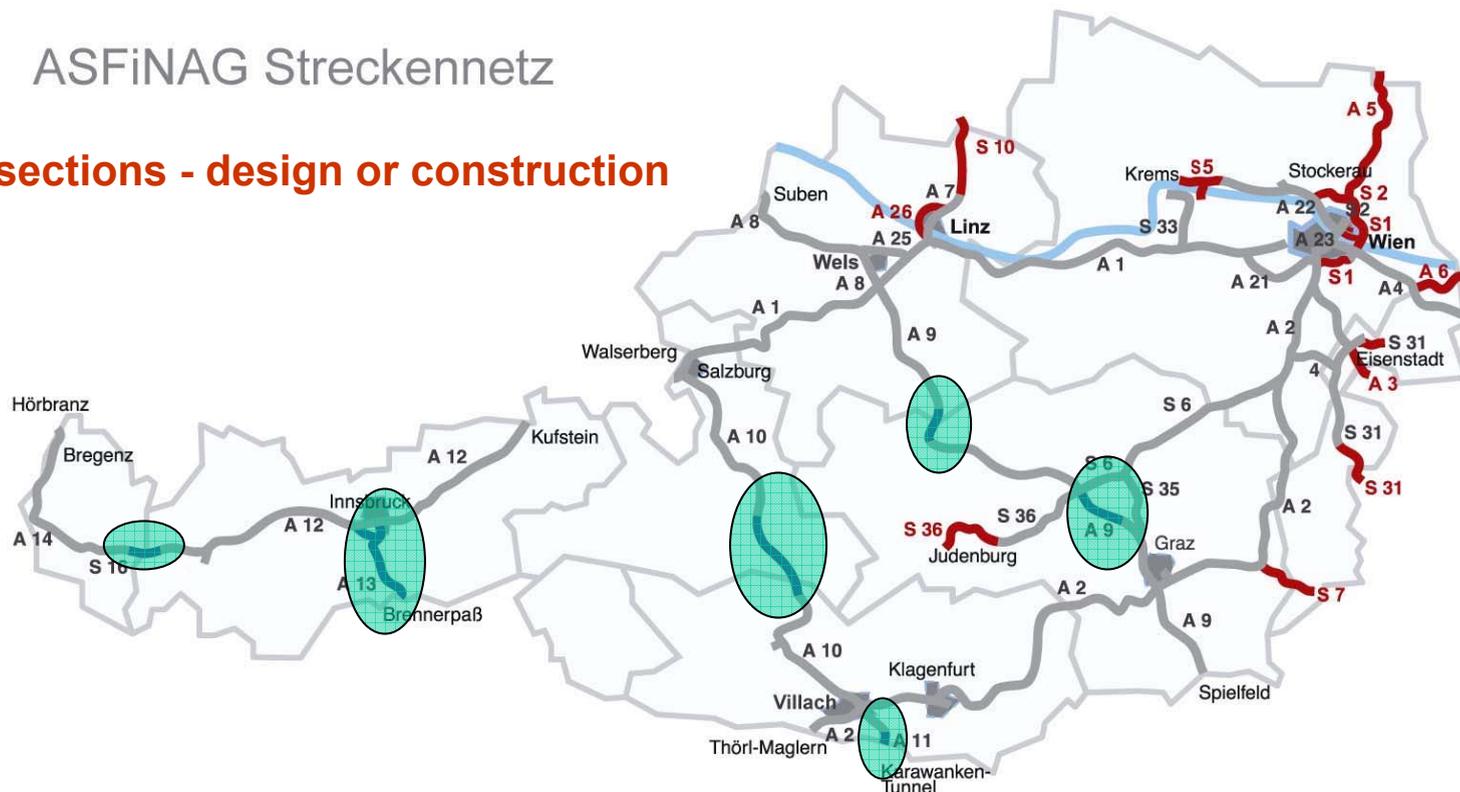


**Austria located  
in central Europe**

# Motorway-network and alpine toll-sections

ASFiNAG Streckennetz

new sections - design or construction

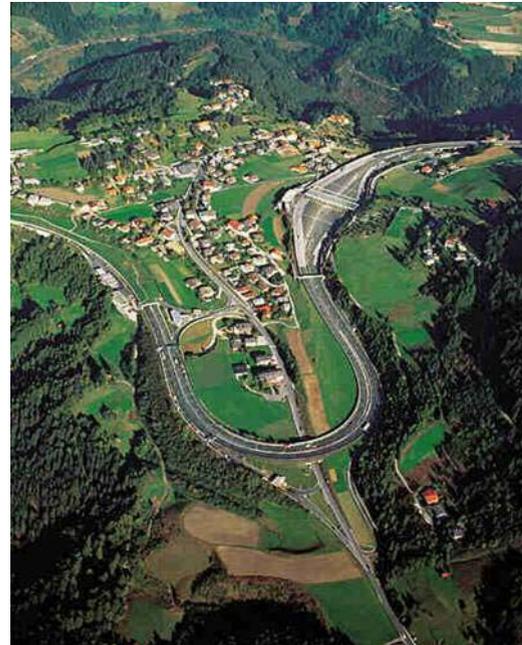
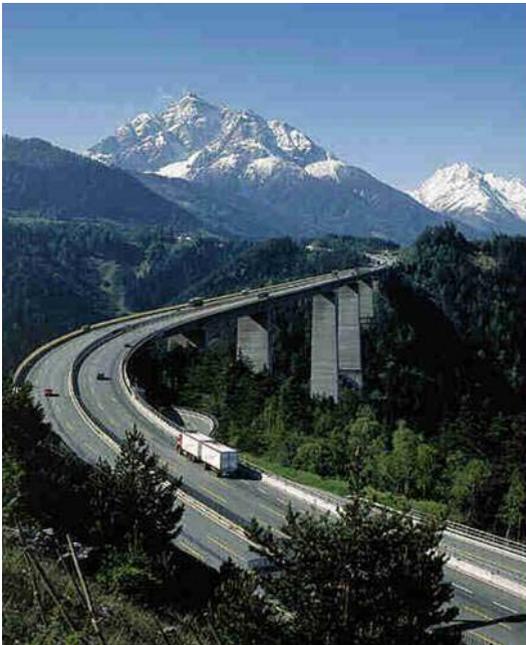


motorway- and expressway network 2080 km

alpine toll sections 142 km (7% of the entire network)

# Motorway tolling in Austria has tradition since more than 37 years

already 1968 start of the first toll motorway  
A 13 Brenner Motorway connecting Austria and Italy  
via the Brenner pass - 1300 m above sea level

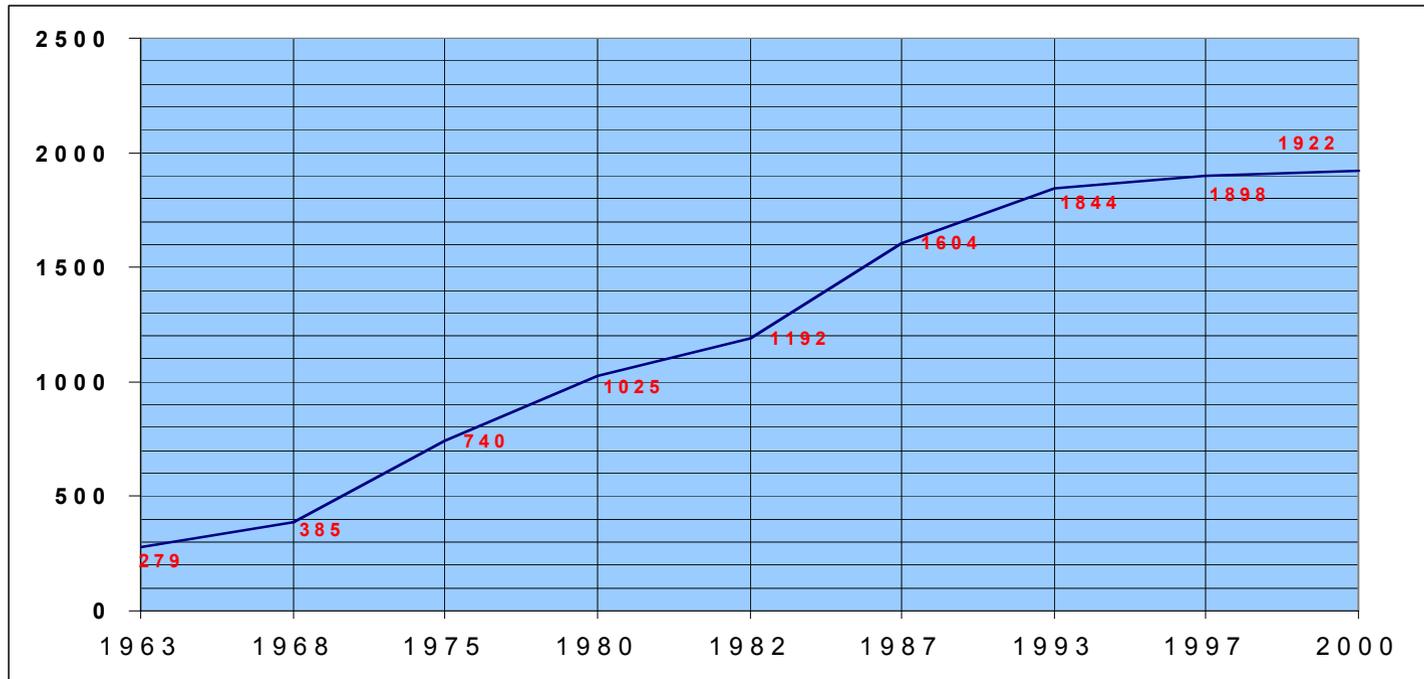


## Financial background for toll roads

- traffic increased rapidly, but
  - the common road budget was not sufficient to realise the expensive projects in time
- => decision for financing on credit base with state guarantee
- => 4 toll companies established by law within a 10 years period

# Road financing by credits became attractive

within 15 years another 520 km (75%)  
of new motorways and express roads  
could be realised on credit basis,  
but without collecting tolls for their usage



## Government decision

**Due to increasing problems on road-financing the Austrian government decided mid of 90s to introduce**

- **a vignette-system for light vehicles (cars)**
- **an electronic, distance-related toll-system for vehicles with more than 3,5 tonnes gross weight on all motorways and express roads (existing and new network)**

**Parliament agreed a new law concerned in 1996**

# Responsibility on the tolled network

A stock company named **ASFINAG** existed since 1983,  
100% state owned but only a financing company

**1997 new definition of ASFINAG's responsibilities  
for motorways and express roads by legal act**

- **design, construction, maintenance, operation, financing**
- **ownership on the existing toll companies**
- **transfer of states debts for motorways (7000 Mio.\$)**
- **right by contract for toll collection on the entire network**
- **no financial support from budget**
- **order to prepare and to introduce an EFC-System**

## General requirements for the toll system

- **No excessive formalities for access**
- **No obstacles at internal EU-borders**
- **No obstruction of traffic (multilane, free-flow)**
- **Target: Interoperability to systems of other states**

**→ fully electronically operated system!**

**the choice of the technology had been left  
to the competition**

**no technology was excluded in advance**

## Goals and expectations to the toll system

**Main objective:** Financing of the motorway-network  
additional revenue 600 Mil. € (750 mil \$) in the first year

**hope on secondary effects:**

- **slowing down the growth of road freight-traffic**

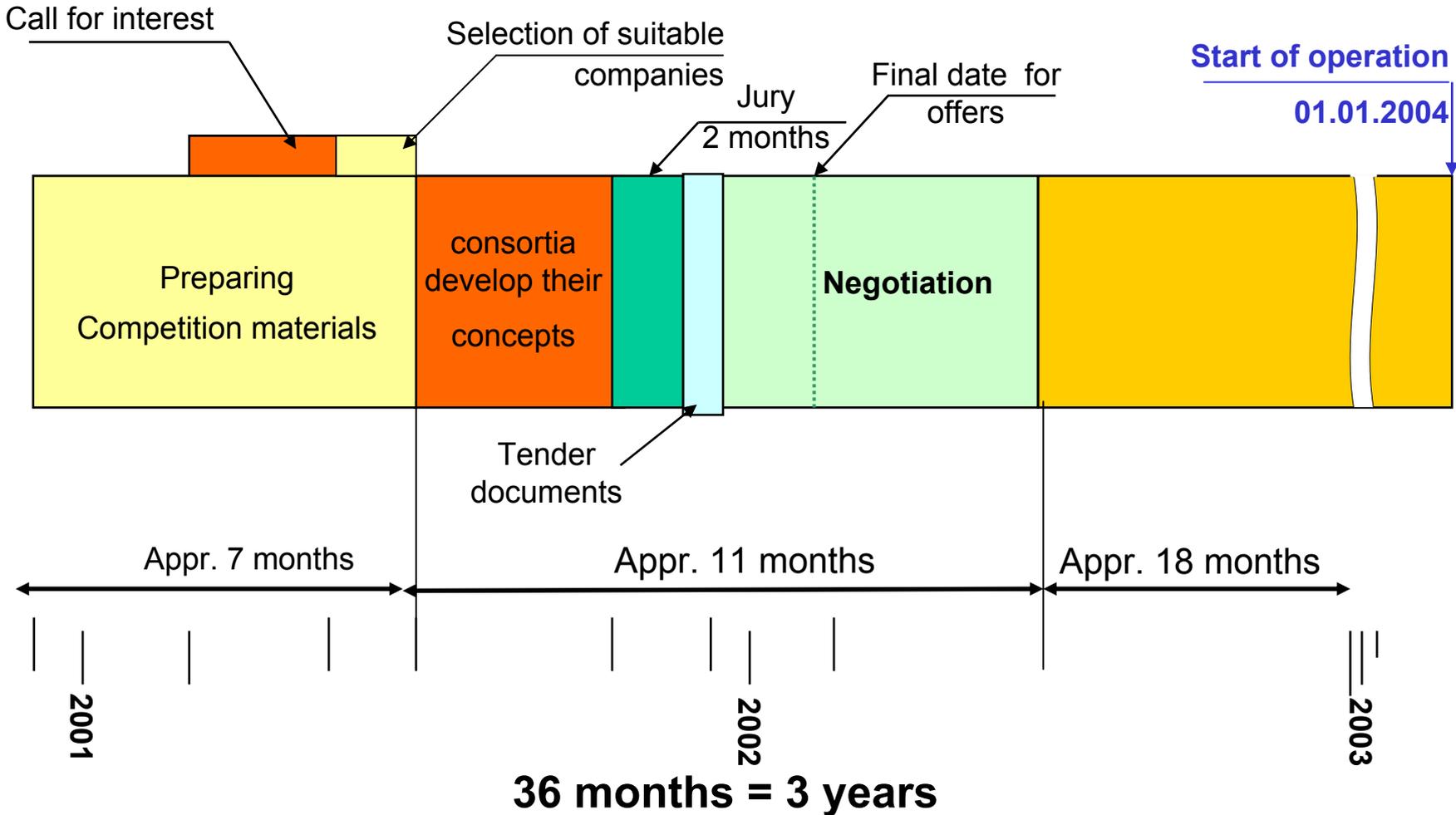
Distance travelled becomes financially more important

**expected reactions of the transport sector:**

- **better logistic, reduction of empty trips**
- **better use of loading capacities**
- **use of alternative transport modes (rail, waterways)**

# Main steps towards implementation

TC 1.1



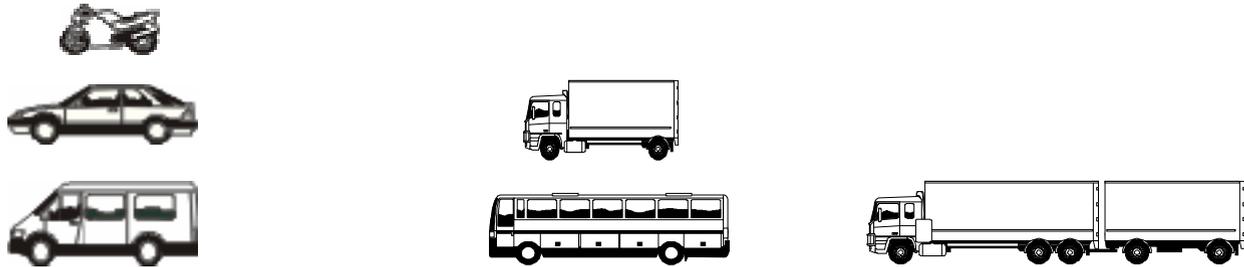
## **The operator of the tolling system**

**the motorway company decided after an economic evaluation finally for a toll operator who planned to use a DSRC technology based on 5,8 GHz microwave.**

**a service contract for a periode of 10 years had been signed (option for extension on 5 years)**

**financial value about 750 mil. Euro (940 mil.\$)**

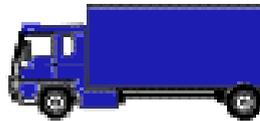
# Change of the charging system



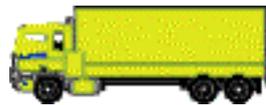
	$\leq 3.5 \text{ t}$	$\leq 12 \text{ t}$	$> 12 \text{ t}$
2003	Vignette	Vignette	User fee
2004	Vignette	Distance-based toll	

# Vehicle classes in the toll system depending on the number of axles determined by law

- **Class 2**



- **Class 3**



- **Class 4**



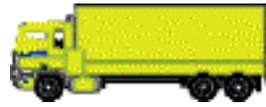
**Axles of trailers of buses and motorhomes are not taken into account for calculating the toll rates**

# Toll rates by vehicle classes

Based on an infrastructure cost calculation

2002 fixed in a decree by the minister of transport

liable to 20% VAT

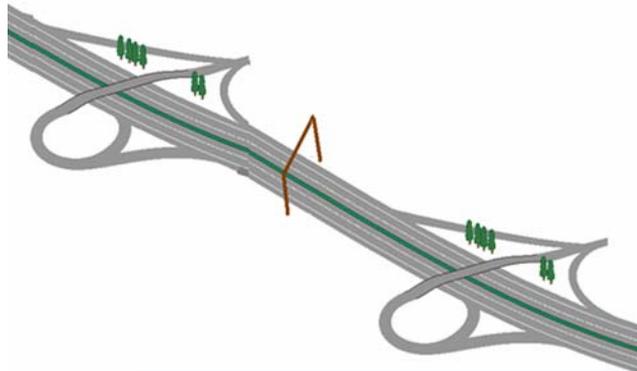


	Vehicle class 2	Vehicle class 3	Vehicle class 4
<b>Axles</b>	<b>2</b>	<b>3</b>	<b>4 + more</b>
<b>Toll rates € (\$) / km</b>	<b>0,163</b> 0,163	<b>0,228</b> 0,228	<b>0,273</b> 0,341
<b>Relation</b>	<b>1</b>	<b>1,4</b>	<b>2,1</b>

# How the system works



Vending machine



Go- Box



Tolling gantry



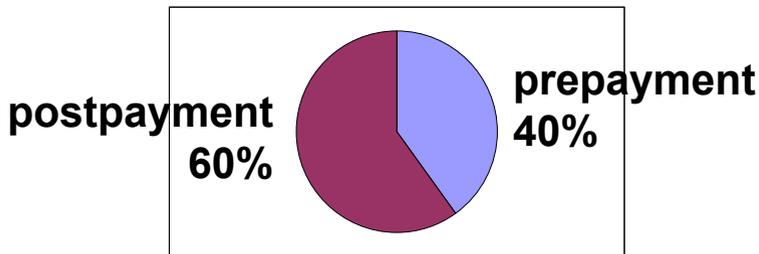
Enforcement gantry

# Modes of payment

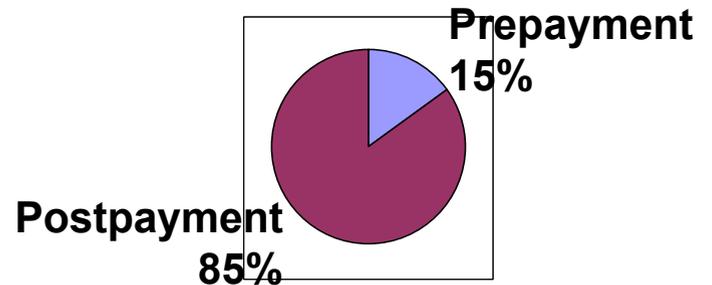
## Two modes of payment available

- prepayment: electronic money stored in the Go-Box
- postpayment: contract with fleet card or creditcard issuers

share of distributed Go-Boxes:



share of toll payed:



# Enforcement

TC 1.1

## Automatic enforcement

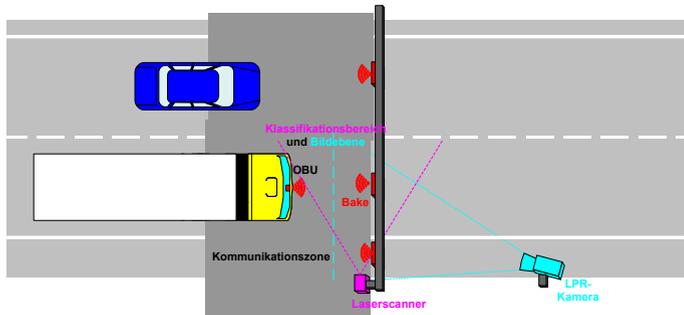


100 permanent Enforcement gantries

## Manual enforcement



100 Enforcement officers



23 portable equipments



39 vehicles for free flow spot check enforcement

# Interoperability

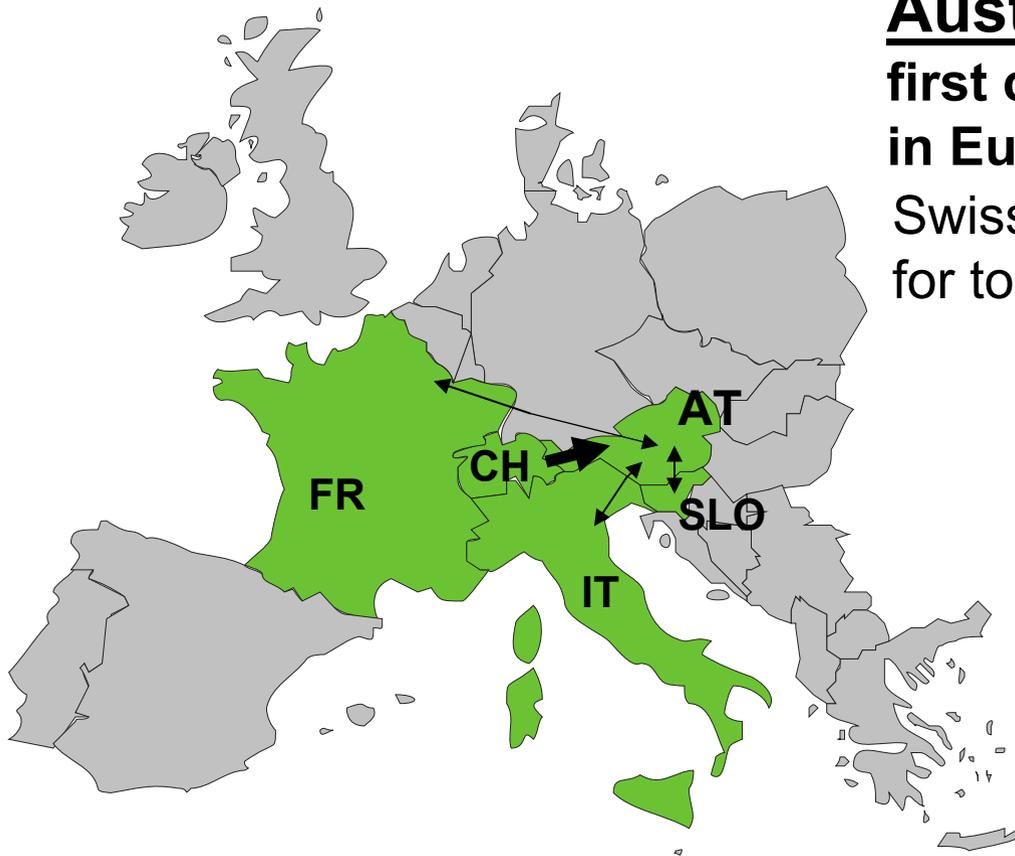
TC 1.1

in connection with the EU directive 2004/52/EU

## Austria - Switzerland

first cross-border interoperability  
in Europe in practice

Swiss OBU can be used  
for toll payment in Austria



### **Under Establishment:**

- interoperability with the Italian Telepass System

- interoperability with the new Slovenian ABC System

- Interoperability with the new French TIS System

# Experiences with the toll system

after the first year of operation

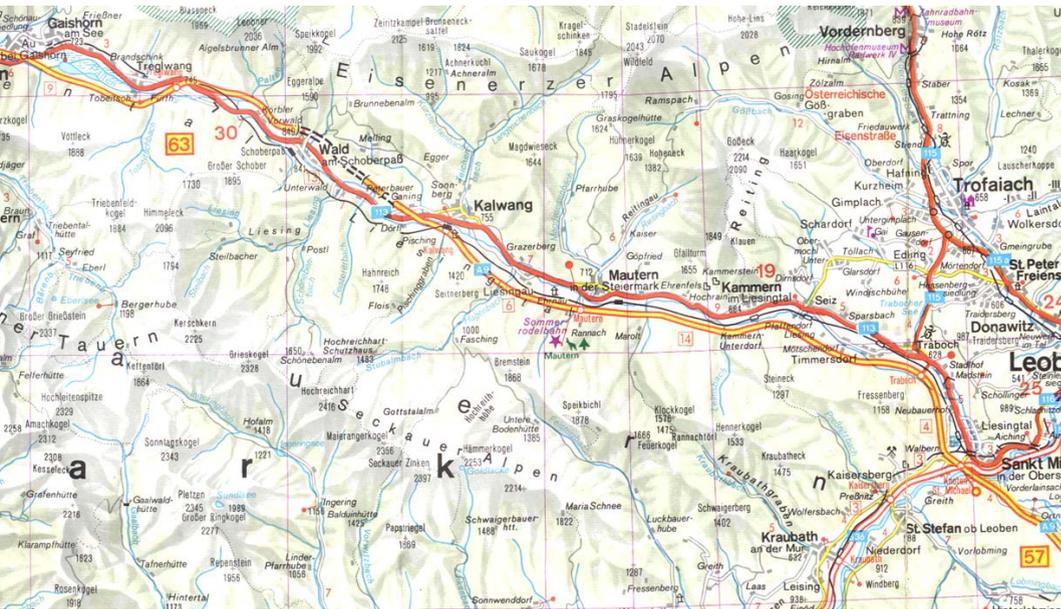
- more than 480.000 Go-Boxes distributed
- 3.000 user-contracts with Swiss TRIPON-Box
- high performance rate (> 99,9 %)  
also in case of heavy winter conditions
- 1,8 mil. toll transactions (average) per workday
- 2 mil. transactions during peak hours
- revenue as expected (760 Mil.€ [950 m.\$] 2004)
- costs of the system, approx. 10 % of revenue
- ~ 800 violators (daily average)
- less than 2% toll-dodgers
- user acceptance high (because user-friendly)  
although there is some local traffic diversion

# Traffic diversion due to tolling

TC 1.1

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## Trunk road in parallel to A9 motorway



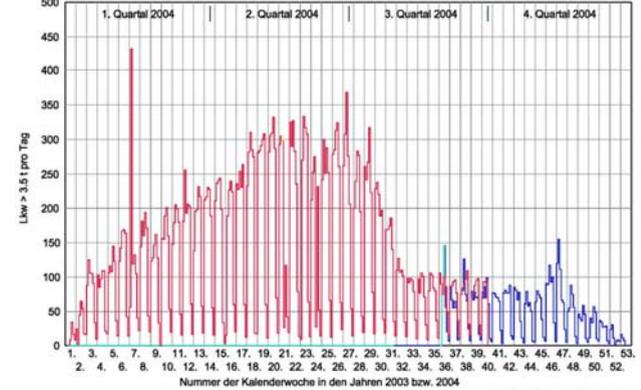
Traffic increased after start of tolling system but could be reduced to previous size by driving and weight restrictions

Schoberpaß-Straße B 113 - km 30.6 - Wald am Schoberpaß

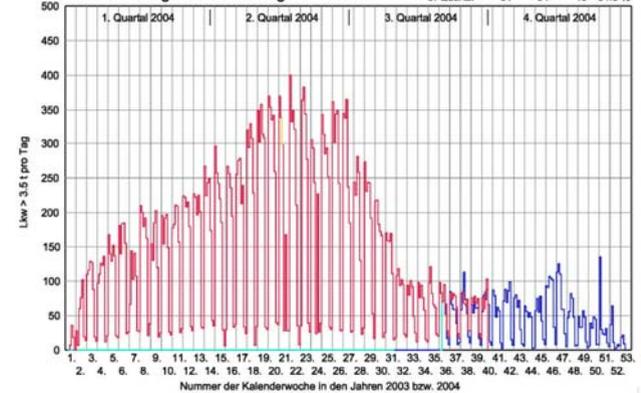
Daten der automatischen Zählstelle 28

	DTV Lkw		Veränderung abs. relativ
	2003	2004	
1. Quartal	0	111	
2. Quartal	0	191	
3. Quartal	59	105	46 78.0 %

Lkw-Belastung in Fahrtrichtung St. Michael



Lkw-Belastung in Fahrtrichtung Liezen



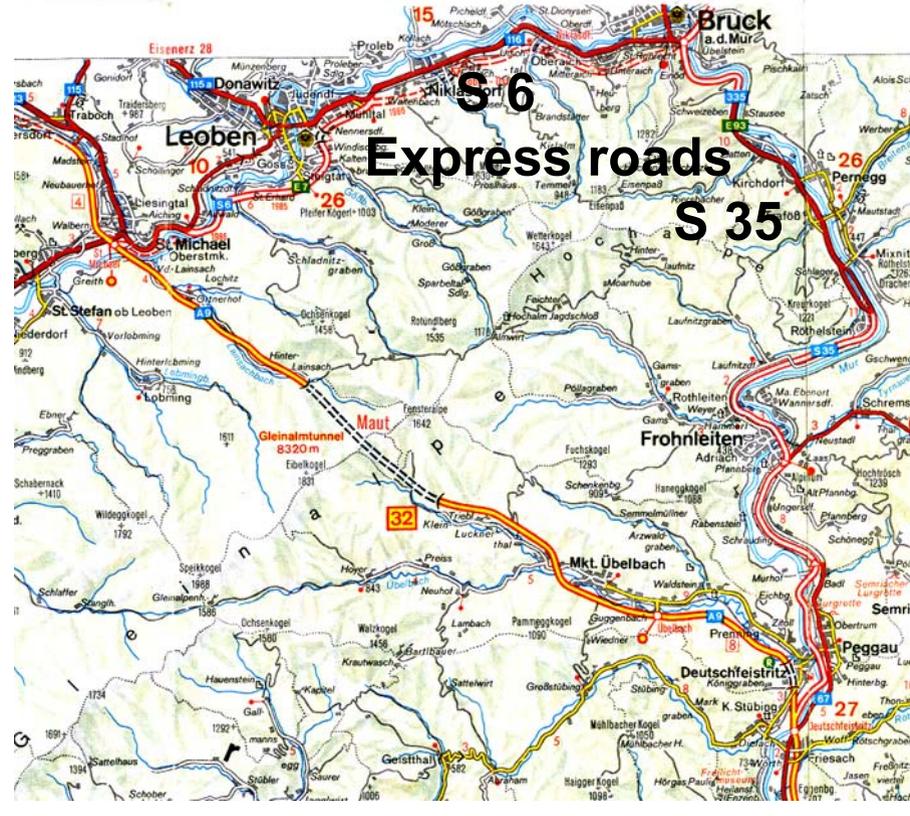
Verkehrsvorläufer vom Autobahn- und Schnellstraßennetz nach Einführung der Lkw-Maut - Anhang Bericht 2-3, Quartal 2004

# Traffic reactions on the tolling system

TC 1.1

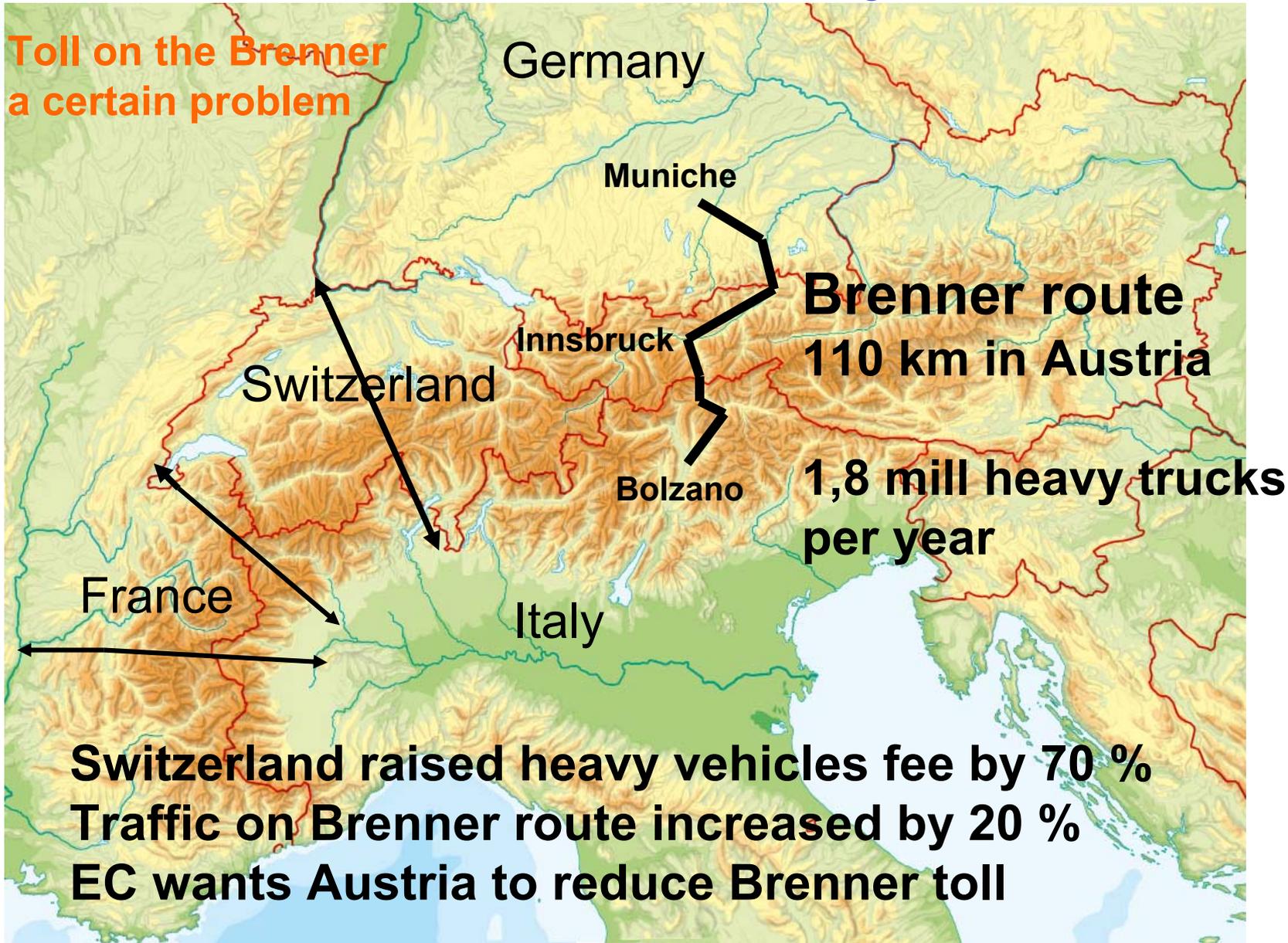


Trunk road shortens the distance by 1/3 and drivers save money in by passing the toll motorway



Although the exp.road is 30 km longer the tolled tunnel had been by passed After start of tolling system the traffic through the tunnel increased by 75 %

**Toll on the Brenner  
a certain problem**



**Switzerland raised heavy vehicles fee by 70 %  
Traffic on Brenner route increased by 20 %  
EC wants Austria to reduce Brenner toll**

## Conclusions

**Tolling brings closer to equitable share of cost**

important in the Austrian view:

**Clear definition of objectives and goals**

**Serious and detailed preparation of the system**

**Easy understandable and reliable system**

**Early information of upcoming users**

**Political support in all phases of the project**

**Realistic time scheme for design and implementation**

**Find more information on the toll system**

**in many languages**

**[www.go-maut.at](http://www.go-maut.at)**

**thank you for your attention !**