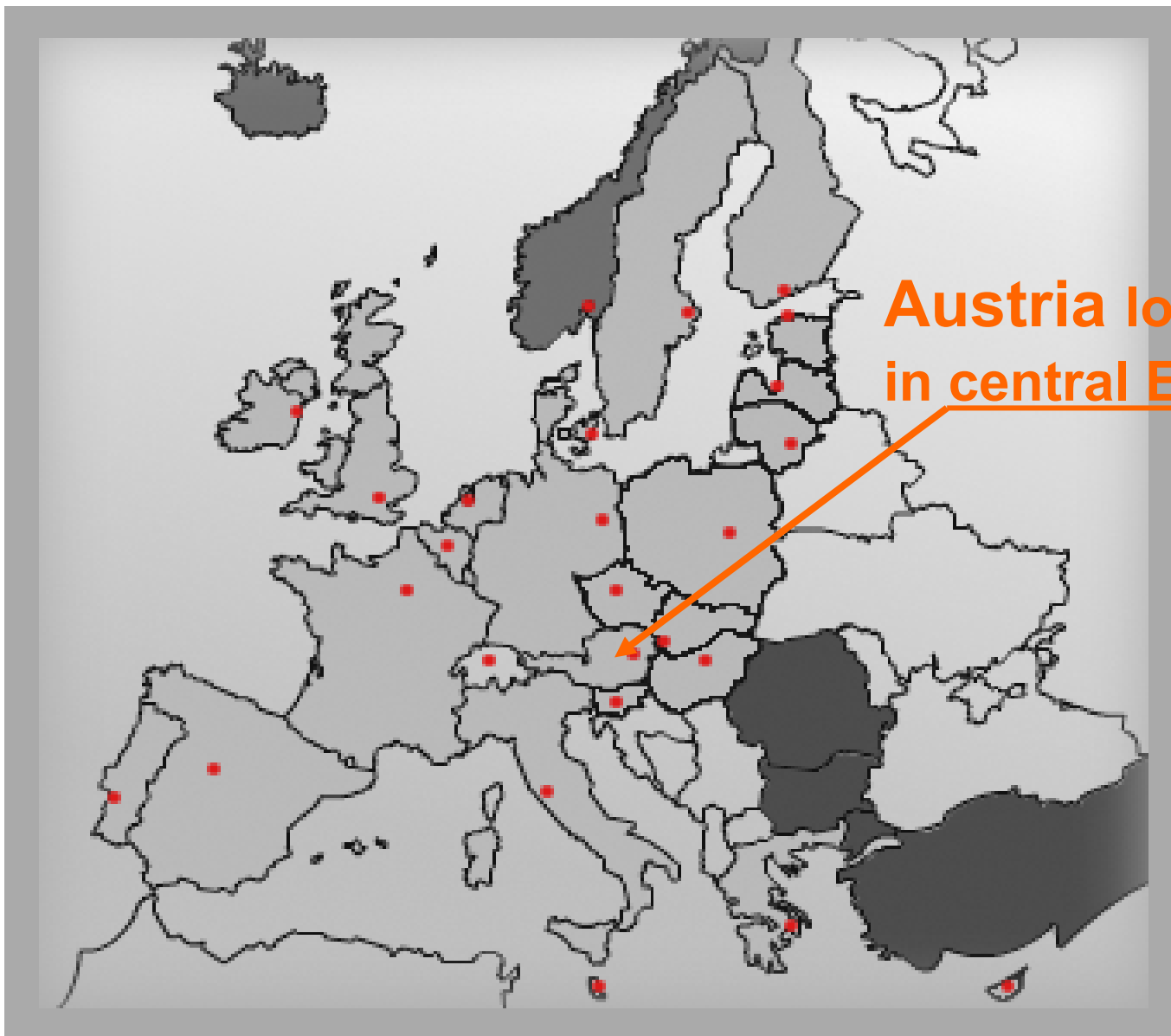


Toll Collection in Austria an electronic system on an existing network

Friedrich Schwarz-Herda



International Seminar on Road Pricing

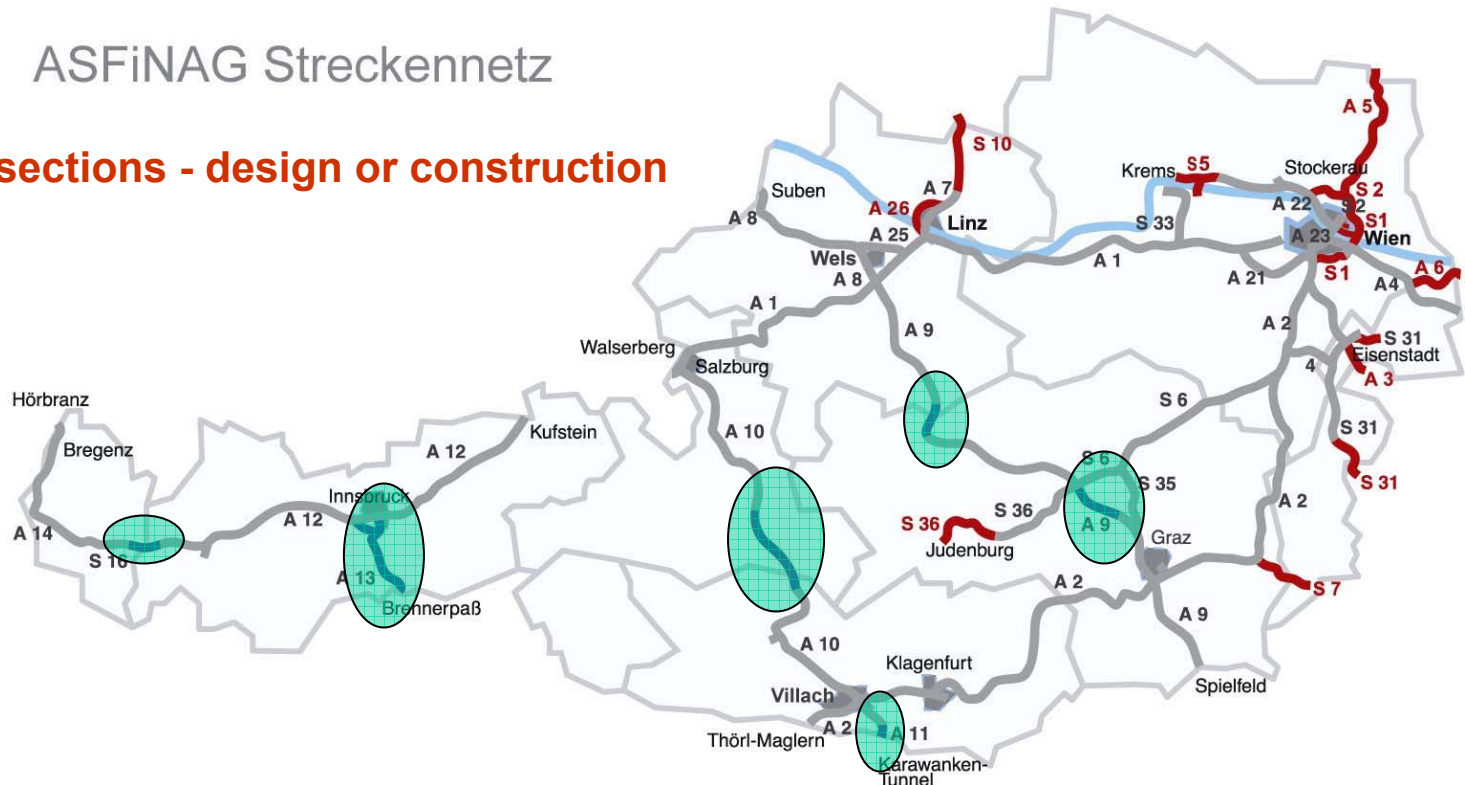


**Austria located
in central Europe**

Motorway-network and alpine toll-sections

ASFiNAG Streckennetz

new sections - design or construction

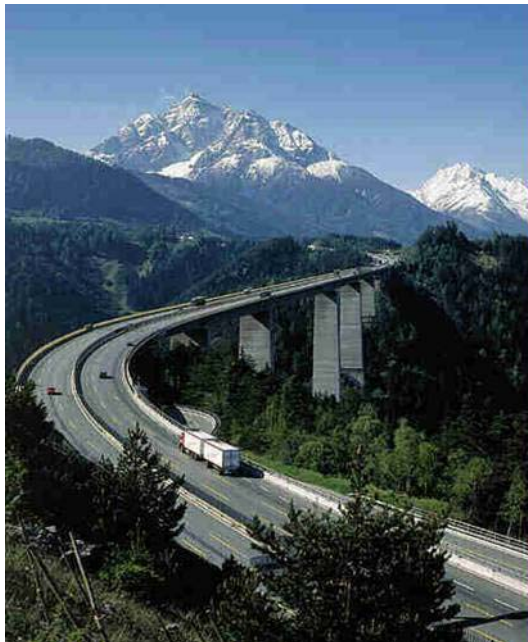


motorway- and expressway network 2080 km

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

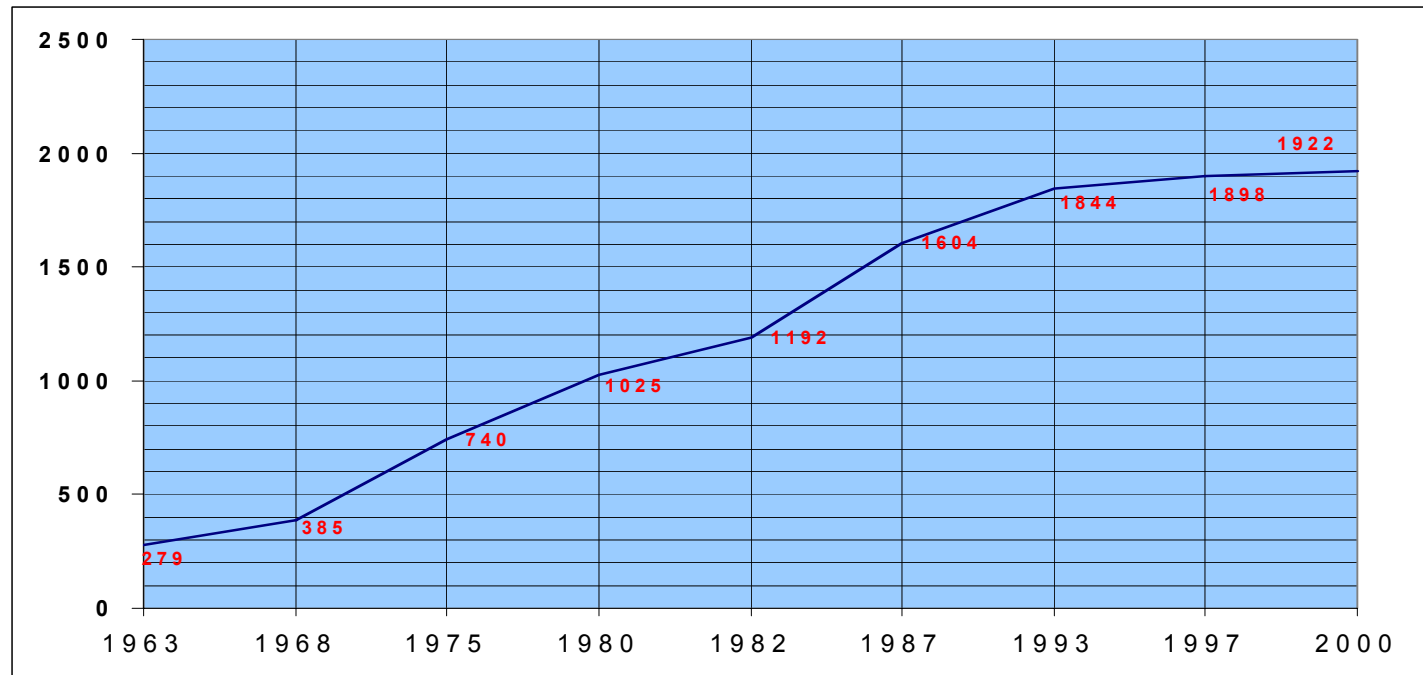


Financial background for toll roads

- 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

TC 1.1

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

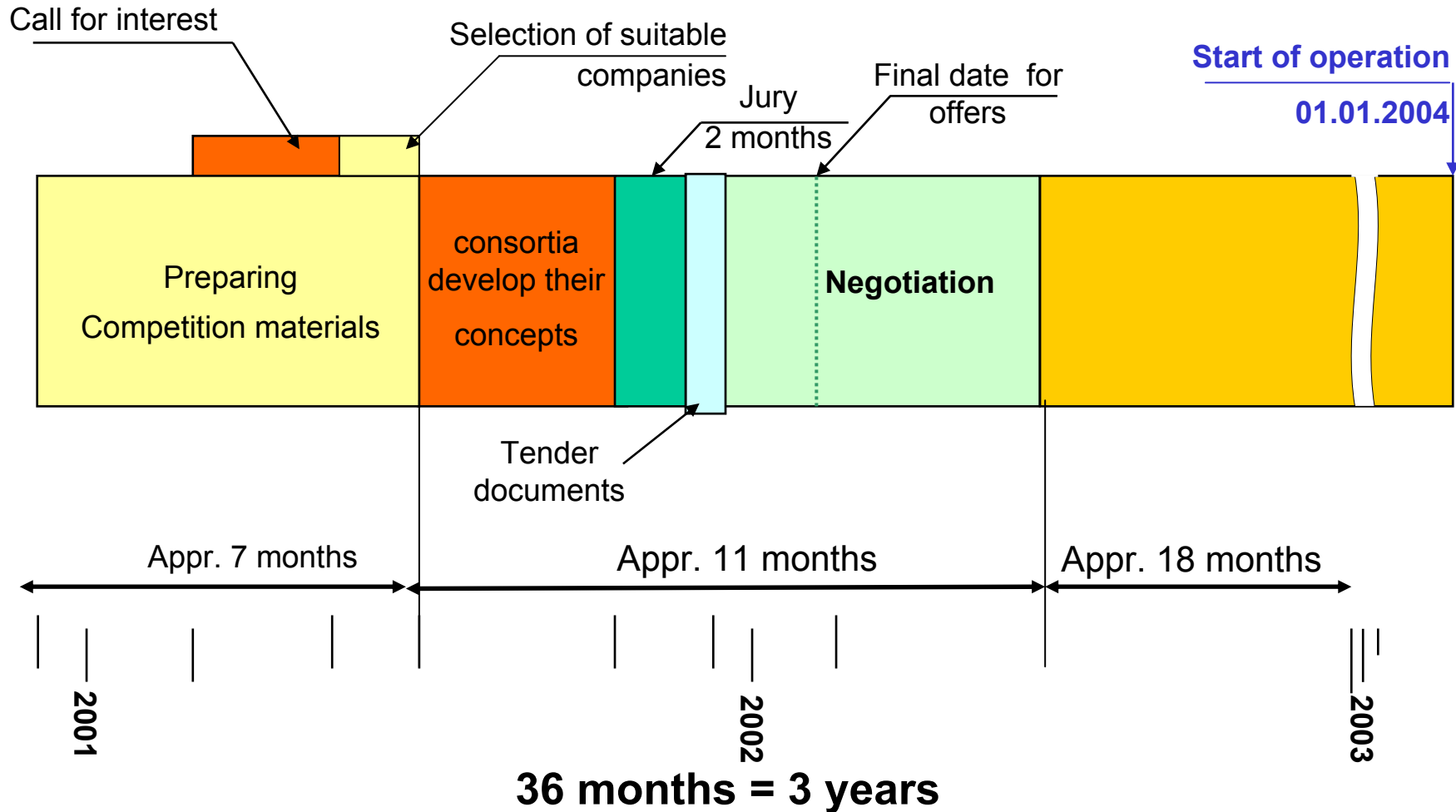
Distance travelled becomes financially more important

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

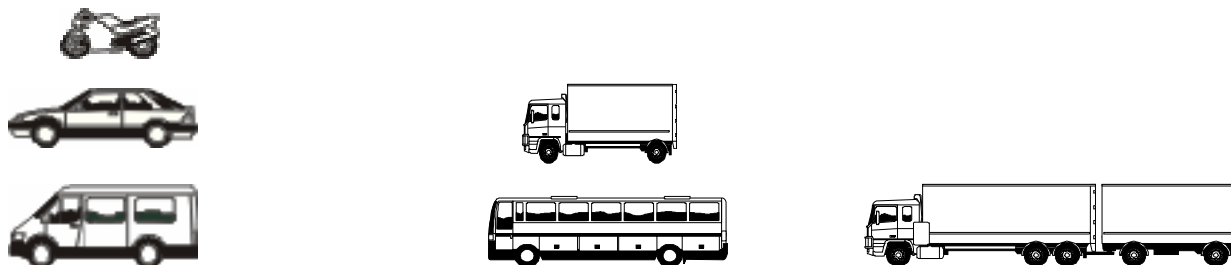


The operator of the tolling system

**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



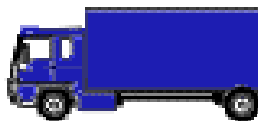
	$\leq 3.5 \text{ t}$	$\leq 12 \text{ t}$	$> 12 \text{ t}$
2003	Vignette	Vignette	User fee
2004	Vignette	Distance-based toll	

Vehicle classes in the toll system

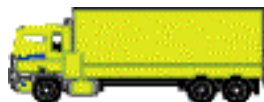
depending on the number of axles

determined by law

- **Class 2**



- **Class 3**



- **Class 4**



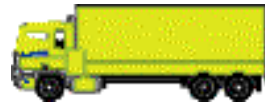
Axles of trailers of buses and motorhomes are not taken into account for calculating the toll rates

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

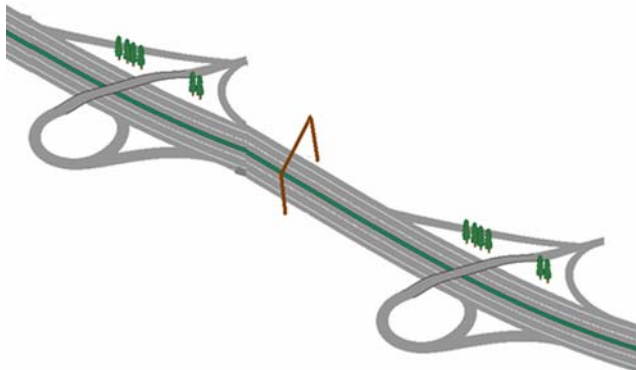


	Vehicle class 2	Vehicle class 3	Vehicle class 4
Axles	2	3	4 + more
Toll rates € (\$) / km	0,163 0,163	0,228 0,228	0,273 0,341
Relation	1	1,4	2,1

How the system works



Vending
machine



Go- Box



Tolling gantry



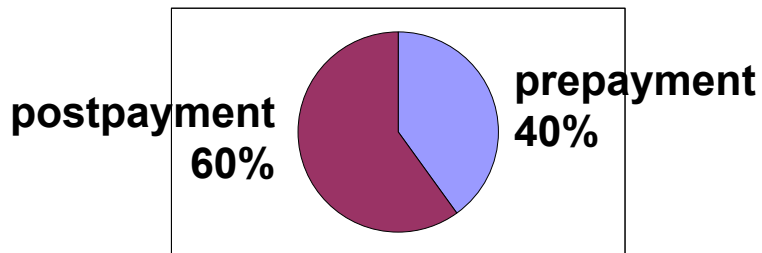
Enforcement gantry

Modes of payment

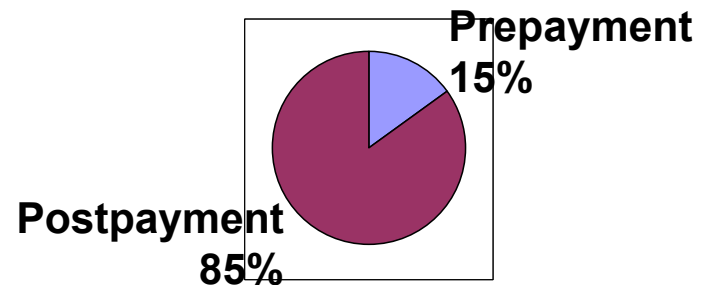
Two modes of payment available

- 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

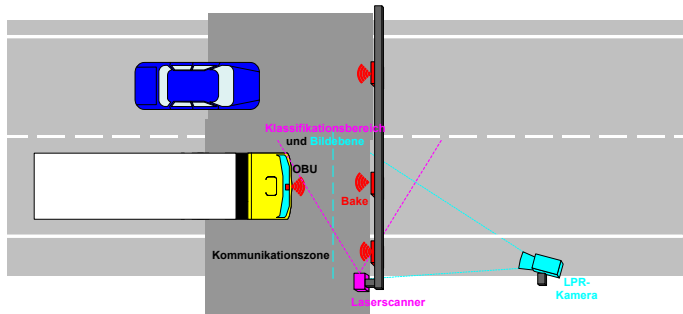
Automatic enforcement



100 permanent Enforcement gantries

Manual enforcement

100 Enforcement officers



23 portable equipments



39 vehicles for free flow spot check enforcement

Interoperability

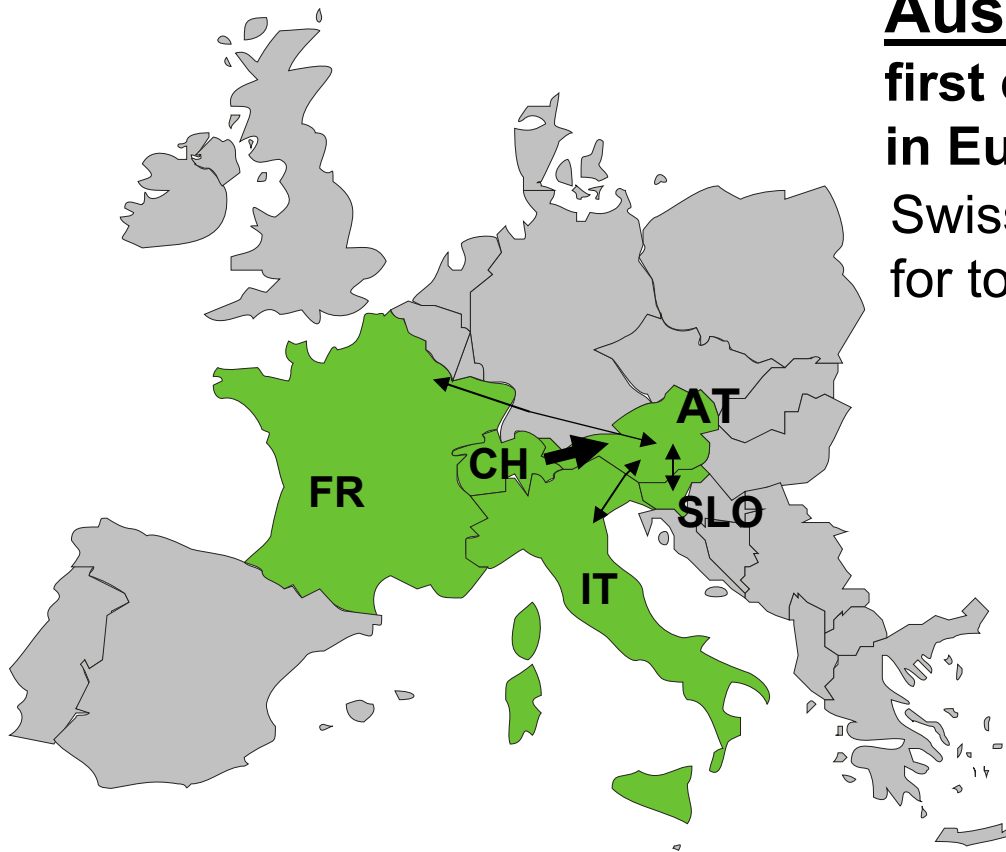
TC 1.1

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

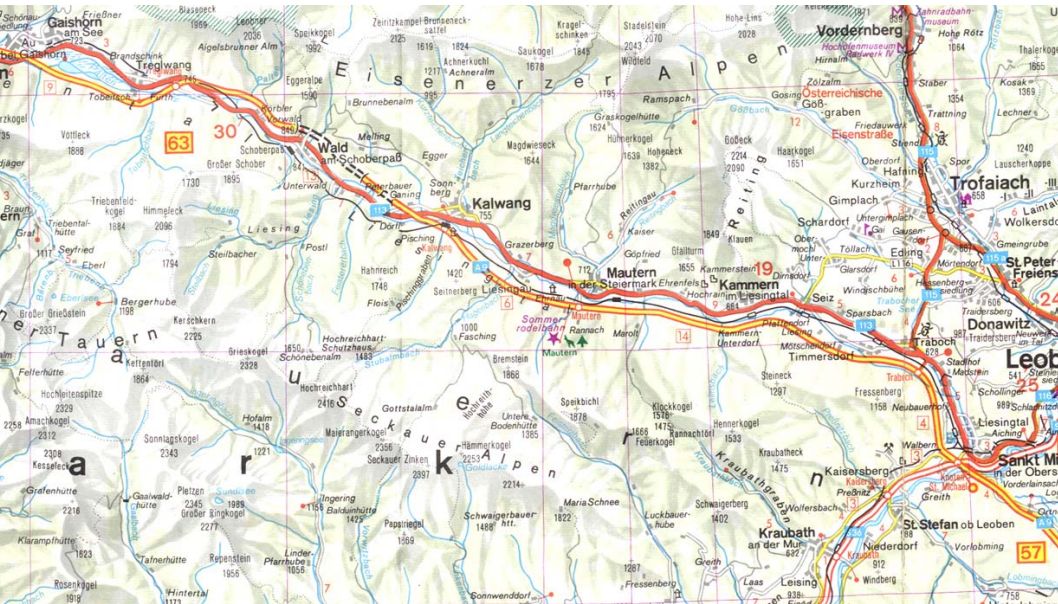
- more than 480.000 Go-Boxes distributed
- 3.000 user-contracts with Swiss TRIPON-Box
- high performance rate ($> 99,9 \%$)
also in case of heavy winter conditions
- 1,8 mil. toll transactions (average) per workday
- 2 mil. transactions during peak hours
- revenue as expected (760 Mil.€ [950 m.\$] 2004)
- 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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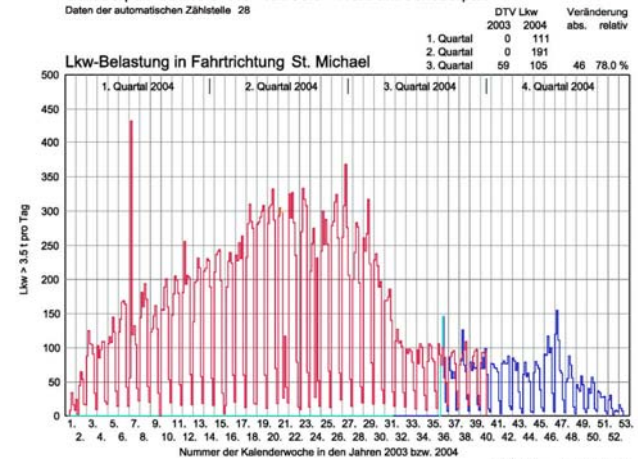
Trunk road in parallel to A9 motorway



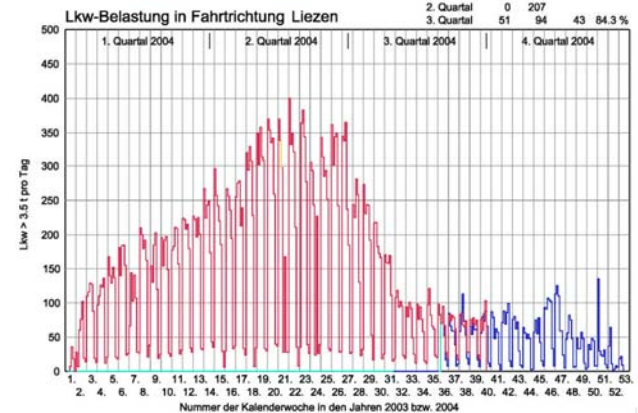
Traffic increased after start of tolling system but could be reduced to previous size by driving and weight restrictions

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

Daten der automatischen Zählstelle 28



Lkw-Belastung in Fahrtrichtung Liezen



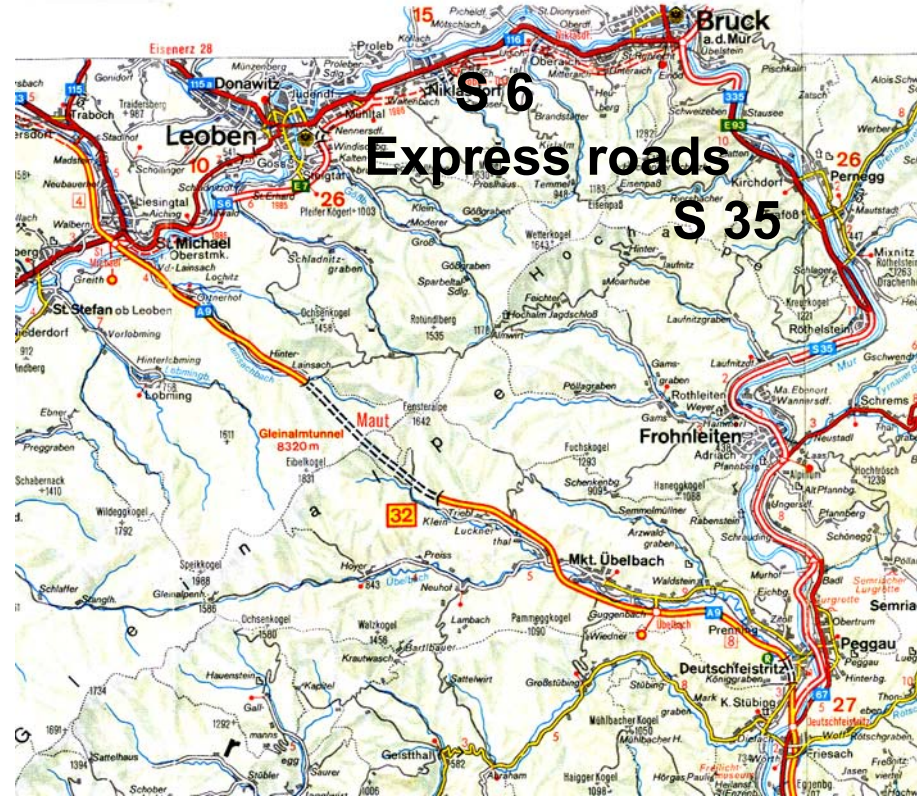
Verkehrsverlagerungen vom Autobahn- und Schnellstraßennetz nach Einführung der Lkw-Maut - Anhang Bericht 2-3, Quartal 2004

Traffic reactions on the tolling system

TC 1.1



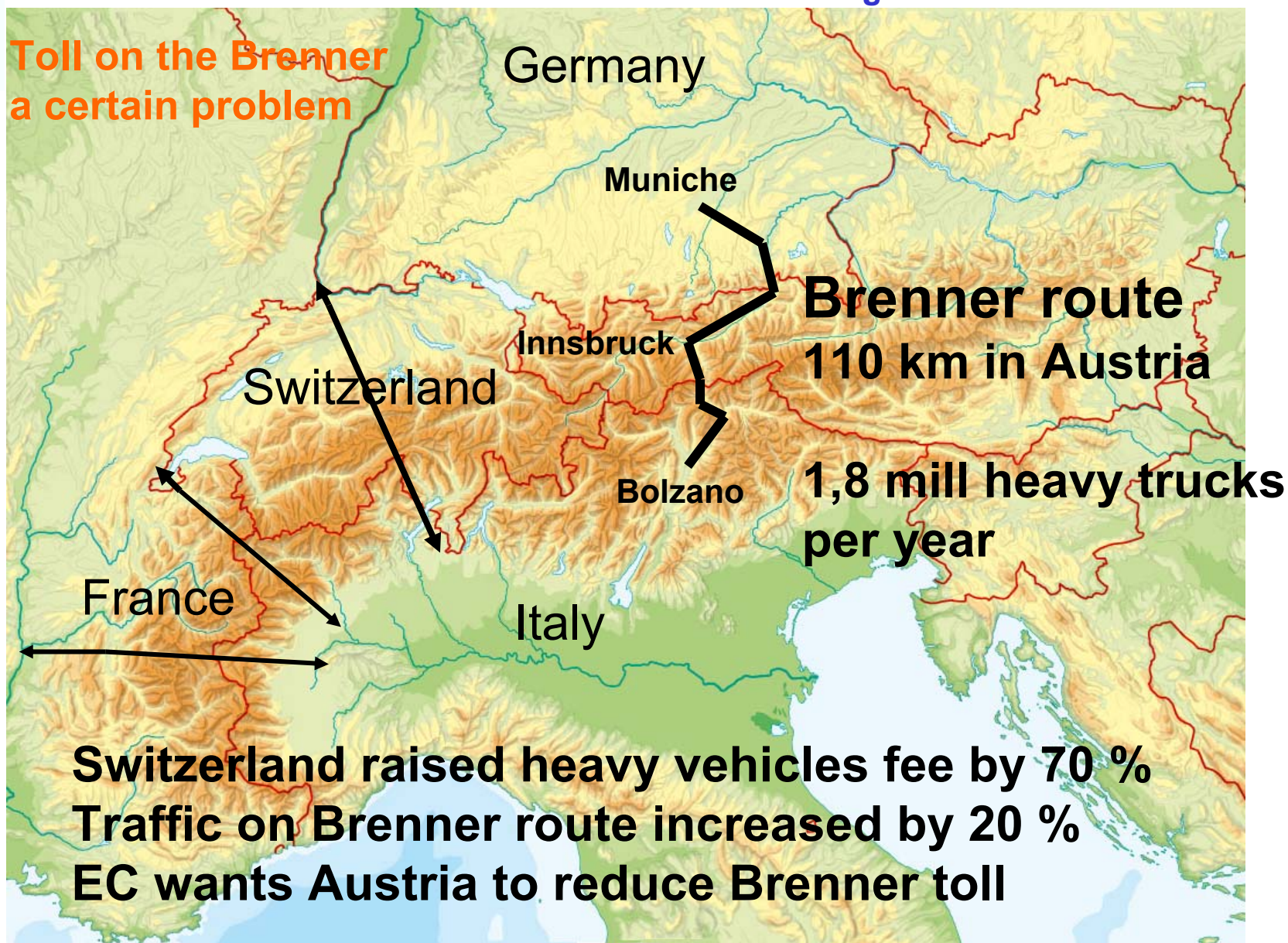
Trunk road shortens the distance by 1/3 and drivers save money in by passing the toll motorway



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 %

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**Toll on the Brenner
a certain problem**



Conclusions

TC 1.1

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

thank you for your attention !