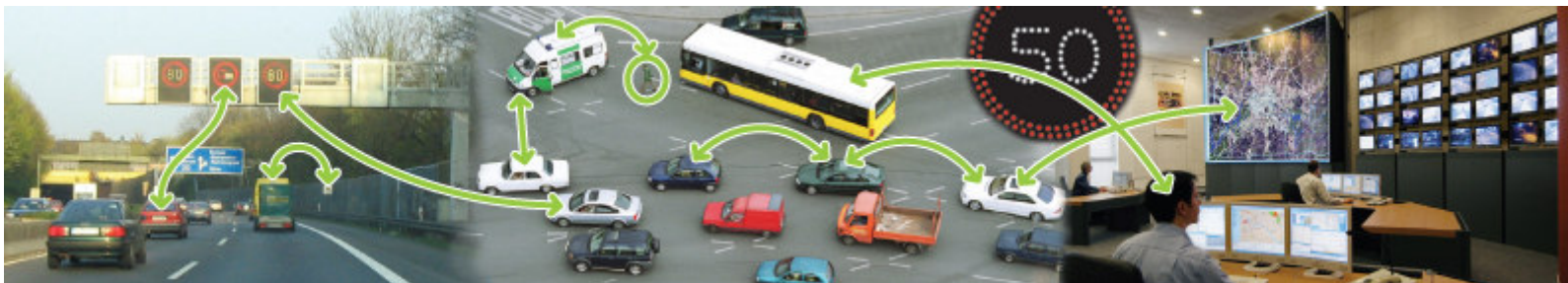




Creating successful applications for Cooperative Vehicle- Infrastructure Systems

Paul Kompfner
CVIS IP Manager





Towards cooperative mobility



- Potential benefits
- Unlimited possible applications
- Case studies: mobility, traffic system management, freight transport
- Cooperative systems: win-win for everyone



What's wrong today...



- ✓ Personal mobility doubled from 1970 to 1998
- ✗ Traffic jams every day on 10% of Europe's highway network
- ✗ Delays cost 1.9 billion litres of fuel (6% of annual consumption)
- ✗ Congestion costs €50 billion per year (0.5% of EU GDP)
- ✗ Road transport takes 26% of total EU energy consumption
- ✗ The 1.4 million road accidents cost €200 billion each year...



What could we gain?



If cooperative systems could yield 10% improvements:-

- ✓ 2% less of Europe's highway network congested
- ✓ Fuel cost of delays reduced by 190 million litres of fuel
- ✓ Savings in congestion costs of €5 billion per year
- ✓ Road transport energy consumption reduced by 3% of EU total
- ✓ 140,000 fewer road accidents, saving €20 billion each year...





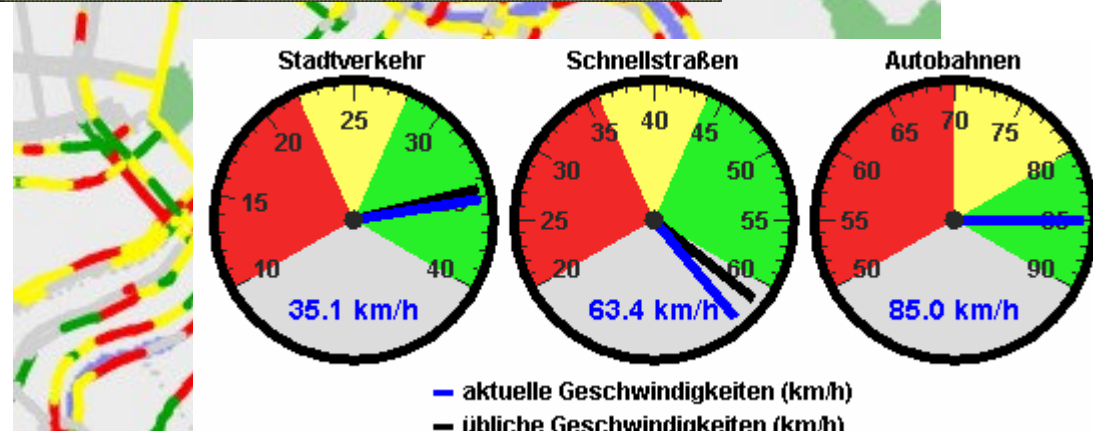
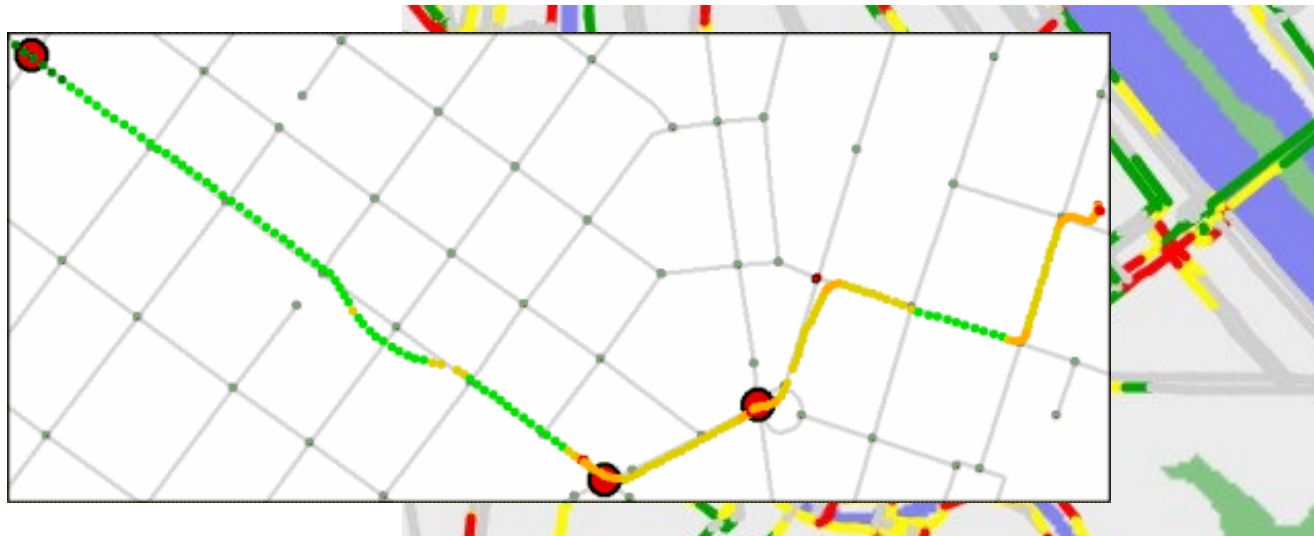
Need to know



- Real validation of performance, impacts
- Cost/benefit studies
- Adapt & develop models for cooperative system assessment
- Deployment scenarios – early applications
- Predictive studies of integrated cooperative systems
- Compile a European knowledge base



Information: the “electricity”

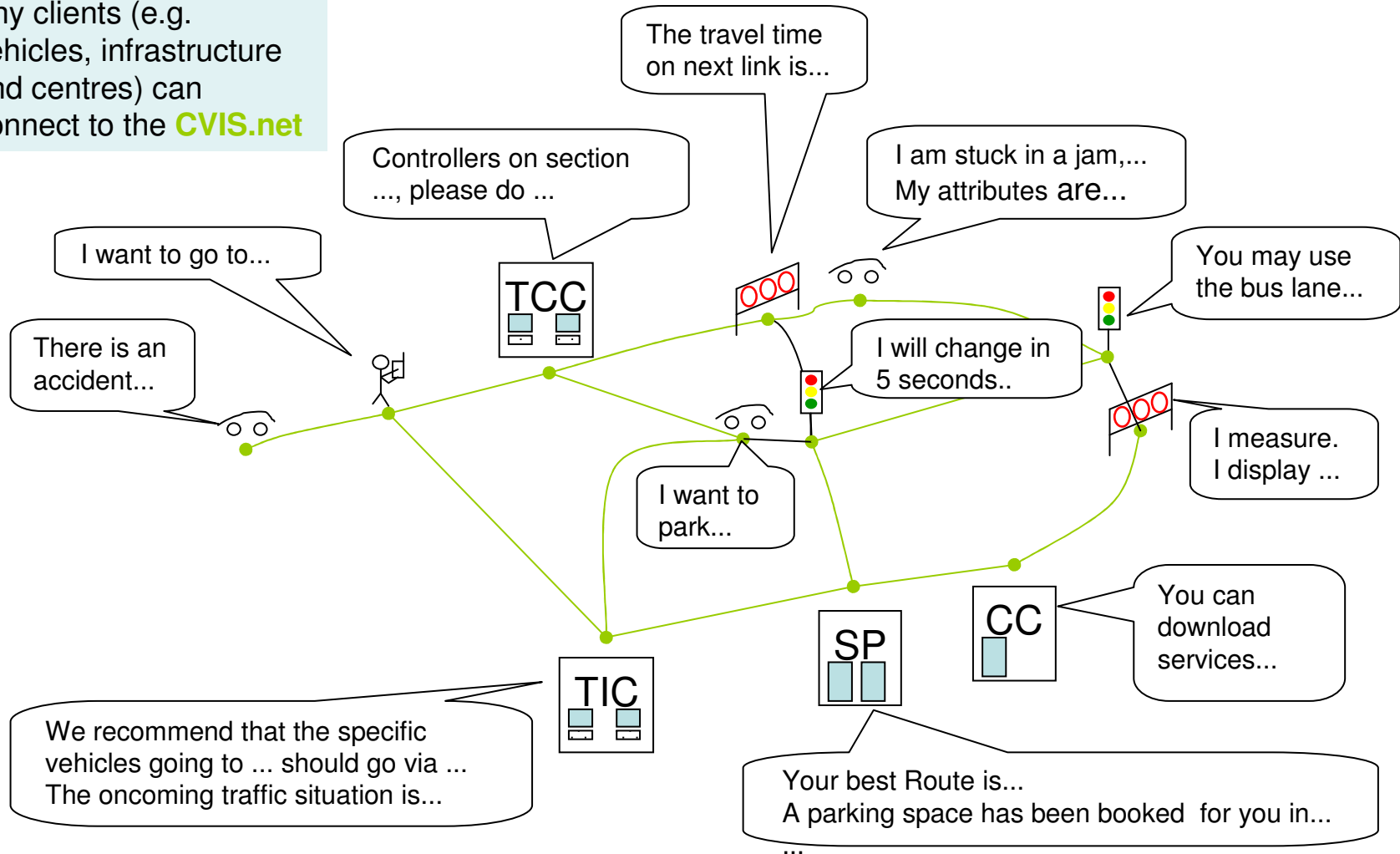




System concept



Any clients (e.g. vehicles, infrastructure and centres) can connect to the **CVIS.net**





CVIS Applications



Cooperative Monitoring

- XFCD, fusion with infrastructure sensors

Urban

- Cooperative network management
- Cooperative area destination-based control
- Cooperative acceleration/deceleration
- Dynamic bus lanes

Interurban

- Enhanced driver awareness
- Cooperative travellers' assistance

Freight and Fleet

- Access control
- Dangerous goods
- Parking booking

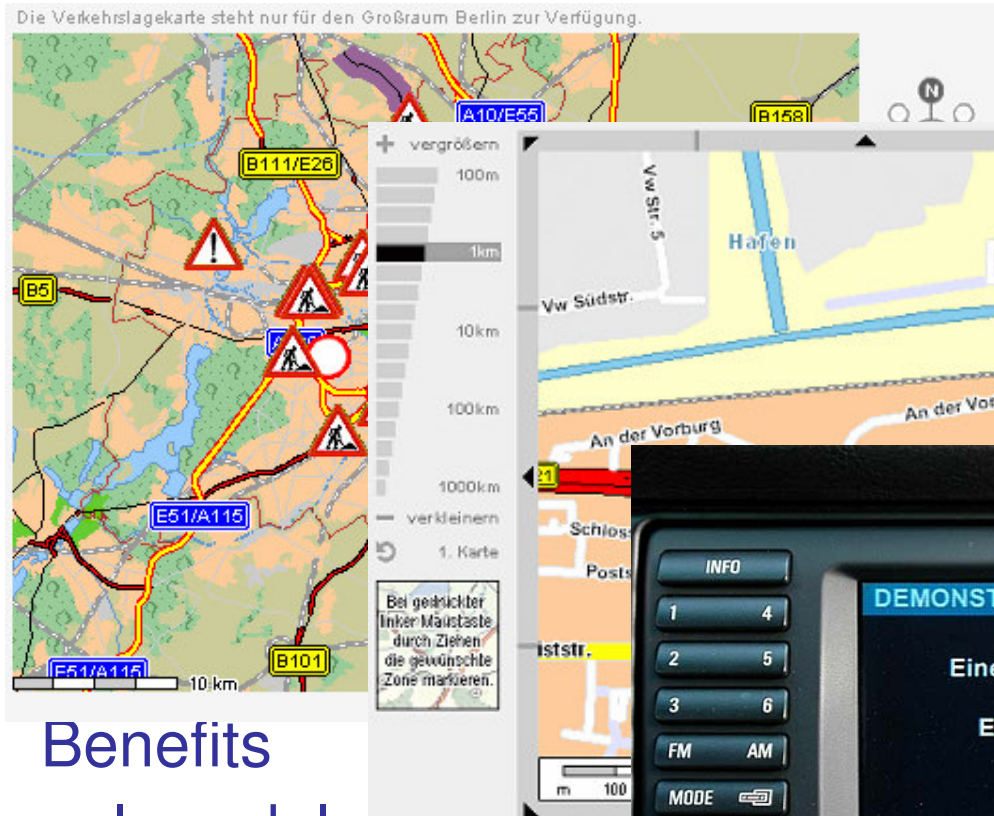


Case study: helping drivers on their way



services

and traffic jams
solutions



Benefits

- less delay, more people
- more comfortable
- less traffic congestion, money & environment cost

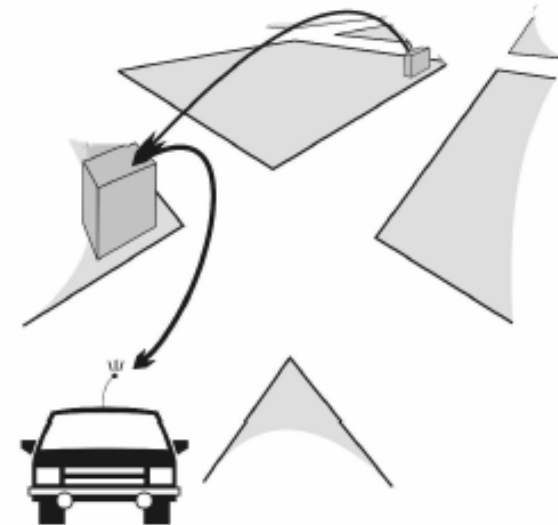
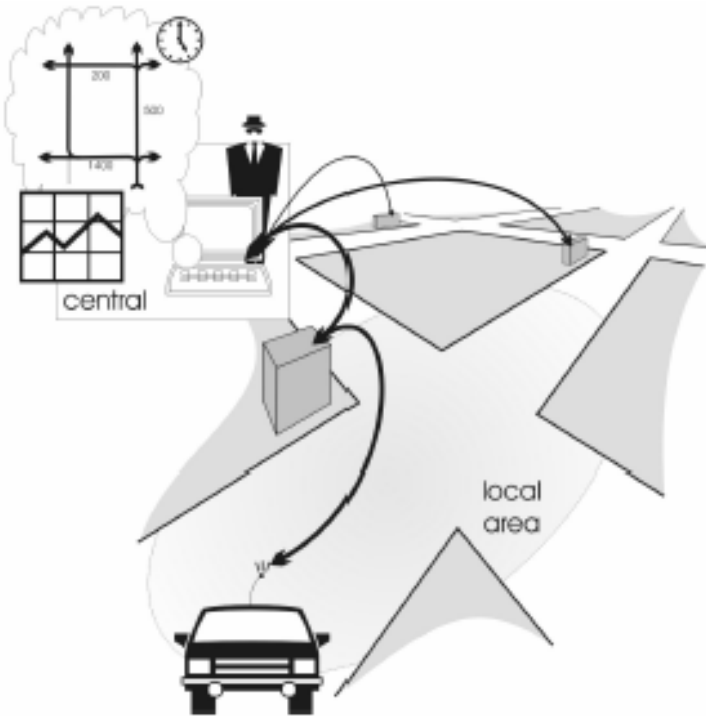




Case study: managing city traffic



- Traffic manager knows every vehicle's destination
- Balance total network delay
- Local junctions interact with each vehicle
- Vehicle "clusters" synchronised through local green wave
- Reduce waiting time & costs





Case study: helping motorway drivers



- Detecting & reporting incidents
- Recommending alternative routes
- Displaying messages & warnings inside the vehicle
- Detecting wrong-way drivers



Forte di Bard - Valle d'Aosta



Safe & Sustainable Mobility – 25 May 2007



Case study: fleet & freight management



- Control access to sensitive areas
- Track vehicle continuously
- Permit use of tunnel/bridge when there is a “slot” free
- Warn driver
- Hazardous goods monitoring
- Report accidents automatically
- Monitor load condition
- Organise diversion, recovery



The screenshot shows the INTER TOUR software interface with the following components:

- Titelleiste:** INTER TOUR, Windows 5.3
- Menüleiste:** Datei, Listen, Ändern, Planen, Drucken, Einstellungen, Fenster, Hilfe
- Symboleiste:** Navigation and map controls
- Kartenfenster:** Map showing routes and locations like Aiglsburg, München, and Fürstenfeldbruck.
- Stops - alle Stops:**

Index	KundenNr	S	L	K	L	A	A	Tour	Orp	Krk	SZt	Ort-Zeit	Name
1	3767	1559.00	1259.00	3	0	0	1.00						KUNDE 002
2	3768	77.00	77.00	7	0	0	0.05	B1300					KUNDE 003
3	3769	32.00	32.00	7	0	0	0.05	B1300					KUNDE 004
4	3770	0.00	0.00	11	0	0	0.20						KUNDE 005
5	3771	0.00	0.00	3	0	0	0.15	B1400					KUNDE 007
6	3772	223.00	223.00	10	0	0	0.08						KUNDE 008
8	3774	204.00	184.00	3	0	0	1.55	B1500					KUNDE 010
9		150.00	150.00	7	0	0	0.05						
10	3776	193.00	153.00	2	0	0	0.00						KUNDE 012
11	3777				0	0	0.15	B1500					KUNDE 013
12	3778				0	0	0.02	B1200					KUNDE 014
13	3779				0	0	0.15	B1300					KUNDE 015
14	3780	25.00	35.00	3	0	0	0.08						KUNDE 016
15	3781	195.00	200.00	3	0	0	0.13						KUNDE 017
- Übersichtsliste:** Summary table for tours.
- Tourenübersicht - alle Touren:**

Ind	S	Fzgr	Stops	max. Kl	% max. Au	% max. St	Weg	Zeit	Abfahrt	
1	5	21	7233.00	76	8236.00	82	2573.00	377	5.17	05.30
2	15	12	2384.00	82	1489.00	53	1489.00	130	8.10	05.30
3	17	15	4631.00	82	4591.00	77	4591.00	118	7.38	05.30
4	22	27	5931.00	59	5816.00	58	5816.00	315	9.56	05.59
5	10	10	1062.00	64	1262.00	76	1262.00	281	8.26	05.30
6	11	10	1502.00	91	1602.00	97	1602.00	187	6.23	05.30
7	14	29	2436.00	87	2636.00	84	2636.00	232	8.15	05.30
8	4	10	5228.00	89	4972.00	84	4972.00	422	8.54	05.55
9	16	11	5652.00	36	5143.00	87	5143.00	197	7.01	05.30
10	18	15	3276.00	56	2981.00	48	2981.00	44	3.08	05.37
11	1	19	917.00	82	717.00	64	717.00	132	6.33	05.30
- Statusleiste:** Stp # 0, Trn # 0, 17180, Ansicht verkleinern
- Footer:** Filiale: 1, Datum: 18.10.2000, 13.11.2002 10:01:44





A win-win case for everyone



Traveller

- can choose optimum balance of means of travel

Driver

- with full knowledge of traffic, will have easier & quicker journeys

Traffic manager

- reduce total network delay, increase network capacity

Policy maker

- new tools for demand management & traffic safety

Vehicle manufacturer

- new products & associated services

Fleet manager

- keep in contact with vehicle & freight load, integrate with logistics

Communication network operator & service provider

- increased customer base, new services & content





Some thoughts



- Do we really understand customer needs?
Which products will users pay for?
- Safety systems seem attractive – but will they have a business case?
- Who will deploy & offer mobility services?
Commercial or public providers?
- Should we also consider “fun” services?



Thanks, and see you in Aalborg