

CityMobil and other EC Projects

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CENTRO DI RICERCA
PER IL
TRASPORTO E LA LOGISTICA

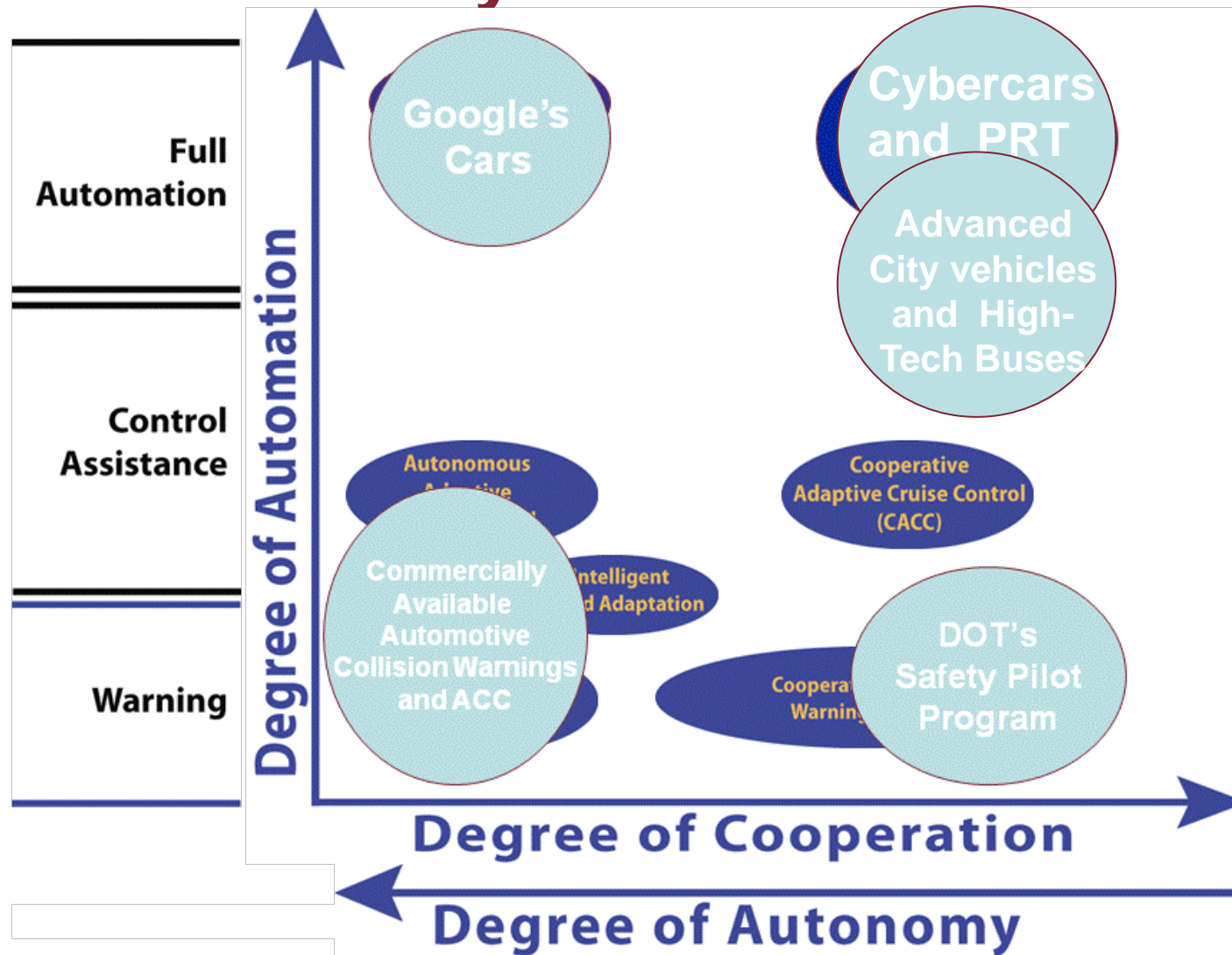


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What am I going to talk about according to Steve's Taxonomy



Definition of ATS (1/2)

- Cybercar systems (also known as CTS - Cybernetic Transport Systems) – public transport systems supplying collective-taxi-like services with self-driving vehicles in (partially) unprotected environments
- PRT (Personal Rapid Transit) – public transport systems supplying taxi-like services with self-driving vehicles on reserved and segregated infrastructures

Definition of ATS (2/2)

- Advanced City Vehicles – small cars, developed for use in urban areas, manually driven but with self-parking, platooning and fully automated driving capabilities to be used in advanced car-sharing schemes (or privately)
- High-Tech Busses – supply tram like services on either exclusive or shared infrastructures with guidance and other driver assistance systems but the driver is still in control

The EC projects on ATSS since year 2000

- CyberCars
- CyberMove
- EDICT
- NetMobil
- CyberCars2
- CyberC3
- CityMobil
- CityNetMobil
- CATS
- CityMobil2

Main CityMobil results

- In city centres
 - Densely inhabited centres of large cities do not need car automation
 - ATS give their bests in city centres of small cities
 - PRTs are the best ATS for such centres
- In suburbs (inner or outer)
 - Accompanying measures are essential to the ATS success
 - Peripheries of large cities or polycentric conurbations would benefit of automated road vehicles (cybercars or dual mode shared cars) used to feed the main PT network
- In general
 - Automating cars pushes a mind-shift
“use vs. Ownership”

Where are we today at the end of CM and CNM and starting CM2

- Successes of CityMobil
 - Three working demonstrations (two of which certified to work without drivers)
 - One unsuccessful demonstrator
 - A safety analysis procedure to certify driverless systems
 - A thorough evaluation of where each advanced system perform best
- Successes of CNM
 - A large group of interested cities
 - Successful event organisation
- Open challenges
 - Complex implementation process
 - No clear legal framework
 - A still very car-oriented society

The three main topics in need of further research after CM and CNM

- Legal aspects
 - to transfer the CityMobil findings in the certification area into action and change the law to allow automated driving
- Wider economic effects of the car-free-cities concept
 - what would happen to car manufacturers and to the EU economy in general if the market for cars in cities is drastically reduced?
- Road to implementation of real systems in cities
 - the main problem, we have seen it with the large scale demos, is the implementation process any small thing can delay the system implementation or change plans diluting the effect

The CityMobil2 approach

- To have (almost) all European system developers in the consortium competing to developing and building general purpose interoperable systems as flexible as possible in the first 18 months of the project;
 - A CyberCar rather than a PRT system because:
 - Infrastructure costs are lower
 - Less larger vehicles are normally required
- To have 12 cities developing detailed plans for the system implementation during the same 18 months and then selecting the most motivated 5 of them to installing and using the developed systems for 6 to 8 months each;
- Such practical implementation will be flanked by legal experts and economists who will foster the first two research topics.

Main strengths of this new approach

- Large scale demonstrations using the same transport concept and technology
 - much more comparable than in CM and better fostering the application of this specific concept in other European cities
- An approach using the best of CityNetMobil idea
 - spreading knowledge through real implementations being brought around
- Merging it with best of CityMobil approach
 - with vehicles performing the real transport task for more time (to allow users to get accustomed)
 - doing real demonstrations as in CityMobil keeping the same flexibility of the showcase organisation of CityNetMobil.

Issues for breakout sessions and key things learned and still to be learned

- Public policy issues
 - ATS are no magic wands ... accompanying measures are badly needed
 - There is a need to integrate transport, urban planning, energy planning, ...
- Safety and security challenges
 - One of the early CyberMove results was that passengers felt less secure on board to shared automated vehicles; the driver is seen as an authority figure
 - Safety is perceived controversially
- Operational concepts
 - Standardisation is needed; in CityMobil2 we aim at having all European manufacturers sharing the same infrastructures and the same information system
- Transition and deployment
 - Transition toward what? Did stagecoach manufacturers become car manufacturers? The economy transition
 - Mentality transition: using vs. owning
 - Urban integration transition it needs strong and committed political will
- Human factors ...
 - Information (and training) campaigns are essential – waiting at Schiphol airport
- Technology needs and constraints / legal, liability and risk management issues
 - technology and legal aspects are strictly connected; for Rome demonstrator the certification board specifically asked for a 3D scanner obstacle detection system