



**New transport services enabled by  
automation to revolutionize mobility  
or  
What can be done today after CityMobil2**

**Adriano Alessandrini**

# Do you remember the Trikala demo of CityMobil2?



Driverless buses on the streets  
of the innovative city of Trikala





UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

# What we have learned is now a book

<https://www.elsevier.com/books/implementing-automated-road-transport-systems-in-urban-settings/alessandrini/978-0-12-812993-7>



## IMPLEMENTING AUTOMATED ROAD TRANSPORT SYSTEMS IN URBAN SETTINGS

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# Goals, achievements and shortcomings of CityMobil2

- By designing and implementing “shuttles” to demonstrate ARTS we started the shuttle industry
- Everyone, from new EC projects to Japanese and US demonstration, is now deploying shuttles discovering
  - They are a bad economic deal
  - They are either safe and slow or faster and less safe
- Nobody has actually learned from us on how integrating shuttles in cities
- We developed a certification procedure and a proposal for a legal framework but nobody followed up on this either

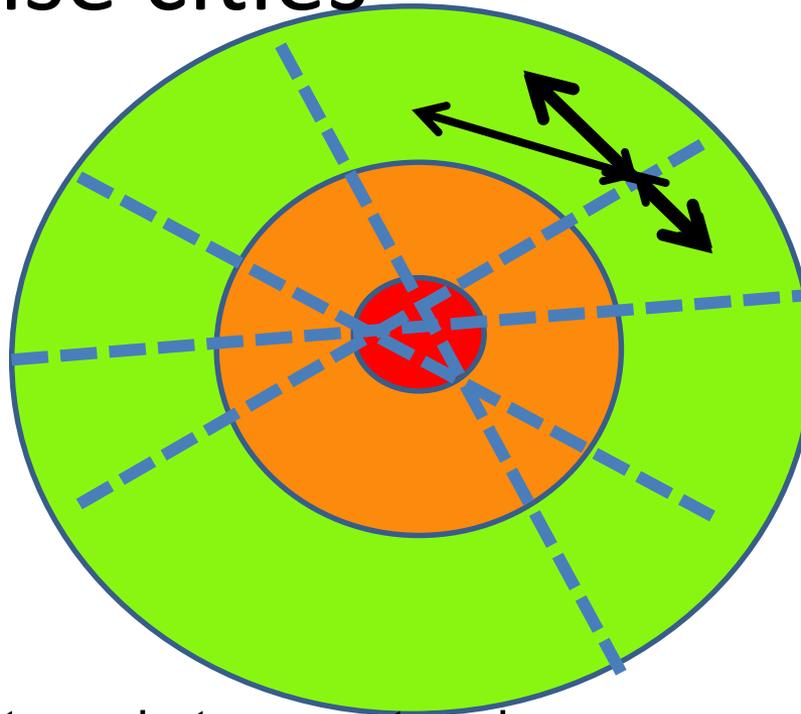


# When automation will start having a market impact

- When it will solve real transport problems
  - Allowing a different use of time in queues
  - Relieving from parking seeking burden
  - Allowing new transport services
  - Allowing higher quality transport services
- When it reduce costs
  - For service providers
  - For final users
  - For cities?



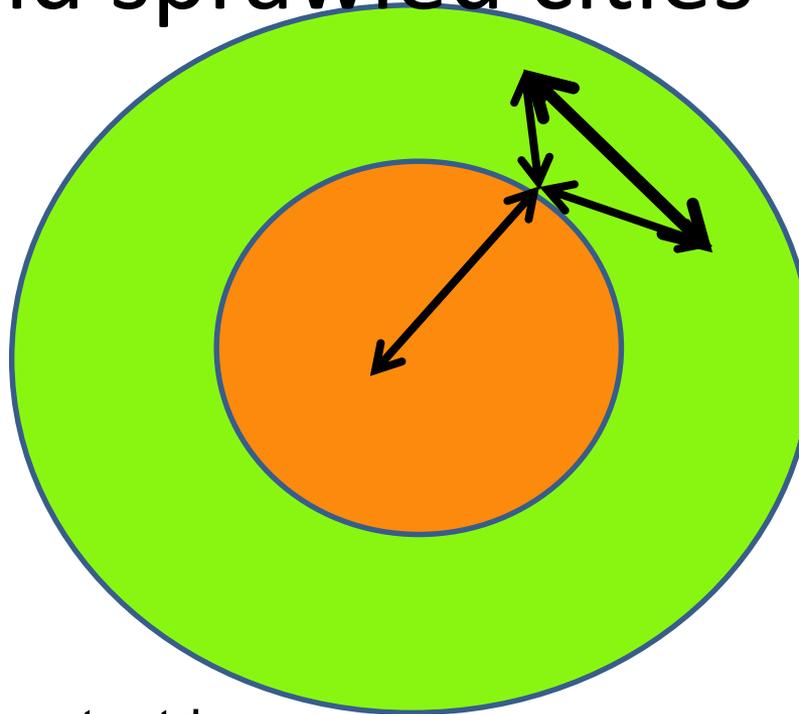
# The main transport problems in large and dense cities



- Connections to main transport nodes
- Periphery to periphery trips

- A very dense city centre
- A less so but still dense periphery
- A much less dense outer periphery
- Existing main public transport network

# The main transport problems in small and sprawled cities

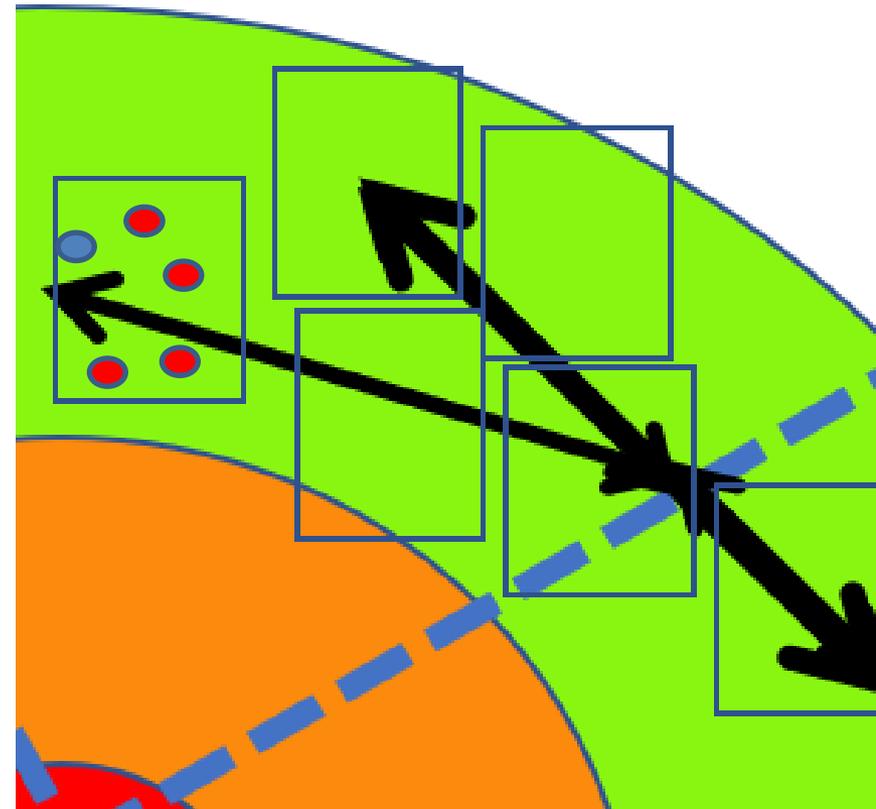


- A not so dense central area
- A very sprawled periphery

- Periphery to centre trips
- Periphery to periphery trips

# A (partly) Automated Road Transport System to solve the problems of Public Transport

- Let's divide the area in zones
- Commuters book the morning ride to the closest train station through an APP
- The APP either gives time and place for the pick-up or the parking place of the car to drive
- One customer drives the others
- The car is left at the station from where it goes to relocate itself either by full automation at «shuttle speed» or following a leader and forming a platoon.
- If there is no close station to go to road corridors are established for high speed platoons to an interchange



# Conclusions

- Shuttles are expensive because the vehicle is re-designed from scratch; retrofitting automation to existing vehicles makes it cheaper
- Shuttles are slow also because passengers are standing one way to make them faster (keeping safety standards) is to make them sitting and belted
- Automation is crucial to do things you cannot do without but can be a problem if applied everywhere so let's use automation where it is really needed
  - Empty vehicle relocation
  - High capacity, short-gap and high-speed reserved lanes
- The legal framework has not evolved well
  - A lot more bureaucracy for testing
  - Still no idea how deploying
  - The ODD **FINALLY** introduced but not really used
- **Despite all these hurdles automation can enable today the public transport revolution with state of the art technology and current legal framework**
- I can show (so far only on paper) how the revolutionary transport services I presented can solve the business case problem not only of automated transport but of public and shared transport