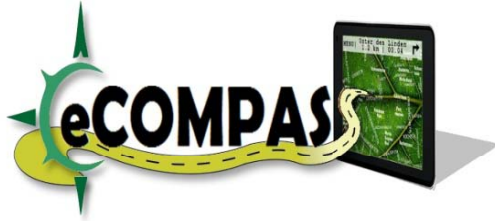


Eco-friendly Route Planning The eCOMPASS Approach

Christos Zaroliagis

Computer Technology Institute & Press “Diophantus”, Greece

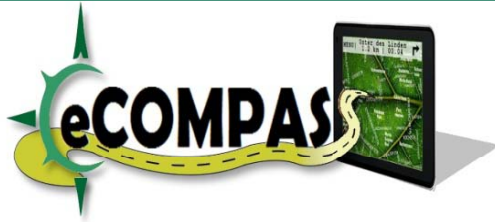


eCOMPASS

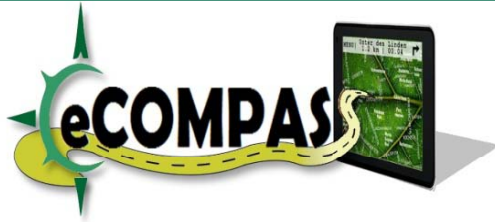
eCO-friendly urban Multi-modal route PLanning Services for mobile uSers

FP7-288094 – Collaborative Project (STREP)

1.11.2011 – 31.10.2014



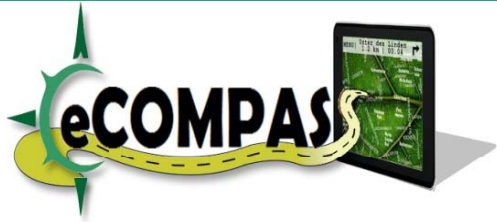
- Address high *environmental impact of urban mobility* (people & goods)
- New mobility concepts and methodological framework for *route planning* optimization, regarding:
 - Private cars
 - Fleets of vehicles
 - Multi-modal public transportation
- Deliver
 - innovative **tools and services for mobile users** to enable eco-awareness in urban multi-modal transport
 - services to familiar end-user mobile devices
- Establish **new scientific principles** (novel algorithmic solutions)



Objectives



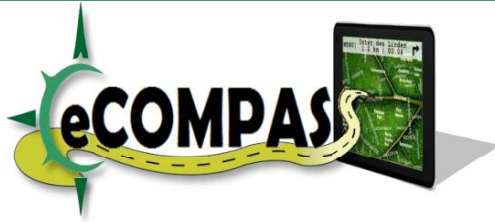
- **Mobility of private car *drivers***
 - ➔ Intelligent on-board navigation systems that seamlessly provide “green” route recommendations
- **Mobility of *goods* through fleets of vehicles**
 - ➔ Eco-aware logistics and fleet management system used by back-off staff and on-board systems used by drivers
- **Mobility of *city dwellers* and *tourists***
 - ➔ Advanced web and mobile services
 - facilitating the use of complex urban public transportation networks
 - making “green” passenger transport more appealing
 - ➔ Personalized recommendations for daily sightseeing itineraries



Approach



- *Eco-aware* navigation & fleet management
- *Context-aware & personalized* public transport route planning



Eco-aware navigation



- **Private Vehicle Navigation System**

- Eco-efficient routes through **traffic prediction**
- Increased **reliability** of road traffic input data
- **Robust** routes recommendation
- Increased eco-efficiency through **traffic load balancing**
- **Alternative route** recommendations
- **Driving style-dependent** route recommendations and eco-coaching
- Transfers to public transportation



Eco-aware fleet management



- **Fleet/logistics Management System**

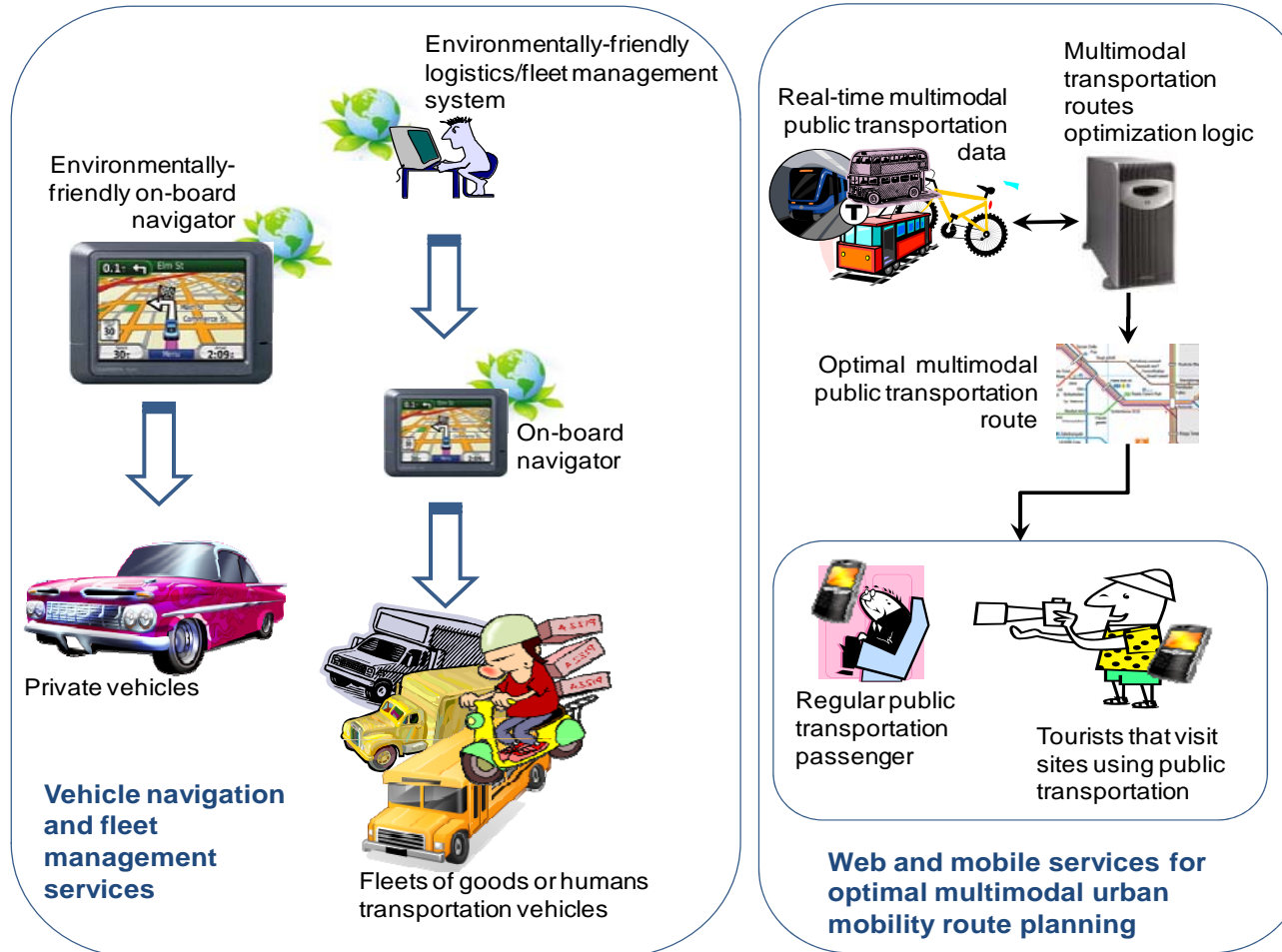
- Eco-aware vehicle route planning
- Eco-friendly routes for fleets of vehicles based on ***traffic prediction***
- Increased ***reliability*** of road traffic input data
- Recommendation of ***load-balanced*** vehicle route assignments

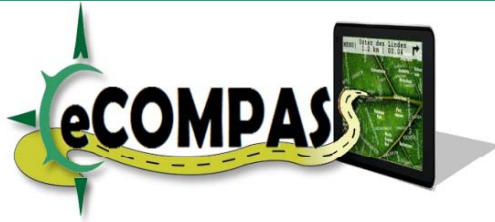


Context-aware & personalized public transport route planning



- **Web and Mobile Services** for multi-modal public transport route planning taking into account
 - contextual information
 - various user constraints and optimization criteria
- **Multi-modal Public Transportation Route Planning**
 - Multi-objective OD multi-modal public transportation route planning
 - Optimized *personalized* daily multi-modal public transportation routes for tourists

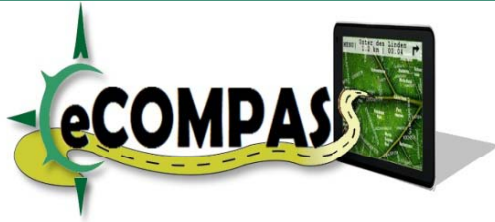




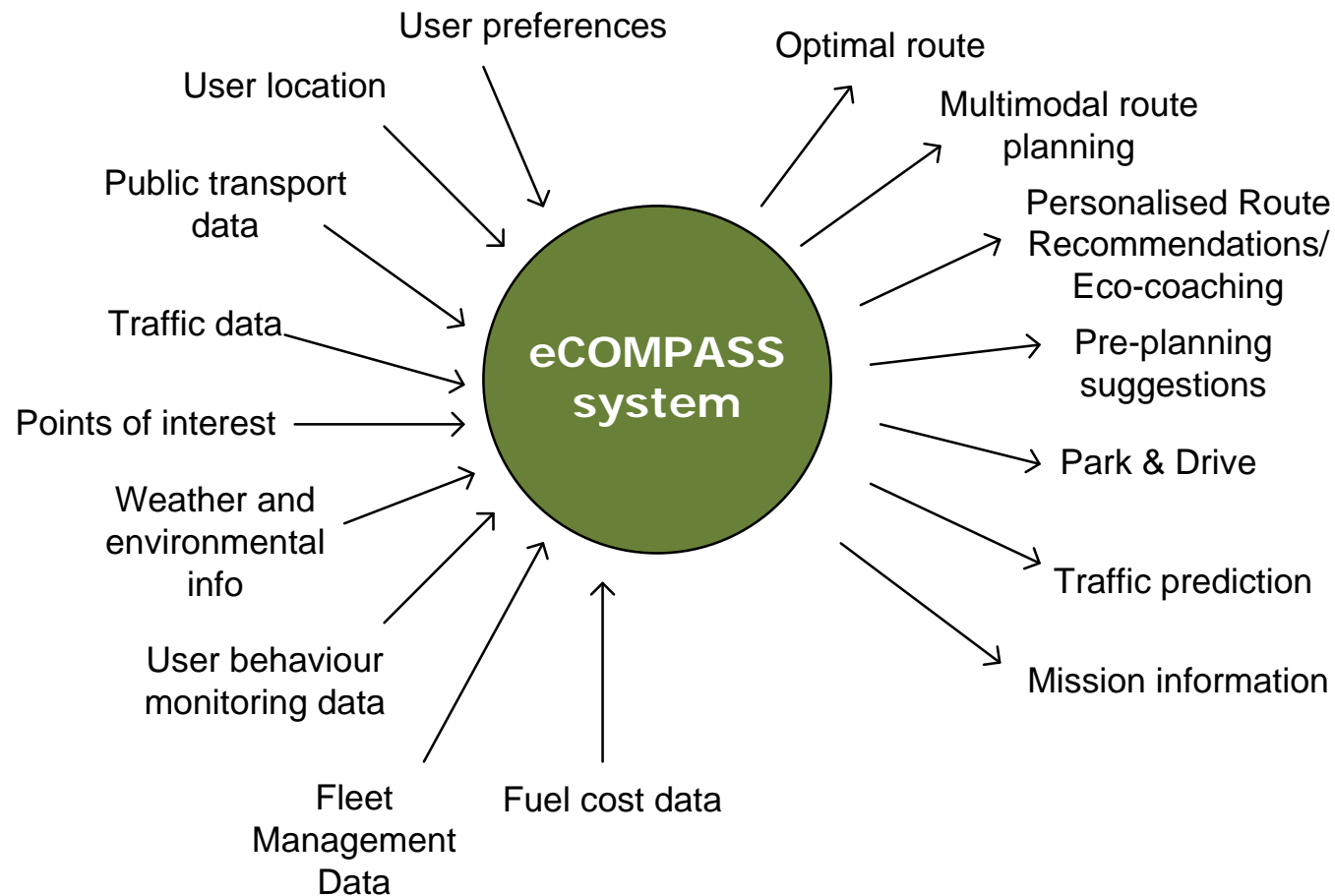
Progress so far

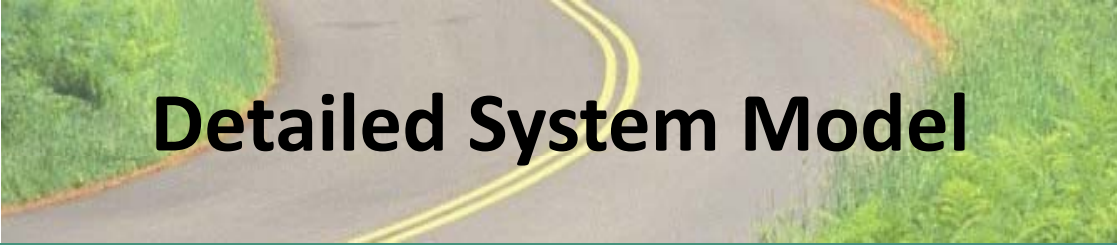
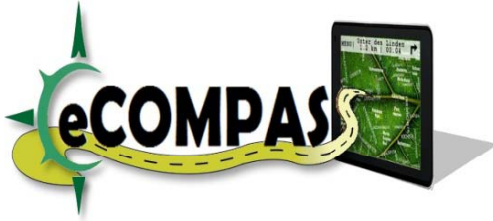


- Use Group Identification, Needs & Requirements Analysis
- Specification of Use Cases and Priority Application Scenarios
- Specification of the eCOMPASS System Architecture
- Pilot Planning
- New Prospects in Eco-friendly vehicle routing and multi-modal route planning
- Market Analysis & Preliminary Exploitation Strategy

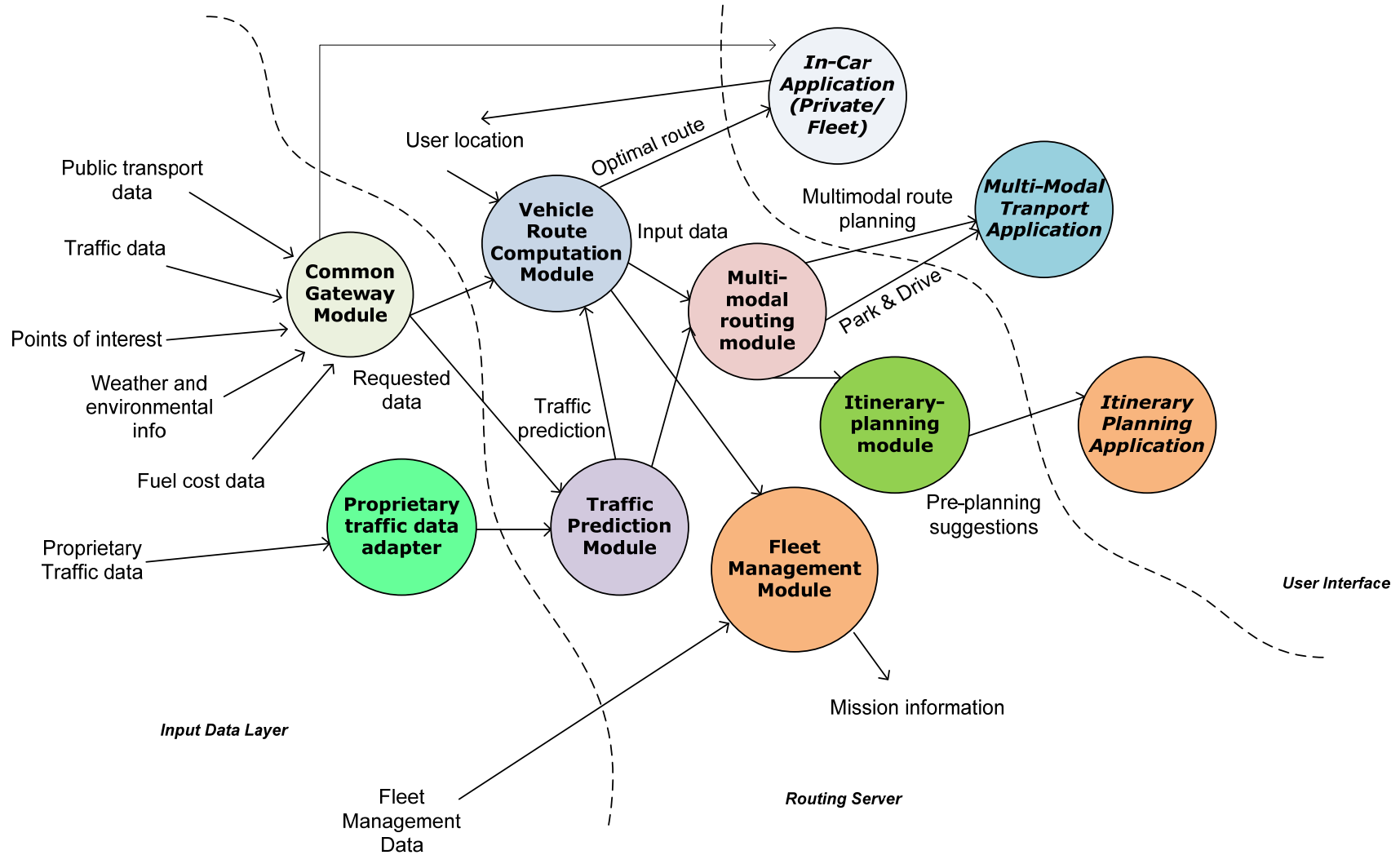


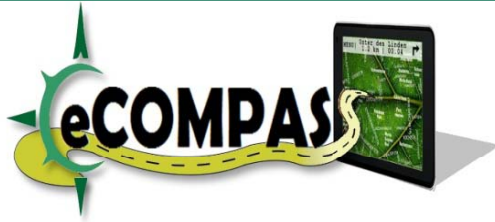
Fundamental System Model





Detailed System Model

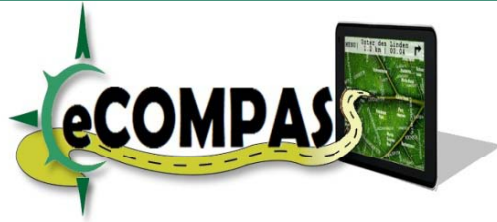




Use Cases & Pilots



- **eCOMPASS** services will be evaluated and validated through specific use scenarios
- **Two pilot tests** in the City of Berlin
 - Pilot 1: private cars and fleets of vehicles
 - Pilot 2: citizens/tourists in public transportusing
 - road infrastructure elements and vehicle fleets
 - individual car traffic and public transport data



Consortium



CTI (Computer Technology Institute & Press “Diophantus”)
Coordinator



CERTH (Centre for Research & Technology Hellas)



ETHZ (Swiss Federal Institute of Technology)



KIT (Karlsruhe Institute of Technology)



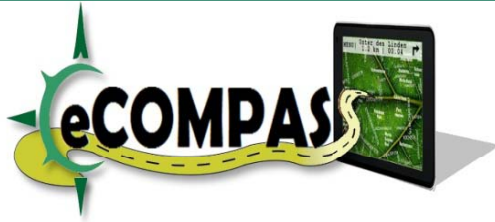
TomTom (TomTom International B.V.)
CT (Client Technology) and UXD (User Experience Design) depts



the mind of movement

PTV (Planung Transport Verkehr AG)





Epilogue



- **eCOMPASS** provides a great opportunity towards
 - addressing the high-demand, eco-friendly urban mobility challenges
 - offering novel end-products and services
- More information about **eCOMPASS** at

<http://www.ecompass-project.eu>