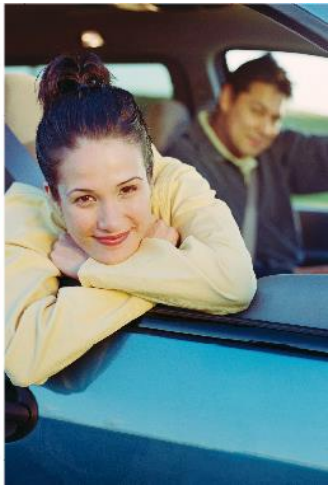
Mobile Mobility

The Road User Information Systems of the Future





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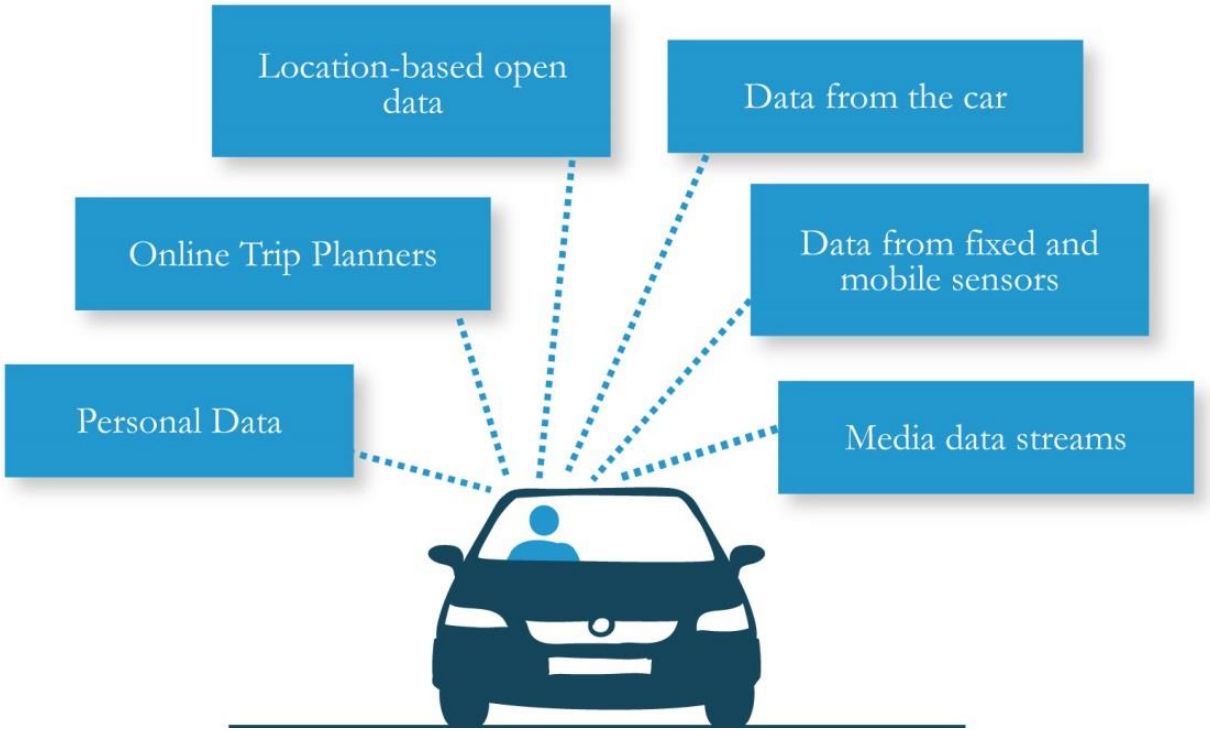
MOBILE MOBILITY

Road User Information Systems

Situation Today:

Ubiquitous internet access makes a multitude of information sources available to road users

Examples:

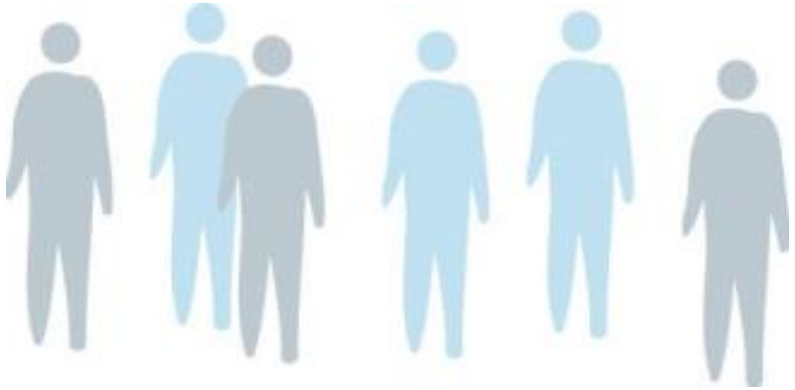


Issues from Users‘ Point of View

It is difficult to get exactly the information I’m looking for at the time I need it

Interrelated data should be automatically connected (e.g., calendar and navigation device)

Information should be given in a non-distracting way



Issues from Technical Point of View

Backend:

- Heterogeneity and missing interoperability of data sources
- Missing end-to-end integration of data and functionality
- Development, discovery, provision and administration of services is too complicated

Frontend (User Interface):

- Too many different applications that need to be handled separately
- User devices are not capable to provide easy and safe interaction with applications
- There's no "single stop" for mobility-related services

Where is the Mobility App Market?

Apple App Store or Google Play show that most ambitious end user services and apps are provided by third parties

Recent examples, e.g., Renault R-Link, Toyota Touch & Go Plus, Opel IntelliLink:

- Proprietary
- Closed for third-party developers
- (Mostly) Focus on infotainment and traffic data

Furthermore:

- OEM provider-independent projects like Tizen IVI or Automatic

The Mission

Develop the technological foundation for bringing the “App Revolution” to road users:

- Provide road users with Apps helping to make their journey safer, more comfortable, and more environmentally friendly
- Support developers to realise and sell their mobility-related Apps and services

The Vision I

Help Software Developers to:

- Exploit Data Sources: Seamless Integration of Data from different Sources
- Build Services and Apps on Top of the Data
- Run their Services and Apps: Provide the Necessary Infrastructure
- Sell their Services and Apps on According Marketplaces

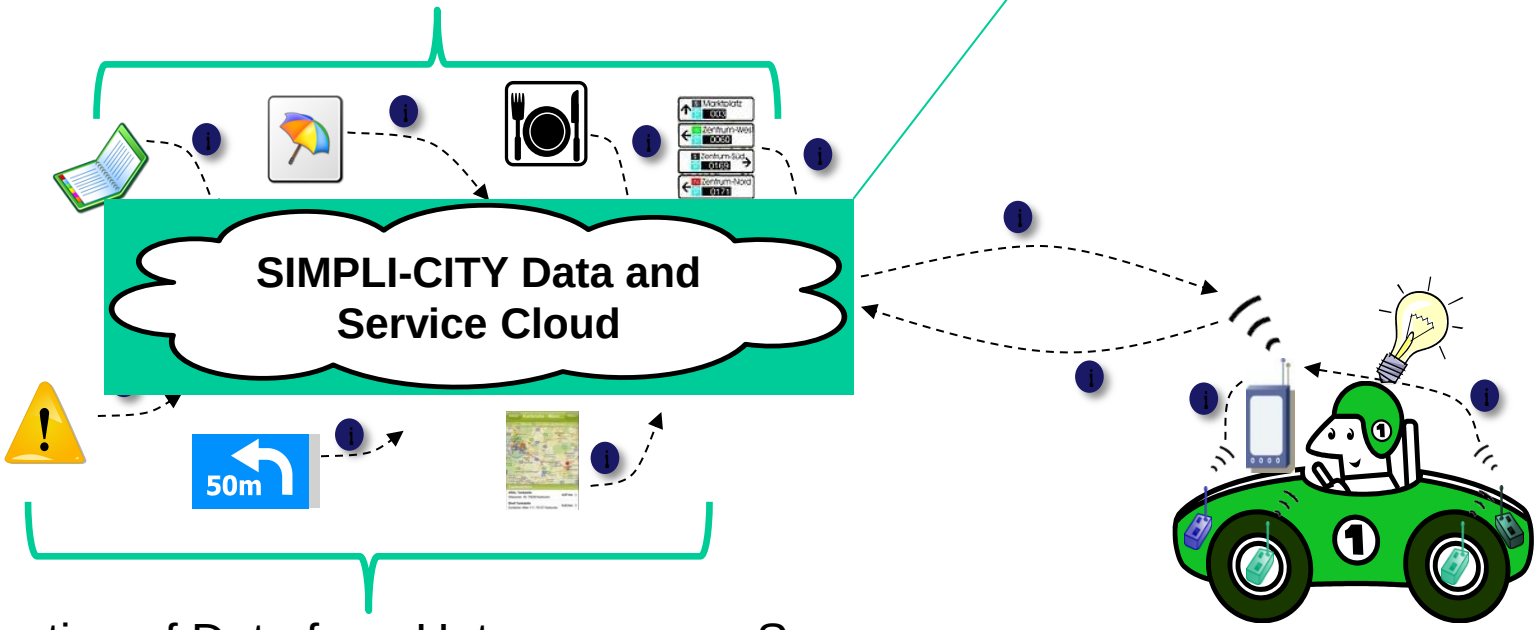
Providing a Unified User Interface to the Apps:

- Integrated Functionalities – One “Meta-App” to Rule them All
- Safe Interaction – Especially for Drivers
- Multimodal – Switch between Input Methods

The Vision II

2. Building Services on Top of the Data

1. Integration of Data from Heterogeneous Sources



1. Integration of Data from Heterogeneous Sources

3. Providing a Unified User Interface to the Services

SERVICE DELIVERY PLATFORMS FOR MOBILITY APPS – SIMPLI-CITY

Usage of Services

Services:

- Offer arbitrary functionalities
- Run on the server-side (not directly on the end user device)

Apps:

- Software bundles running on the end user device
- Interacting with backend services
- Offering the User Interface

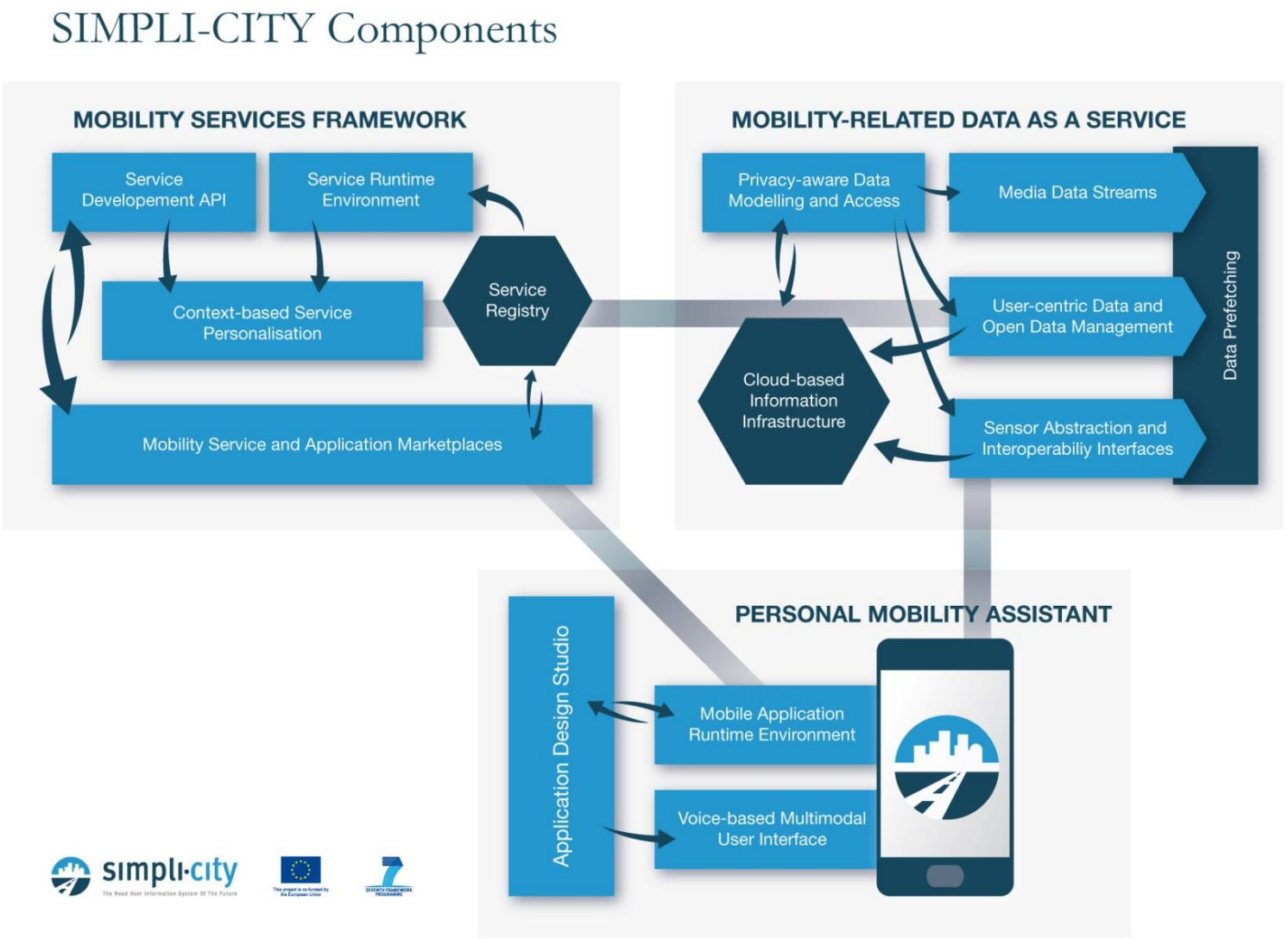
Benefits:

- Outsourcing of complex tasks to the Cloud
- Reusage of backend services in different apps

Drawbacks:

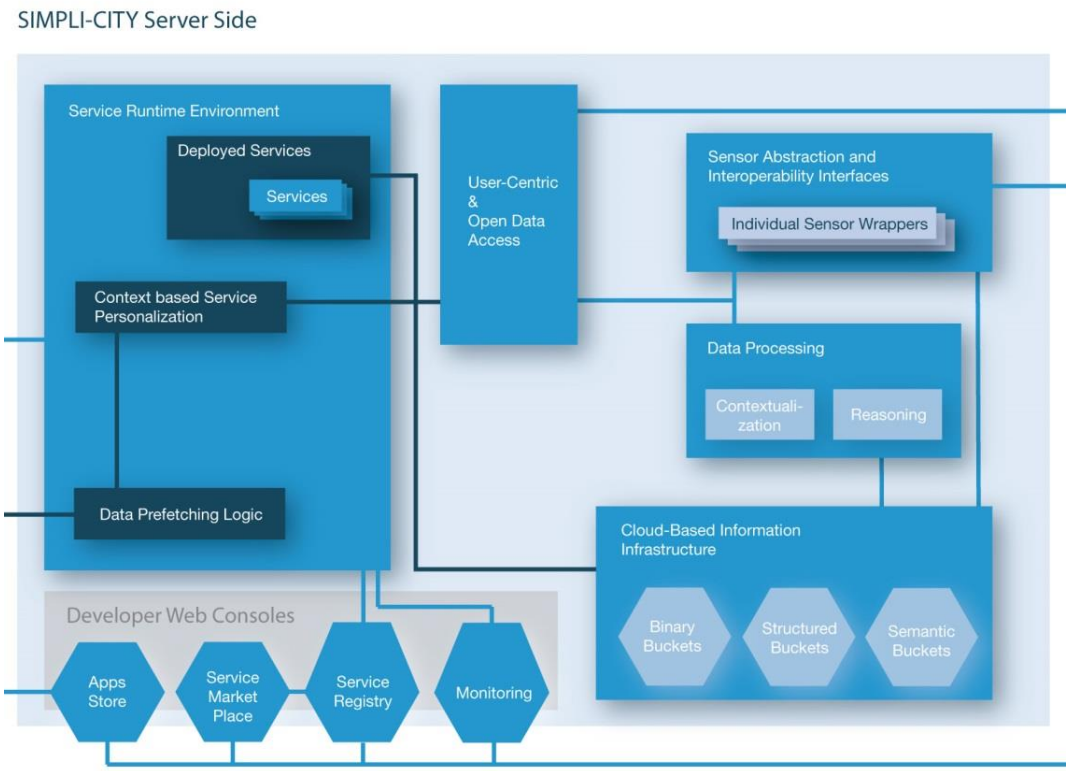
- Internet connection necessary (solution: data prefetching)

SIMPLI-CITY – The Approach



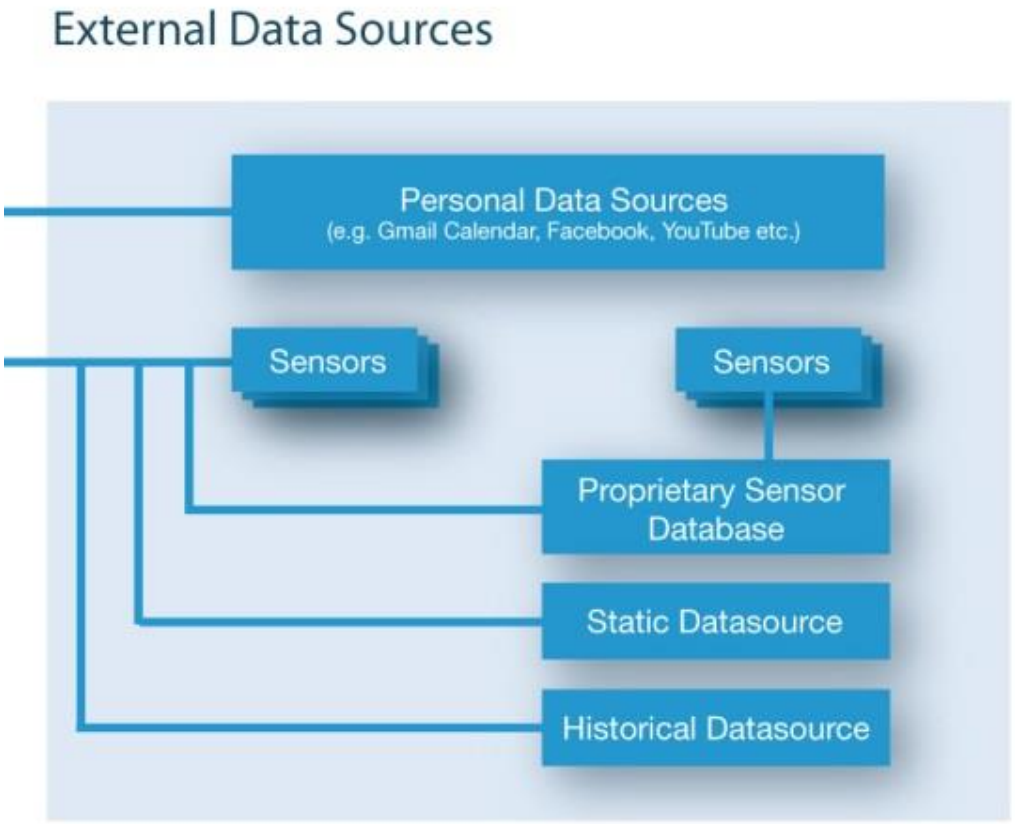
Mobility Services Framework

- Aimed at service providers / developers
- Core backend for all functionalities facilitated by SIMPLI-CITY
- Allows development, description, discovery, interoperability, execution, and monitoring of services
- First and foremost: A Service Runtime Environment
- Identification of which data or service is relevant to the user in a certain situation



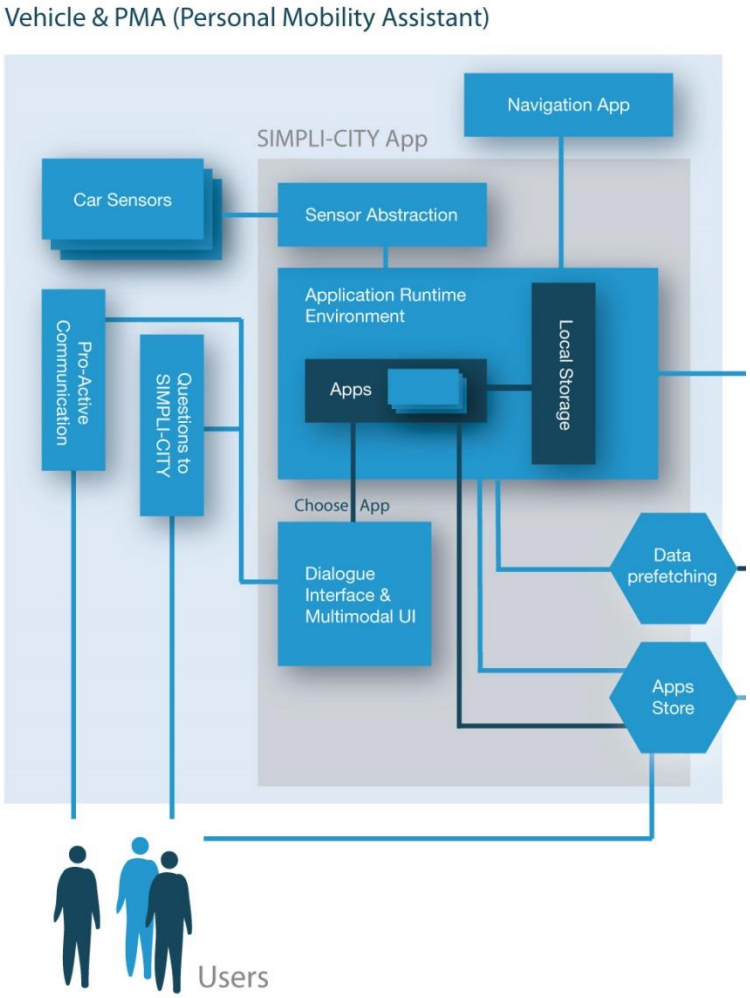
Mobility-related Data as a Service

- Provides a holistic interface to the data sources
- Semantic- and AI-based data analysis
- Allows completely new services that compare different decisions and behaviour, trace and verify past journeys, etc.



Personal Mobility Assistant

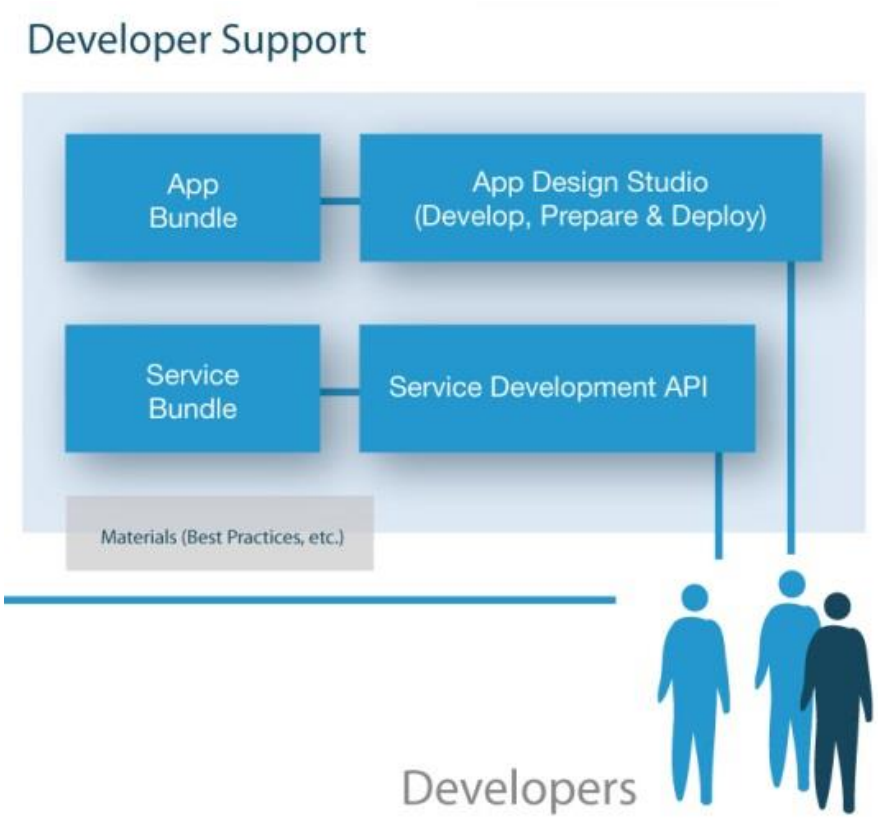
- SIMPLI-CITY's End User Interface: Proactive, voice-based multimodal user frontend
- Single stop to all apps and their integration
- New apps may be added at all times
- Apps provide frontend to backend services



Developer Support

Support for Software Developers during the complete app/service lifecycle:

- App Design Studio
- Service Development API



SIMPLI-CITY – In Practice

Topic: Road Traffic Prediction

Goals and Objectives:

- Identify the nature and causes of congestions
- Jointly exploitation of 1) relevant data sets, 2) their correlation, and 3) historical traffic conditions
- Diagnosis of cause-effect relationships

Description:

- Use data sources from cities to decrypt the reason of congestion
- Use of the automatic diagnosis method, core reasoning service of SIMPLI-CITY
- Automatically detect real-time congestions and retrieve their diagnosis as the set of possible events that could be the causes

SIMPLI-CITY – In Practice

Topic: Personalised Traffic Restrictions

Goals and Objectives:

- Provision of information about accessibility of roads, due to time-related issues such as e.g.,
  - Traffic restrictions to specific areas of the city
  - Traffic congestions
- Provision of alternative route and means of transportation

Description:

- Use data sources from cities to provide road availability

Conclusions

Data sources are available!

- The question is rather to get the data to the user
- Support developers to exploit data sources

Current Road User Information Systems are proprietary, closed systems

To Build the Road User Information Systems of the Future, 3 Aspects Need to be Regarded:

- Ease data access
- Support service/app development
- Provide safe user interfaces

Thank You for Your Attention

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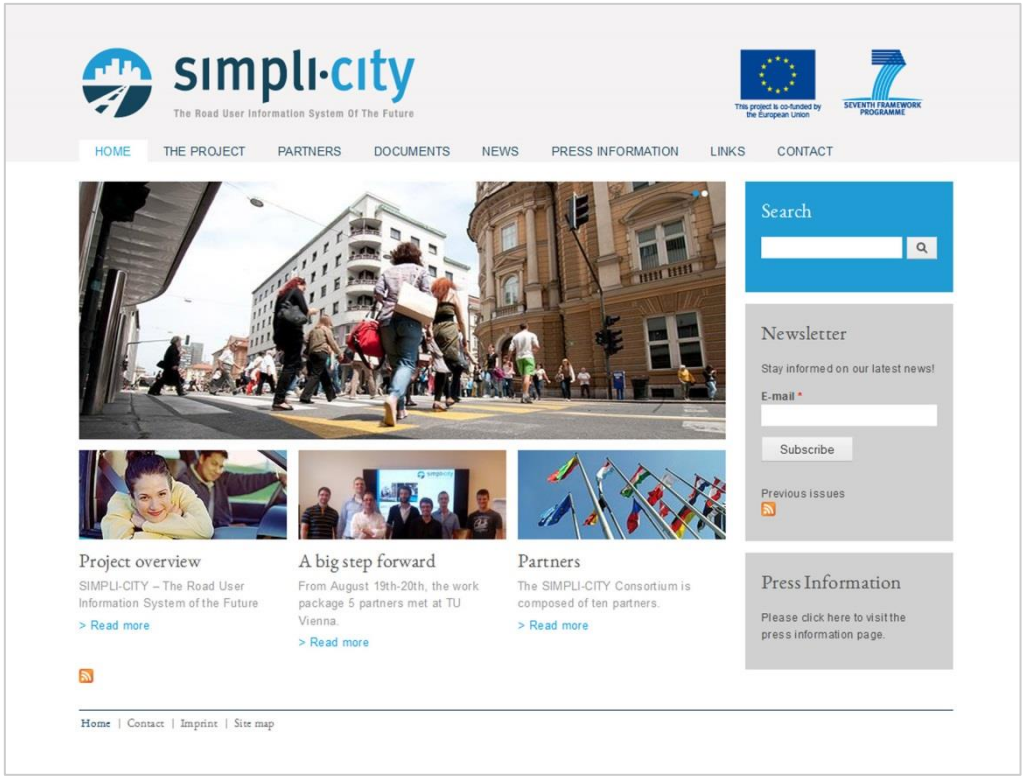

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