WP9 – Exploitation, Dissemination, Collaboration and Standardisation

D9.4: Standardisation Engagement Report

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Short Abstract (Teaser)
This deliverable describes the standardisation engagement approach taken by the project SIMPLI-CITY, and gives a detailed overview of the standardisation related activities conducted by the SIMPLI-CITY consortium during the runtime of the project.

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Executive Summary

This deliverable describes the standardisation engagement approach taken by the project SIMPLI-CITY, and gives an overview of the standardisation related activities conducted by the SIMPLI-CITY consortium during the runtime of the project.

The aims of T9.4 Standardisation Engagement in the SIMPLI-CITY project were to take care that the project makes maximum use of existing standards, and to communicate the relevant findings of the project to the standardisation community.

In order to reach these goals, the SIMPLI-CITY consortium applied a standardisation engagement strategy comprising of two activity threads:

On the one hand, throughout the whole duration of the project the SIMPLI-CITY partners regularly monitored the activities of the standardisation community in order to stay up-to-date with the latest developments in relevant standardisation fields, and the SIMPLI-CITY partners also took care that the developers within the consortium used existing standards instead of proprietary solutions, whenever possible.

On the other hand, in order to be able to successfully engage with the standardisation community, as a first step the consortium identified those aspects of SIMPLI-CITY that could possibly be interesting for standardisation, and thoroughly scanned the "standardisation landscape" in order to find those standardisation organisations and initiatives that are relevant for SIMPLI-CITY and the most promising ways to approach them. Taking into account the results of this first step, the project partners utilised several different channels to communicate SIMPLI-CITY's findings to relevant stakeholders in the standardisation field: the partners exchanged information with other projects, informed the members of the iMobility Forum HMI Working Group about SIMPLI-CITY's Personal Mobility Assistant (PMA) and multimodal dialogue interface aiming at minimising car drivers' distraction, attended a related expert workshop, talked to stakeholders of the DATEX II community, and submitted recommendations for improvement of existing standards to the OSGi Alliance.

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1 Introduction

SIMPLI-CITY – The Road User Information System of the Future – was a project funded by the Seventh Framework Programme of the European Commission under Grant Agreement No. 318201. Its results provide the technological foundation for bringing the "App Revolution" to road users by facilitating data integration, service development, and end user interaction.

This deliverable describes the approach taken regarding standardisation engagement in SIMPLI-CITY. It outlines how existing standards have been incorporated in SIMPLI-CITY, gives an overview of the standardisation bodies that are relevant for SIMPLI-CITY, and describes the standardisation engagement activities that have been performed by the SIMPLI-CITY partners.

1.1 SIMPLI-CITY Project Overview

Analogously to the "App Revolution", SIMPLI-CITY adds a "software layer" to the hardware-driven "product" mobility. SIMPLI-CITY takes advantage of the great success of mobile apps that are currently being provided for systems such as Android, iOS, or Windows Phone. These apps have created new opportunities and even business models by making it possible for developers to produce new apps on top of the mobile device infrastructure. Many of the most advanced and innovative apps have been developed by players formerly not involved in the mobile software market. Hence, SIMPLI-CITY supports third party developers to efficiently realise and sell their mobility-related service and app ideas by a range of methods and tools, including the Mobility Services and App Marketplaces.

In order to foster the wide usage of those services, a holistic framework is needed which structures and bundles potential services that could deliver data from various sources to road user information systems. SIMPLI-CITY provides such a framework by facilitating the following main project results:

- Mobility Services Framework: A next-generation European Wide Service Platform (EWSP) allowing the creation of mobility-related services as well as the creation of corresponding apps. This enables third party providers to produce a wide range of interoperable, value-added services, and apps for drivers and other road users.
- Mobility-related Data as a Service: The integration of various, heterogeneous data sources like sensors, cooperative systems, telematics, open data repositories, people-centric sensing, and media data streams, which can be modelled, accessed, and integrated in a unified way.
- Personal Mobility Assistant: An end user assistant that allows road users to make use of the information provided by apps and to interact with them in a non-distracting way – based on a speech recognition approach. New apps can be integrated into the Personal Mobility Assistant in order to extend its functionalities for individual needs.

To achieve its goals, SIMPLI-CITY conducted original research and applied technologies from the fields of Ubiquitous Computing, Big Data, Media Streaming, the Semantic Web, the Internet of Things, the Internet of Services, and Human-Computer Interaction. For more information, please refer to the project website at http://www.simpli-city.eu.

1.2 Deliverable Purpose, Scope and Context

The purpose of this deliverable is to describe the standardisation engagement approach taken by the project SIMPLI-CITY, and to give an overview of the standardisation related activities conducted by the consortium during the runtime of the project.

1.3 Document Status and Target Audience

This document is listed in the Description of Work (DoW) as “public”. The overview of the project’s activities regarding standardisation engagement is primarily targeted at the European Commission (EC), but it can also be interesting for external parties in order to get according insight into the project activities.

1.4 Abbreviations and Glossary

A definition of common terms and roles related to the realization of SIMPLI-CITY as well as a list of abbreviations is available in the supplementary document “Supplement: Abbreviations and Glossary”, which is provided in addition to this deliverable.

Further information can be found at http://www.simpli-city.eu.

1.5 Document Structure

This deliverable is broken down into the following sections:

Section 1 provides an introduction for this deliverable including a general overview of the project, and outlines the purpose, scope, context, status, and target audience of this deliverable.

Section 2 lists the objectives of SIMPLI-CITY’s standardisation engagement task.

Section 3 explains how existing standards have been taken into account throughout the duration of the project.

Section 4 describes SIMPLI-CITY’s engagement with the standardisation community: It gives an overview of the relevant standardisation bodies, describes the aspects of SIMPLI-CITY which could potentially be interesting for this community, and provides information about the related standardisation activities undertaken by the project partners.

Section 5 provides a summary of SIMPLI-CITY’s standardisation engagement activities.

2 Standardisation Engagement within SIMPLI-CITY

2.1 Objectives of Task T9.4 Standardisation Engagement

The role of T9.4 Standardisation Engagement in the SIMPLI-CITY project was twofold:

On the one hand, this task should take care that the project makes maximum use of existing standards. Thus, the related objectives of T9.4 were:

- To ensure consideration and incorporation of existing relevant de jure and de facto standards in the SIMPLI-CITY project.
- To provide broad awareness among the consortium of the latest developments within the standardisation communities relevant to SIMPLI-CITY.
- To enable the project partners to make maximum use of suitable standards and results of previous RTD projects.

On the other hand, this task should take care that relevant findings of the project are communicated to the standardisation community. Therefore, the objectives of T9.4 were also:

- To feed the standardisation community with relevant findings and results gathered and developed during the SIMPLI-CITY project.
- To help improving and extending existing standards.

2.2 SIMPLI-CITY's Standardisation Engagement Approach

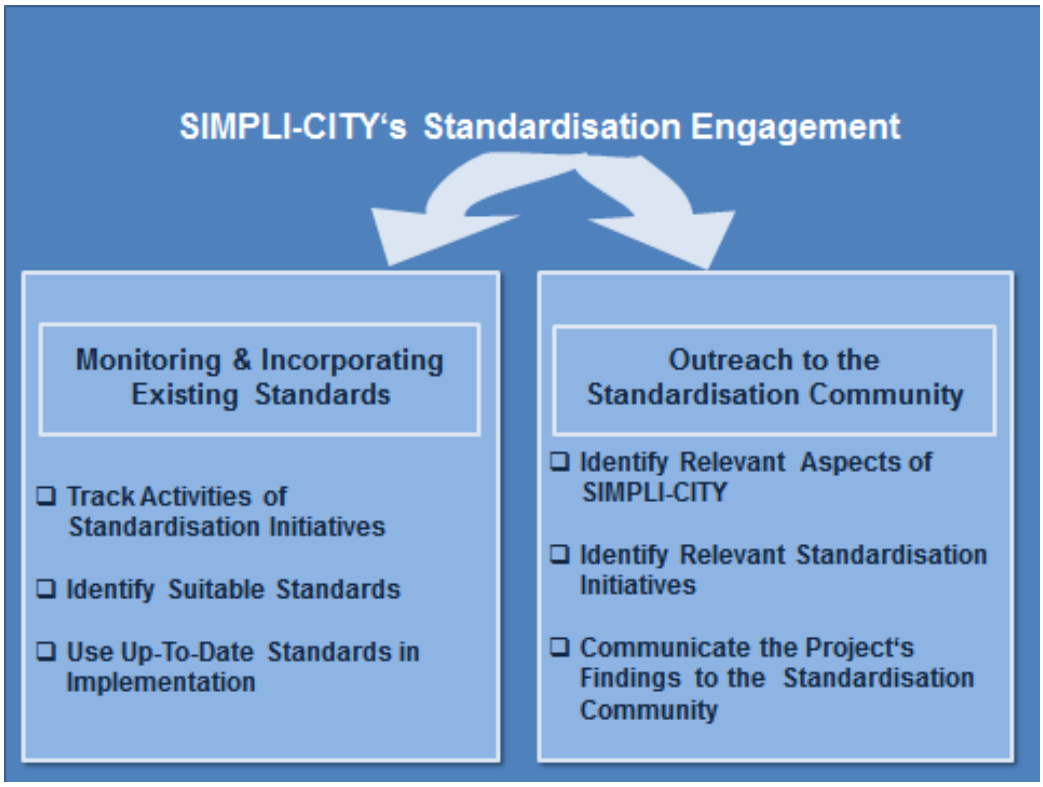

Figure 1: SIMPLI-CITY's Standardisation Engagement Approach

In order to reach the goals of T9.4, the SIMPLI-CITY consortium applied a two tier approach:

1. *Monitoring and Incorporating Existing Standards*:
   Throughout the whole duration of the project, the SIMPLI-CITY partners tracked the activities of the standardisation community and took care that the developers within the consortium used existing standards instead of proprietary solutions, whenever possible. Section 3 provides details regarding the standards used within SIMPLI-CITY.
2. *Communicating SIMPLI-CITY's Findings to the Standardisation Community*:
   This track of SIMPLI-CITY's standardisation engagement involved preparatory activities (to find out what SIMPLI-CITY has to offer to the Standardisation Community and which organisations could be interested), as well as actual communication activities:
   a. *Preparatory activities for successful communication with the Standardisation Community:*
      In order to be able to successfully engage with the Standardisation Community, first the consortium needed to get a clear picture of:
      i. *Aspects of SIMPLI-CITY Interesting for Standardisation*:
         In order to define what should be communicated to potentially interested standardisation initiatives, SIMPLI-CITY's team came up with all aspects of SIMPLI-CITY, which could possibly be interesting for the standardisation community. Section 4.1 provides a short description of these aspects of SIMPLI-CITY potentially interesting for standardisation.

ii. *Standardisation Initiatives Relevant for SIMPLI-CITY*:
In order to find out which organisations are relevant for SIMPLI-CITY, the partners carefully scanned the European and international standardisation "landscape", and investigated possibilities to approach these organisations. Section 4.2 gives an overview of the relevant standardisation organisations and initiatives.

b. *Informing relevant Initiatives about SIMPLI-CITY's Findings*:
In order to bring SIMPLI-CITY's results and findings to the standardisation community, the partners exchanged information with other projects, participated in relevant working groups, had personal talks with standardisation-related stakeholders, and recommended improvement of existing standards. A detailed description of these activities is provided in Section 4.3).

3 Monitoring and Incorporation of Existing Standards

3.1 Tracking the Activities of the Standardisation Community

In the Technical Specification phase of SIMPLI-CITY (see deliverable D3.2.2 for more details), the project partners analysed and chose the most relevant standards to follow in the development of the project. Many options were evaluated and discussed among the consortium. The outcomes of these evaluation efforts and discussions laid out a sound set of well-known technologies to use as the foundation of SIMPLI-CITY.

Since the consortium had already decided during the specification phase to develop a system that would be compliant with the OSGi standards and recommendations, SIMPLI-CITY partner Ascora, who has “Supporter” status within the OSGi Alliance, ensured that the consortium was informed about all emerging developments in this field early, so that the relevant partners were able to adjust and steer their development activities of all technical components of SIMPLI-CITY accordingly. This helped to prevent costly aberrations and guaranteed that SIMPLI-CITY fits smoothly with the actual standards.

It is worth mentioning that standards emerge and some become forgotten and not up-to-date quite fast in the current dynamic world of information technologies. For that reason, the consortium partners were following the developments and trends in the standardisation community not only during the specification phase of the project. Thus, when coming to the actual implementation phase, some of the standards included in SIMPLI-CITY’s specifications turned out to be less useful or mature as compared to what was initially thought in the specification phase, and they had to be re-evaluated and replaced by other better fitting ones.

3.2 Incorporation of Existing Standards in SIMPLI-CITY

In the course of development of the SIMPLI-CITY project, partners chose to leverage speed and efficiency of their work by following many established standards. Following industry adopted standards is a usual practice in the development community, since this allows developing software that is maintainable, reusable, interoperable and more stable, as it is based on a proven approach, code and techniques. Usage of standards means building on best practices in addition to the possibility to share results of work with others, if these results are in turn covered by well-known standards.

The most prominent standards used in the development of SIMPLI-CITY are listed in Table 1.

Table 1: Standards Used in SIMPLI-CITY

Name of the Standard	Description of the Standard	Partners Using the Standard
CAN bus	A controller area network (CAN bus) is a vehicle bus standard designed to allow microcontrollers and devices to communicate with each other in applications without a host computer. It is a message-based protocol, designed originally for automotive applications, but is also used in many other contexts. It is used for communication purposes with the car. For more information see: http://www.iso.org/iso/catalogue_detail?csnumber=33423	CRF, IBM
JSON	For serializing objects, JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate. It is based on a subset of the JavaScript Programming Language, Standard ECMA-262 3rd Edition - December 1999. For more information see: http://www.ecma-international.org/publications/files/ECMA-ST/ECMA-404.pdf	CRF, WORLD, TUDA, ASC, TALK, TUV, TIE
XML	For serializing objects, Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format, which is both human-readable and machine-readable. It is defined by the W3C's XML 1.0 Specification and by several other related specifications all of which are free open standards. For more information see: http://www.w3.org/TR/REC-xml/	CRF, WORLD, TALK, TUV, TIE
HTTP	The Hypertext Transfer Protocol (HTTP) is an application protocol for distributed, collaborative, hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web. It is used for accessing Web data. For more information see: https://tools.ietf.org/html/rfc2616	CRF, WORLD, TUDA, ASC, TUV, TIE, IBM
SOAP	For web service implementation, Simple Object Access Protocol (SOAP) is a protocol specification for exchanging structured information in the implementation of web services in computer networks. It uses the XML Information Set for its message format, and relies on other application layer protocols, most notably HTTP or Simple Mail Transfer Protocol (SMTP), for message negotiation and transmission. For more information see: http://www.w3.org/TR/soap12/	CRF

Name of the Standard	Description of the Standard	Partners Using the Standard
WSDL	For web service description, the Web Services Description Language (WSDL) is an XML-based interface definition language that is used for describing the functionality offered by a web service. The acronym is also used for any specific WSDL description of a web service (also referred to as a WSDL file), which provides a machine-readable description of how the service can be called, what parameters it expects, and what data structures it returns. It thus serves a purpose that corresponds roughly to that of a method signature in a programming language. For more information see: http://www.w3.org/TR/wsdl20/	CRF
MQTT	For sensor handling, MQTT (formerly MQ Telemetry Transport) is a publish-subscribe based “lightweight” messaging protocol for use on top of the TCP/IP protocol. It is designed for connections with remote locations, where a “small code footprint” is required or the network bandwidth is limited. The publish-subscribe messaging pattern requires a message broker. The broker is responsible for distributing messages to interested clients based on the topic of a message. The first version of the protocol exists since 1999. In 2013 MQTT v3.1 was proposed as OASIS standard. In SIMPLI-CITY MQTT is deployed to establish an ongoing reliable connection between a PMA and the backend server application. For more information see: http://docs.oasis-open.org/mqtt/mqtt/v3.1.1/os/mqtt-v3.1.1-os.html	CRF, TUDA, TIE
ISO 8601	To provide time-related data the unified date and time format ISO 8601 is utilised. It is based on the Gregorian calendar and the 24-hour timekeeping system with optional time zone information. ISO 8601 was published in 1988. For more information see: http://www.w3.org/TR/NOTE-datetime	WORLD, TUDA
SMTP	For monitoring state reporting, the Simple Mail Transfer Protocol. (SMTP) is an Internet standard for electronic mail (email) transmission. First defined by RFC 821 in 1982, it was last updated in 2008 with the Extended SMTP additions by RFC 5321. For more information see: https://www.ietf.org/rfc/rfc2821.txt	WORLD, TUV

Name of the Standard	Description of the Standard	Partners Using the Standard
SQL	Structured Query Language (SQL) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). Standard of the American National Standards Institute (ANSI) in 1986, and of the International Organization for Standardization (ISO) in 1987. For more information see: http://www.iso.org/iso/catalogue_detail.htm?csnumber=34132	WORLD
OBD-II	For access to car sensors, the on-board diagnostics (OBD) standard defines the type of the physical connector and its pinout, the electrical protocols and the format of diagnostic messages. It specifies a candidate list of vehicle parameters to monitor, and how to encode sensor data. As the set of available data differs between car makers, only a common subset of OBD Parameter identifiers is utilized for the Sensor Abstraction and Interoperability Service in SIMPLI-CITY. For more information see: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=29021	TUDA, ASC
AIDL	For inter-process communication, AIDL (Android Interface Definition Language) enables developers to write clean and readable code for sharing data between apps. In SIMPLI-CITY it is utilized to give third party apps access to sensors and to communicate with a dedicated simulator app, which is able to simulate car sensors on the PMA. For more information see: http://developer.android.com/guide/components/aidl.html	TUDA
Bluetooth	For connecting OBD dongles to the smartphone, Bluetooth is a wireless technology standard for exchanging data over short distances. It was invented by Ericsson in 1994 as a wireless alternative to the serial port RS232. For more information see: https://www.bluetooth.org/en-us/specification/adopted-specifications	ASC

Name of the Standard	Description of the Standard	Partners Using the Standard
RTMP	The Real-Time Messaging Protocol (RTMP) is a protocol used for a large part of online-streaming of video. In SIMPLI-CITY it is used for the media data streams component to create adaptive and dynamically created stream channels, and transfer the audio data to the client. For more information see: http://www.adobe.com/devnet/rtmp.html	ASC
SIRI	The Service Interface for Real Time Information (SIRI) is an XML protocol to allow distributed computers to exchange real time information about public transport services and vehicles. By using SIRI, SIMPLI-CITY accesses public transport data in a uniform way. For more information see: http://www.siri.org.uk/schema/schemas.htm	IBM
OSI Model	The Open Systems Interconnection model (OSI Model) is a conceptual model that characterizes and standardizes the communication functions of a telecommunication or computing system without regard of their underlying internal structure and technology. Its goal is the interoperability of diverse communication systems with standard protocols. In SIMPLI-CITY, the OSI Model is used for communication purposes (car sensors). For more information see: http://www.ecma-international.org/activities/Communications/TG11/s020269e.pdf	IBM
RDF	RDF is a standard model for data interchange on the Web. RDF has features that facilitate data merging even if the underlying schemas differ, and it specifically supports the evolution of schemas over time without requiring all the data consumers to be changed. In SIMPLI-CITY, it is used for representing data in a uniform format. For more information see: www.w3.org/standards/techs/rdf	IBM
WebSocket	WebSocket is a protocol providing full-duplex communication channels over a single TCP connection. For more information see: https://tools.ietf.org/html/rfc6455	TALK

Name of the Standard	Description of the Standard	Partners Using the Standard
OWL	The W3C Web Ontology Language (OWL) is a Semantic Web language designed to represent rich and complex knowledge about things, groups of things, and relations between things. OWL is a computational logic-based language such that knowledge expressed in OWL can be exploited by computer programs, e.g., to verify the consistency of that knowledge or to make implicit knowledge explicit. In SIMPLI-CITY it is used for representing data in a uniform format. For more information see: http://www.w3.org/TR/owl2-overview/	IBM
OSGi	The Open Services Gateway initiative (OSGi) framework specifies a modular system and a service platform for the Java programming language that implements a complete and dynamic component model. This allows faster development and adoption of backend services, allowing third party developers to start developing them straight away without getting into mechanics of service interaction and management. OSGi is an umbrella for a set of several standards, which partners make use of, e.g., Service Location Protocol, Sun Java Intelligent Network Infrastructure, Sun Java Module System, Sun Dynamic Component Support for Java, etc. The SIMPLI-CITY Service Runtime Environment (SRE) is built on top of OSGi. For more information see: http://www.osgi.org/Specifications/HomePage	TUV, TIE

4 Outreach to the Standardisation Community

As already mentioned in the introduction to this deliverable, in addition to ensuring that existing standards are utilised by the SIMPLI-CITY partners, the standardisation engagement task within SIMPLI-CITY aimed also to inform the standardisation community about the findings and results of the SIMPLI-CITY project.

4.1 Outcomes of SIMPLI-CITY Potentially Interesting for Standardisation

As a first step, before approaching standardisation bodies and initiatives, the consortium partners discussed which specific results of SIMPLI-CITY could be eligible for standardisation. The following four areas of SIMPLI-CITY, which could potentially be interesting for the standardisation community, have been identified by the consortium:

- SIMPLI-CITY's data model for road transport related information
- SIMPLI-CITY's approach for communication with car sensors
- SIMPLI-CITY's mobility service platform extending the dynamic component system proposed by the OSGi Alliance
- SIMPLI-CITY's application level

As a basis for the standardisation engagement activities within SIMPLI-CITY, a brief description of what SIMPLI-CITY offers in these fields has been compiled. In these brief outlines, which can be found on the following pages, the technical details are described, whereby a focus is put on the standards used by SIMPLI-CITY, and what could be offered by SIMPLI-CITY for improving existing standards.

4.1.1 SIMPLI-CITY's Data Model for Road Transport Related Information

The SIMPLI-CITY data model is considered to represent static background knowledge and semantics of data streams (e.g., real time journey times, bus records) to capture a large portion of road transport related data in a common, unique and simple framework. The model is provided by ontologies (i.e., a formal, explicit specification of a shared conceptualisation), encoded using Semantic Web technologies e.g., RDF, RDFS, OWL.

All descriptions of mobility-related data have been described in OWL 2 EL i.e., one of the different OWL profiles. The selection of this W3C standard OWL 2 EL profile has been guided by the expressivity that was required to model semantics of data in all SIMPLI-CITY scenarios work packages. OWL 2 EL has also been selected because of the scalability of the underlying basic reasoning mechanisms that are required by the scenario work packages. For instance, subsumption-based reasoning (i.e., evaluation of specialisation and generalisation of descriptions) in OWL 2 EL is in PTIME (Polynomial Complexity Time). The description logic EL++ is the logic underpinning OWL 2 EL and the basis of much more expressive description logics.

In particular the following city sensors have been modelled in the SIMPLI-CITY data model: journey travel time, road weather condition and weather information. The following existing domain ontologies have been integrated:

- SWEET: Semantic Web for Earth and Environmental Terminology for (road) weather phenomena

- SIRI: Service Interface for Real Time Information for bus data
- DBPedia: Types of events e.g., capacity, category, delay, incident, accident, breakdown, event
- Time Ontology: Terminology for describing temporal concepts such as time instants and intervals

In addition, the model also captures some car-related descriptions.

The main advantage of SIMPLI-CITY's data model is the fact that it is a joint model from different domains (although limited impact as it merges and fuses some specific domains).

4.1.2 SIMPLI-CITY's Application Level

The SIMPLI-CITY apps are split into two main components. The first component is the description of the app user interface and the definition about how users can navigate by voice input. The second component is the app logic, which connects the navigation flow with the concrete business logic. Small processing can be done in the app itself, but the main work should be located in the server-side SIMPLI-CITY services. An app is easily able to invoke actions and queries on the Service Runtime Environment.

Possible input for standardization:

- *App Logic*
  As basis, the SIMPLI-CITY app logic is built on Java and is using well-known techniques for the service communication, integration into the PMA and providing the app functionality. These techniques are not officially standardised, but do not meet a sufficient level of innovation to be used for standardization.
- *App Management*
  All app loading, starting, interaction and management is using common Java capabilities to implement the SIMPLI-CITY needs on the Android based PMA.
- *App Bundling*
  SIMPLI-CITY apps are bundled following the Java JAR packaging format (Java Archive). This format is widely used in almost every Java application, and as SIMPLI-CITY requires only a particular directory layout inside these JAR archives, this requirement cannot be really offered for standardization.
- *Multimodal User Interface*
  The Multimodal User Interface, right now, is strongly built for the needs of SIMPLI-CITY and therefore is not in a status for standardization. But here, the SIMPLI-CITY partners can contribute and give input how a multimodal GUI could be designed and integrated in several systems. For example TALK developed a technology called "Speech Cursor" which gives the ability to scroll through list-based menus without looking to the screen, as it will read the content to the user and provide a selection mechanism not bound to a view. Also CRF is able to give some input from Human Machine Interface (HMI) experts how the interaction between user and mobile device can be done in a more secure and non-distracting way. With its expertise in designing easy and well-usable user interfaces, ASC can help to improve user interfaces to a simplistic but well-looking, functional experience. In collaboration with CRF and TALK, this can give valuable help to partners or other projects.

4.1.3 SIMPLI-CITY Mobility Service Platform

For its Mobility Service Platform, SIMPLI-CITY applies and extends the dynamic component system proposed by the OSGi Alliance. More concretely, the Apache Felix implementation of the OSGi specification R4 is used. This allows reusing SIMPLI-CITY software components within other projects which apply the OSGi specification, e.g., the TEAM project.

In general, the OSGi standard specification is not aimed at a particular use case scenario. Hence, it supports a huge number of possible scenarios, but does not provide specific functionalities needed for mobile service consumption. However, there is a need for such extensions, since mobile service consumption leads to specific requirements. Especially, mobile service consumption is subject to varying network quality. Also, since in the SIMPLI-CITY use case scenario the paid access to OSGi-based services is an important aspect, functionalities which support monetisation are needed.

Thus, in the course of the SIMPLI-CITY project, several extensions have been developed, which could be interesting for the OSGi community. These extensions are briefly explained in the following:

The support of push messages allows providing mobile users with information updates without the need for further service requests by the end user device. Once a device (or more precisely: an app running on the device) has subscribed to a particular service running in the OSGi-based service runtime environment, the service pushes information updates to the app/device based on a subscription policy which can be defined by the app developer. Alternatively, the push functionality could become part of the mobile operating system or an API running on the mobile device. One very large benefit of push messaging for mobile devices is the instantaneous availability of new information on the mobile device. Since the OSGi framework does not allow push messaging, this additional functionality has been developed in SIMPLI-CITY.

The SIMPLI-CITY REST Proxy provides a central interface for apps to invoke OSGi-based services. By routing all service requests through the REST Proxy, central functionalities are facilitated. This includes, but is not limited to, Quality of Service monitoring, fault tolerance mechanisms (i.e., ad hoc replacement of services in case of faults), accounting, or logging. Again, by integrating these functionalities into a mobile operating system or an API, these functionalities are provided to app developers, reducing the implementation overhead. Through the integration of the SIMPLI-CITY REST Proxy into the OSGi framework, its benefits could be realized in different domains.

4.1.4 SIMPLI-CITY's Approach for Communication with Car Sensors

SIMPLI-CITY provides access to data retrieved from two kinds of car sensors:

- OBD port based: allows using car data available from the On-Board Diagnostics (OBD) port from each car. Of course only a limited set of signals is available from the diagnostic port. Other Original Equipment Manufacturer (OEM)-specific messages are not provided from this more general sensor.
- OEM-specific car sensor (i.e., the one implemented by CRF for FIAT cars): allows using OEM-specific messages; it should be implemented by specific OEMs following the SIMPLI-CITY specification for the provision of SIMPLI-CITY sensor data.

From a service provider's point of view, on the basis of the type of car data needed, a service can subscribe to the first or the second type of car sensors. Of course, if needing OEM-specific messages, the service can be used only for vehicles, whose manufacturers have implemented the OEM-specific car sensor specification.

In SIMPLI-CITY, CRF provided an ad hoc solution for a specific FIAT car model equipped with a proprietary telematics platform (i.e., Uconnect® Platform in a FIAT vehicle) that is able to gather sensor data from the CAN bus. With the implemented solution, sensor data are serialized and then sent to the mobile device using a Bluetooth connection.

The process followed for providing data from a FIAT vehicle in SIMPLI-CITY can be summarized in four steps:

1. Sensor Data Collection and Filtering: During this activity sensor data are gathered from the vehicle and then filtered.
2. Sensor Data Cleaning comprising of two steps:
    a. Sensor Data Validation: The purpose of this task is the validation of the signals for which there exists a corresponding control signal, used for checking if the signal value is valid. In particular if the given signal has an invalid value, the value is forced to a predefined control value (e.g. -999).
    b. Sensor Data Combination & Conversion: In this sub-activity, numeric-type signals coming from the vehicle are combined if needed and then converted using a fixed measurement unit associated with them.
3. Sensor Data Encoding & Transmission to PMA: After filtering and cleaning, a car signal is encoded to be transmitted to a mobile device (i.e., the PMA). After encoding, data are transmitted to the mobile device using the Bluetooth protocol.
4. Sensor Data Decoding & Conversion into SIMPLY-CITY JSON Format: During this activity, sensor data encoded and then transmitted by the vehicle are received by the mobile device. Sensor data are decoded according with the message types defined and then transformed into the SIMPLY-CITY JSON format.

Other OEMs following the SIMPLI-CITY specifications could provide similar specific car sensors to be used by services and apps implemented as part of the SIMPLI-CITY Service Runtime Environment and Application Runtime Environment, respectively.

Alternatively the implementation of a solution that adopts a communication standard between nomadic devices and the car could be seen as a future option that follows the market evolution. There are some industry standards for communication between nomadic devices and the car (such as e.g., Android Auto, MirrorLink), where car manufacturers have announced that they will use them. There are also some open standards (ISO TC22 (ISO 22902-x: Road vehicles -- Automotive multimedia interface), ISO TC204, W3C), but none of them is implemented by car manufacturers. Instead, many car manufacturers implement proprietary protocols, which are under license on the market (e.g., FCA (Fiat Chrysler Automobiles) chose such a proprietary protocol named Uconnect® Access Via Mobile for the current production), because this ensures that the OEM maintains the design of mobile integration granting safety rules.

4.2 Standardisation Initiatives Relevant for SIMPLI-CITY

SIMPLI-CITY wanted to promote the consideration of the outcomes of SIMPLI-CITY in the development of standards. Therefore, as a first step, the partners scanned the European and international standardisation "landscape" in order to find out, which organisations are

relevant for SIMPLI-CITY. While it turned out that some of the organisations and initiatives, such as e.g., The Networked European Software and Services Initiative (NESSI), which the consortium initially had thought to be potentially useful for SIMPLI-CITY, were not really relevant, the following relevant standardisation related organisations and initiatives were identified by the SIMPLI-CITY partners:

- CEN
- DATEX II
- OSGi
- NESSI

As a next step, these organisations / initiatives were analysed in more detail, and specifically the possibilities to approach these organisations were investigated thoroughly.

4.2.1 CEN

CEN, the European Committee for Standardization, is an association that brings together the National Standardization Bodies of 33 European countries. CEN is one of three European Standardization Organizations (together with CENELEC and ETSI) that have been officially recognized by the European Union and by the European Free Trade Association (EFTA) as being responsible for developing and defining voluntary standards at European level.

CEN provides a platform for the development of European Standards and other technical documents in relation to various kinds of products, materials, services and processes.

CEN supports standardization activities in relation to a wide range of fields and sectors including: air and space, chemicals, construction, consumer products, defence and security, energy, the environment, food and feed, health and safety, healthcare, ICT, machinery, materials, pressure equipment, services, smart living, transport and packaging.

More information about CEN can be found at www.cen.eu.

4.2.1.1 Possible Ways to Approach CEN

According to the European IPR Helpdesk[1], the best way for approaching CEN is to make use of the CEN Workshop Agreement (CWA) mechanism. A CWA is an agreement developed and approved in a CEN Workshop (CEN-WS). A CEN-WS is open to the direct participation of anyone with an interest in the development of the agreement. However, a CWA, which is valid for a maximum of 3 years, does not have the status of a European Standard and it involves no obligation at national level.

On average it takes about one year to develop a CWA. The steps and actions required to develop and produce a CWA are described in detail on the CEN website and can be summarised as follows:

- As a first step, a request is to be submitted to the CEN-CENELEC Management Centre (CCMC), describing in detail the subject and motivation for the proposed CWA.

[1] European IPR Helpdesk, “Fact Sheet How to reap the benefit of standardisation in R&D” developed in cooperation with CEN, CENELEC, Luxembourg, October 2014

- If the CCMC evaluates the request to be appropriate for a CWA, as a next step a draft business plan is to be developed, which is reviewed by the CEN Technical Board and the respective Technical Committees (TC).
- If the business plan is evaluated positiveby the CEN Technical Board and the respective TCs, the proposed CEN-WS is announced on the CEN website by the CCMC, and 60 (or more) days later the kick-off meeting for the CEN-WS can take place.
- If there is enough support for the business plan by the participants of the kick-off meeting, the CEN-WS is officially launched, and the CWA is to be drafted by the registered CEN-WS participants.
- The draft CWA is available for public comments on the CEN website for at least 60 days. Then the CWA is to be updated according to the comments received. If the final CWA is approved by the CEN Technical Board, it is distributed by the CCMC to the National CEN Members. The National CEN Members will publish and sell the CWA according to their usual sales policies.

4.2.1.2 Feasibility Considerations with Respect to SIMPLI-CITY

After performing a detailed analysis of the CWA process and the project's framework conditions, the SIMPLI-CITY consortium concluded that inducing a CWA process is not a suitable option for the project's standardisation engagement, since the aspects of SIMPLI-CITY, identified as potentially interesting for standardisation, will not be appropriate for constituting the basis for a CWA business plan. In addition, the CWA process is rather complex and would require at least a year of continued effort not only for writing texts but also for discussion and lobbying activities. Taking these reasons into account, and especially the limited project run time, the SIMPLI-CITY partners decided to exploit other ways of getting engaged in the standardisation processes and approaching the standardisation community as compared to the CEN Workshop Agreement.

4.2.2 DATEX II

In order to provide a standardised way of communicating and exchanging traffic information across boundaries between traffic centres, service providers, traffic operators and media partners, DATEX II was developed and is (currently) maintained by a stakeholder organisation under the umbrella of the EC supported EasyWay programme. Inside EasyWay, DATEX II is included in a set of European Studies (ES) that deal with pan-European consensus forming and harmonization. DATEX II is covered by ES 5, currently chaired by Germany.

In close cooperation with CEN TC278 Working Group 8 (www.itsstandards.eu), DATEX II – CEN TS 16157 1-3, the European Technical Specification for modelling and exchanging ITS-related information between many partners, was published in 2011 and is regularly extended since.

More information about DATEX II can be found at www.datex2.eu.

4.2.2.1 Possible Ways to Approach DATEX II

The DATEX website (www.datex.eu) provides a forum where registered users can contribute to discussions about proposed extensions to DATEX II.

According to the DATEX website, proposals of new features can be submitted by individual stakeholders, representatives of member states, European projects, or any source via a National Standardisation Body.

New feature requests must be submitted in writing, and be one of the following:

- Be a fully worked out proposal in terms of an extension on the data model that fulfils all of the new topic requirements,
- Be a completely described Exchange Platform Specific Model for a new platform, or
- Be a request to EasyWay ES 5 to work out certain aspects of data exchange. This kind of request can only be done by Euroregional projects and international stakeholder communities in the ITS domain.

For new feature requests the DATEX II Steering Group (SG) will respond to the initiator of the request within 3 months after the application is received with details of whether the proposed change will be accepted or not and details of its implementation in DATEX II configuration items.

In addition to this forum on the DATEX II website, there are DATEX II user forum conferences, where new developments are presented, practical experience is exchanged, and proposed extensions are discussed.

4.2.2.2 Feasibility Considerations with Respect to SIMPLI-CITY

Content-wise, there are two possibilities how to extend DATEX II for the needs of SIMPLI-CITY and in turn provide an extended data model to the DATEX II community. First, the DATEX II model is a syntactic model, providing no sophisticated semantics. However, as has been shown especially by the work of SIMPLI-CITY partner IBM, these semantics are crucial to reason on the data, i.e., gaining knowledge from the data. This is becoming even more important with the advent of Big Data technologies in the mobility domain. Second, particular parts of the SIMPLI-CITY data model could be used to extend the DATEX II model. Currently, DATEX II is focused on data from fixed sensors, but in the future, DATEX II stakeholders like the Dutch National Data Warehouse for Traffic Information are planning to integrate data from mobile sensors. Here, the SIMPLI-CITY Car Sensor Data Provision, as introduced in D4.1.2 and implemented in D4.3.2 could be valuable input for future versions of the standard.

However, one particular issue is the timing. The best way to approach the DATEX II community is via the user forums. Unfortunately, the last DATEX II user forum took place in Prague in May 2014, i.e., before the SIMPLI-CITY Data Model was finalized. Until the end of the SIMPLI-CITY project in September 2015, no further DATEX II user forum meetings had been announced on the DATEX II website, and currently, it is not clear how the DATEX II model will be further developed and maintained. The SIMPLI-CITY consortium therefore decided to pursue other standardisation activities.

4.2.3 OSGi

The OSGi Alliance is a non-profit corporation, with members including leading service and content providers, infrastructure operators, utilities, software developers, electronics suppliers and research institutions from all over the world. OSGi creates open specifications, which enables the modular assembly of software built with Java, facilitates the componentisation of software modules and applications, and assures interoperability of applications and services.

The technical work in the OSGi Alliance is done by member companies in Expert Groups. Each Expert Group works on items defined in so-called “Request For Proposal” (RFP) documents, which set the requirements for the technical development. RFPs may be created by any member or supporter, and are then reviewed by the Requirements Committee to ensure they meet real-world needs and complement the objectives of the OSGi Alliance. If an RFP is accepted, the relevant Expert Group develops Requests for Comments (RFCs), which define the technical solution to the RFP.

More information about the OSGi Alliance can be found at http://www.osgi.org.

4.2.3.1 Possible Ways to Approach OSGi

The OSGi Alliance follows a grassroots’ approach to extend technologies and specifications. OSGi Alliance members determine how and when the OSGi Service Platform and specifications will be upgraded, expanded and enhanced. There are three membership opportunities with different levels of influence over OSGi technology specifications:

- Strategic Members have full voting rights and can participate in any OSGi Alliance committees. The membership fee is 25,000$ annually.
- Principal Members are eligible to lead expert groups and committees. The annual membership fee is 10,000$ (for companies with fewer than 250 employees).
- Contributing Associates may actively contribute to OSGi specifications and technology by participating in expert groups. The annual membership fee is 5,000$.

In addition to these three membership levels, the OSGi Alliance offers interested companies also the status of a Supporter. Supporters are able to contribute to RFPs (Requests For Proposals), and are informed about actual developments with newsletters and interest announcements. Supporters do not have to pay an annual fee.

4.2.3.2 Feasibility Considerations with Respect to SIMPLI-CITY

SIMPLI-CITY partner ASC has got “Supporter” status with the OSGi Alliance. As an OSGi “Supporter” ASC can submit RFP documents. Using these RFPs, the OSGi Alliance collects requirements, which will potentially be taken into account in future OSGi developments. However, although a “Supporter” may submit RFPs, it has no possibility to further influence the acceptance of the submitted RFP by the OSGi Alliance.

In order to be able to further promote the acceptance of any SIMPLI-CITY RFP by the OSGi Alliance, one of the SIMPLI-CITY partners would need to become a “Contributing Associate” (paying an annual fee of 5,000$). Through extensive lobbying-activities this “Contributing Associate” would then be able to convince other Contributing Associates, and together they would need to convince the Requirements Committee about the fact that the proposed RPF submitted by SIMPLI-CITY meets real-world needs and complements the objectives of the OSGi Alliance.

After careful assessment of both options (acting as a “Supporter” or a “Contributing Associate”), the SIMPLI-CITY consortium decided to go for submitting an RFP through partner ASC (a “Supporter”), since becoming a “Contributing Associate” of the OSGi Alliance and promoting SIMPLI-CITY solutions within the OSGi community would require a lot of financial and personnel resources. The latter possibility was considered as being not feasible within the framework conditions of the project.

A more detailed description of SIMPLI-CITY's activities with respect to the submission of a RFP to the OSGi Alliance can be found in Section 4.3.3 of this document.

4.2.4 iMobility Forum HMI Working Group

The iMobility Forum provides a platform for ITS stakeholders in Europe to develop, implement and monitor work programs for the successful development and deployment of ITS.

The HMI Working Group of the iMobility Forum focuses on the interaction between the car driver and on-board driver information, communication and warning systems. The working group monitors the developments in this field and checks, which according updates of the European Statement of Principles on HMI for In-Vehicle Information and Communication Systems (ESoP), which was published as an EC Recommendation in 2008, are necessary. Furthermore, the working group provides input to the EC's ITS Action Plan, Area 3 "Road Safety and Security", Topic 3.3 "Regulatory Framework on HMI".

More information about the iMobility Forum HMI Working Group can be found at http://www.imobilitysupport.eu/imobility-forum/working-groups/human-machine-interaction#objectives.

4.2.4.1 Possible Ways to Approach the iMobility Forum HMI Working Group

The Working Group's chair and co-chair create the Working Group's terms of references (objectives, work plan, milestones and timetable). Thus, according to the iMobility Forum's website, in order to approach a specific Working Group it is best to contact the Working Group's chair and/or co-chair. During the runtime of the SIMPLI-CITY project, the chairman of the HMI Working Group was Alan Stevens from TRL (UK), the co-chairman was Chrishard Gelau from BMVI (DE).

4.2.4.2 Feasibility Considerations with Respect to SIMPLI-CITY

Since one of the core parts of the SIMPLI-CITY system is the PMA, which allows to utilise a multimodal user interface that is designed to minimise driver distraction when using the SIMPLI-CITY applications, the working area of the iMobility Forum HMI Working Group is of high relevance for SIMPLI-CITY. Therefore, the consortium decided that the HMI Working Group should be informed about SIMPLI-CITY's activities in this field. Following this decision of the consortium, partner TALK presented SIMPLI-CITY in a meeting of the iMobility Forum HMI Working Group. (see Section 4.3.2 for details).

4.3 Communicating SIMPLI-CITY's Findings to Relevant Initiatives

As stated in the DoW, SIMPLI-CITY planned to meet with at least two relevant initiatives in the field of standardisation. The analysis work done by the project partners (refer to Section 4.2 for details) showed that for SIMPLI-CITY the iMobility Forum HMI working group and the OSGi Alliance were among the most relevant standardisation related initiatives. Therefore, the consortium actively participated in these organisation's activities, as described in the following Sections 4.3.2 and 4.3.3. However, in addition to approaching these initiatives, the project consortium chose also alternative channels for communicating SIMPLI-CITY's findings to relevant stakeholders in the standardisation community: The partners discussed SIMPLI-CITY's findings and standardisation engagement strategy with

other European projects, had personal meetings with stakeholders in the field of standardisation, and participated in related expert workshops.

4.3.1 Communication with other Projects

SIMPLI-CITY wanted to learn from other European projects' standardisation activities and tried to join forces with FP7 "sister" projects working in similar fields to approach standardisation bodies together.

Therefore, on 13 February 2015 the SIMPLI-CITY coordinator organised a conference call with the projects TEAM, GET SERVICE, and MOBINET to talk about the data interoperability aspects in the single projects in order to find out whether there is a common data model which the projects could exchange and use for cooperation, and to discuss possible collaboration in standardisation activities. During this conference call it became clear that MOBINET, which is the thematically most related project to SIMPLI-CITY, seemed to be less focused on data interoperability and standardisation questions as in MOBINET there is more focus on "backend solutions". GET SERVICE was interested to exchange ideas on the data model, and TEAM offered to provide more information on their standardisation engagement activities, where they had been active especially in the field of HMI/Communications systems.

In email conversations following this conference call, TEAM's leader of the standardisation task explained that the overall goal of this task within TEAM is to ensure that the system, which TEAM develops, is compliant to existing standards. Therefore, the task's main activities comprised of tracking the activities of relevant standardisation bodies and driving the consortium partners to use actual standards instead of proprietary solutions. However, in addition to these main activities, TEAM had also contributed to activities in some standardisation working groups (e.g., influenced ETSI TC ITS WG3 and WG4 to take into account some aspects suggested by TEAM). This was possible, since some of TEAM's consortium partners are active members of these working groups.

Thus, during these standardisation related conversations with TEAM, SIMPLI-CITY's consortium was reassured that SIMPLI-CITY's strategic decision to focus on ensuring the compliance of the project's outcomes with existing standards rather than focussing on activities to influence standardisation bodies, was the right choice. Since, as the example of the TEAM project clearly shows, contributions in standardisation bodies' working groups are only feasible if project partners are already active in the relevant standardisation working groups.

4.3.2 Communication with Relevant Stakeholders

Another channel, which was used by SIMPLI-CITY partners to communicate the project's findings to stakeholders in the standardisation community, was through participation in relevant working group meetings and personal talks to relevant standardisation related stakeholders:

Participation in the iMobility Forum HMI Working Group

Fredrik Kronlid from SIMPLI-CITY partner Talkamatic participated in the iMobility Forum HMI Working Group, which took place at ERTICO's premises in Brussels on 4th of July 2014. He presented SIMPLI-CITY to the participants of this working group meeting (mainly members of the HMI Working Group), and put a special focus on SIMPLI-CITY's PMA and

the Multimodal Dialogue Interface, which is expected to minimise driver's distraction. The HMI Working Group members were particularly interested in this, since driver distraction is one of the main topics of the ESoP (European Statement of Principles on HMI), which is under revision by the Working Group. As a result of the discussions during this working group meeting, the HMI Working Group decided to include "Integration and dialogue priority management" as one of the HMI research issues, which should be suggested to the EC by the iMobility Research and Innovation Working Group.

Participation in the workshop "Study on good practices for reducing road safety risks caused by road user distractions"

As a follow-up to the participation in the iMobility Forum HMI Working Group, SIMPLI-CITY partner Talkamatic was invited to attend the expert workshop "Study on good practices for reducing road safety risks caused by road user distractions", which took place at DG Move's premises in Brussels on 3rd of June 2015. This workshop was part of the European work towards certification/standardisation of safe road user interaction systems. At the workshop, Staffan Larsson from Talkamatic explained and discussed SIMPLI-CITY's approach with experts from various fields such as, e.g., public authorities and the automotive industry.

Communication with DATEX II Stakeholders

In April 2014 the SIMPLI-CITY coordinator talked to some important DATEX II stakeholders of the Dutch National Data Warehouse for Traffic Information. He explained SIMPLI-CITY to them, with a special focus on the SIMPLI-CITY data model. These representatives of the Dutch National Data Warehouse for Traffic Information were very interested in SIMPLI-CITY, especially in the SIMPLI-CITY Car Sensor Data Provision, since they are planning to integrate data from mobile sensors into DATEX II in the future.

4.3.3 Recommendations for Improvement of Existing Standards

The SIMPLI-CITY system is based on the OSGi standard. However, when developing the SIMPLI-CITY Service Registry component, partners found that some features necessary for the SIMPLI-CITY system were missing in the current OSGi specification and thus partners had to implement this functionality in a custom way. As the project developed and matured, it became obvious that this extra functionality (to allow flexible XPath based service search on the OSGi service registry) would be beneficial for the entire community and could be included into the OSGi standard. Therefore, the following RFP "Extended Service Registry" has been compiled by partner TIE and submitted into the official OSGi bugtracker by partner Ascora in June 2015:

OSGi Request for Proposal (RFP) Extended Service Registry

> The core goal of this proposal is to allow flexible XPath based service search on the OSGi service registry. Currently if needed this has to be implemented in a custom way. However, generalizing this extra functionality would be beneficial for the entire community and could be included into the OSGi standard.
>
> *Introduction and Motivation*
>
> The OSGi service registry enables a bundle to publish objects to a shared registry, advertised via a given set of Java interfaces. Published services also have service

properties associated with them in the registry. The registry is a crucial feature of OSGi, facilitating decoupling between bundles by promoting a dynamic collaborative model based on a service-oriented paradigm (publish/find/bind).

An OSGi service is a Plain Old Java Object (POJO), published to the service registry under one or more Java interface names, with optional metadata stored as custom properties (name/value pairs). A discovering bundle can look up a service in the service registry by an interface name, and can potentially filter the services that are being looked up based on the custom properties.

These filters select registered services based on certain values of their properties (name/value) and are based on the LDAP syntax.

This current approach is well thought out and suitable for low level filtering of services, however, a more extensible way of defining service metadata and searching thorough it is desirable. For example, a service developer might want to expose a service license in an XML file and allow consumers of the service looking up their service based on certain conditions of the license. Or a service level agreement can be specified in a separate XML file attributed to the service and become searchable in the registry, so that users can find services they believe will satisfy their requirements. All this requires definition of an additional metadata document, possibly in XML format, supplied along with the service, which can be searched using well defined techniques, like, e.g., XPath expressions.

A possible method of extending the OSGi specification with such features is described in the following paragraphs.

Extended Service Registry

- The service manifest can be extended with an inclusion of an XML file with a predefined name (e.g., service-descriptor.xml), which will describe the service.
- In addition to the standard BundleContext.getServiceReferences() method that accepts a LDAP based filter, an additional method can be introduced in the BundleContext that would use XPath syntax to look through XML formatted service descriptors.

This would allow all flexibility needed to build extensible data models for searching through the OSGi registry.

In the following listing a possible XML descriptor document is presented:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ServiceDescription>
    <name>TestService</name>
    <version>1.0</version>
    <description>Test Service is just an example service</description>
    <keywords>
        <keyword>Test</keyword>
    </keywords>
    <serviceType>BACKEND_SERVICE</serviceType>
</ServiceDescription>
```

Then, invoking a proposed method:

```
BundleContext.getServiceReferences("//ServiceDescription[//keyword='Test']")
```

would return all services with the exact keyword “Test” specified in their service descriptor files. The service consumer can then make use of them in their service.

5 Summary and Conclusions

T9.4 Standardisation Engagement in the project SIMPLI-CITY had two main objectives: On the one hand, it aimed at ensuring that the project makes maximum use of existing standards, and on the other hand it was also the objective of this task to communicate the findings of the project to the standardisation community.

In order to ensure that the project makes maximum use of existing standards, activities of the relevant standardisation organisations and initiatives were tracked in order to stay up-to-date with knowledge about standard developments in relevant fields. Furthermore, it was taken care that, whenever possible, all partners used existing standards instead of proprietary solutions, in order to ensure that the SIMPLI-CITY system is compliant with the existing standards.

In order to be able to successfully communicate SIMPLI-CITY's findings to the standardisation community, as a first step partners identified those aspects of SIMPLI-CITY, which could be potentially interesting for the standardisation community, and then thoroughly scanned the "standardisation landscape" to find out, which standardisation related organisations and initiatives are relevant for SIMPLI-CITY, and how these organisations and initiatives could best be approached. Through these preparatory activities, partners found that the original plan of having meetings with standardisation bodies such as CEN was not suitable for SIMPLI-CITY. Therefore, SIMPLI-CITY applied alternative ways to approach the standardisation community and to inform relevant standardisation related stakeholders about SIMPLI-CITY's findings: SIMPLI-CITY discussed the project's findings with the leaders of the "standardisation task" of other projects. The SIMPLI-CITY partner TALK participated at a meeting of the iMobility Forum HMI Working Group and informed the members of this working group about SIMPLI-CITY's innovative PMA and Multimodal Dialogue Interface aiming to reduce car drivers' distraction. TALK was also invited to the expert workshop "Study on good practices for reducing road safety risks caused by road user distractions", and discussed SIMPLI-CITY's approach to safer mobile phone interaction of road users with experts from various fields. Furthermore, the SIMPLI-CITY coordinator informed some important DATEX II stakeholders from the Dutch National Data Warehouse for Traffic Information about the project, and explained the SIMPLI-CITY data model as well as the Car Sensor Data Provision to them, as these could be interesting for an extension of the DATEX II standard. And in addition, SIMPLI-CITY submitted a RFP (Request For Proposal) document proposing an Extended Service Registry to the OSGi Alliance.