simpli·city

The Road User Information System Of The Future

WP9 – Exploitation, Dissemination, Collaboration and Standardisation

D9.3.3: Scientific Dissemination Report III

Deliverable Lead: FGM

Contributing Partners: TUV, ASC, TIE, TUDA, IBM, TALK, WORLD, CRF, SRM

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Short Abstract (Teaser)

This document describes the scientific dissemination activities and the promotional activities that have been carried out within the project SIMPLI-CITY.

SEVENTH FRAMEWORK PROGRAMME

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 318201.

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Note

This deliverable is subject to final acceptance by the European Commission.

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Project Partners

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TIE Nederland B.V., The Netherlands

Technische Universität Darmstadt, Germany

IBM Research – Ireland
Smarter Cities Technology Centre

Forschungsgesellschaft Mobilität, Austria

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Executive Summary

This document describes the scientific dissemination activities as well as the promotional activities that have been carried out within the project SIMPLI-CITY. It follows closely the themes of the “Dissemination and Communication Strategy” working paper that guided the communication and outreach activities of the SIMPLI-CITY consortium.

This deliverable highlights the progress regarding dissemination and communication activities within the Tasks T9.2 (Promotion and Promotional Materials) and T9.3 (Dissemination and Workshops) of the project SIMPLI-CITY.

Table of Contents

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.

Within this deliverable, the scientific dissemination activities as well as the promotional activities that were carried out within the Tasks T9.2 (Promotion and Promotional Materials) and T9.3 (Dissemination and Workshops) of the project SIMPLI-CITY are described.

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 report scientific dissemination as well as promotion and communication activities performed in SIMPLI-CITY. These activities include publications, presentations and other dissemination actions.

1.3 Document Status and Target Audience

This document is listed in the Description of Work (DoW) as “public”, as it provides general information about the dissemination and communication activities of SIMPLI-CITY and can therefore be used by external parties in order to get according insight into the respective 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 describes the dissemination methodology including dissemination and communication approach, tools and targets.

Section 3 describes the dissemination actions carried out from month 1 to month 36 of the SIMPLI-CITY project.

Section 4 gives a summary of the dissemination and communication efforts described in this deliverable.

2 Dissemination and Communication Strategy

2.1 Communications Vision and Objectives

In order to support the primary aim of SIMPLI-CITY, which is to foster the usage of full-fledged road user information systems – helping drivers to make their journey safer, more comfortable, and more environmentally friendly, the objectives of the tasks T9.2 (Promotion and Promotional Material) and T9.3 (Dissemination and Workshops) within SIMPLI-CITY were:

- Raise awareness among non-SIMPLI-CITY partners across Europe of the importance of full-fledged road user information systems
- Build a “brand identity” for SIMPLI-CITY, establishing SIMPLI-CITY as a leading voice and a source for information and experience about full-fledged road user information systems
- Facilitate knowledge transfer from results, solutions and recommendations developed by SIMPLI-CITY to other projects, EU clusters, and Future Internet PPP projects and activities
- Coordinate and assist SIMPLI-CITY project partners’ dissemination teams with their communication activities and delivery of user-friendly information products and results

2.2 Target Groups

The main Stakeholder groups, who had been identified to be relevant for SIMPLI-CITY’s dissemination and communication activities, are:

- Software developers, who would possibly be interested in building and selling new mobile end user applications and reusable services on top of the SIMPLI-CITY prototype results and on top of the SIMPLI-CITY use cases
- Lecturers at academic level, who could include SIMPLI-CITY’s results in the practice programmes for computer science and (business) information systems students
- Software engineering students, who could help channelling the results of SIMPLI-CITY into the companies to which they may find their career route
- Public authorities, who could publish their traffic-related data in an open data format to be used by SIMPLI-CITY’s app developers
- Automotive Industry, who could use apps provided on the SIMPLI-CITY apps marketplace for enhancing drivers’ experience in terms of mobility, comfort, safety, and fuel-economy
- Media and consultants, who could help to spread the knowledge about SIMPLI-CITY to the target groups mentioned above

2.3 Channels of Dissemination and Communication

In order to ensure that all the target groups described above were informed about SIMPLI-CITY adequately, the consortium communicated and disseminated information about SIMPLI-CITY and its results through different channels.

Table 1 gives an overview of the products, services, and tools that were used within SIMPLI-CITY to facilitate the dissemination of SIMPLI-CITY's results and findings, and to support communication with the target groups:

Table 1: Dissemination Tools and Targets

Dissemination Tools	**Dissemination Targets addressed**						
	Academic Lecturers	**Students**	**Software Developers**	**Automotive Companies**	**Public Authorities**	**Consultants**	**Media**
Exhibition material (roll-up displays, poster)	x					x	
Promotion materials (printed project information)	x			x	x	x	
SIMPLI-CITY Newsletters	x			x	x	x	
SIMPLI-CITY Website	x	x	x	x	x	x	x
SIMPLI-CITY Workshops	x	x	x			x	
Media relations (press information, articles)							x
Scientific publications and presentations	x	x					
Non-scientific presentations and dissemination events		x	x	x	x	x	x
Others (Piggyback dissemination, Blogs, Personal Contacts…)	x	x	x	x	x	x	x

3 Dissemination and Communication Activities

The following table gives an overview of the timeline of SIMPLI-CITY's dissemination and communication activities:

Table 2: SIMPLI-CITY's Dissemination Activities

Task	Activity Name	Date of Initial Step(s)	Date of Finalisation
T9.2	Project Fact Sheet	January 2013	February 2013
T9.2	Pop-up card	March 2013	August 2013
T9.2	Roll-up display	July 2013	September 2013
T9.2	Poster	July 2013	September 2013
T9.2	Slide Library	August 2013	October 2013, regularly updated
T9.2	Newsletter I	June 2013	September 2013
T9.2	Newsletter II	December 2013	April 2014
T9.2	Newsletter III	June 2014	September 2014
T9.2	Newsletter IV	December 2014	March 2015
T9.2	Newsletter V	June 2015	September 2015
T9.2	Website	October 2012	online since December 2012, regularly updated
T9.2	Media relations	June 2013	from August 2013 ongoing until end of project
T9.2	Dissemination contacts database	June 2013	initial version August 2013, regularly updated
T9.3	Workshop I	September 2013	June 2014
T9.3	Webinar	June 2014	September 2014
T9.3	Workshop II	March 2015	September 2015
T9.3	Scientific publications	March 2013	on-going until end of project
T9.3	Presentations at events	March 2013	on-going until end of project

During the SIMPLI-CITY project several dissemination and communication activities were carried out:

- Development and production of exhibition and promotional materials
- Creation and distribution of newsletters
- Creation and update of website
- Organisation and conduction of workshops and webinar
- Development of media relations
- Scientific publications and presentations
- Non-scientific presentations / dissemination events
- Establishment of SIMPLI-CITY groups in social media
- Other dissemination activities

Detailed information about each of these activities is presented in the following sections.

3.1 Exhibition and Promotional Material

3.1.1 Visual Identity, Project Logo

A brand book/corporate design manual was created for the SIMPLI-CITY project. It served as a guideline for the visual appearance of the project's promotion and communication means.

The brand book of SIMPLI-CITY provides guidance for developing various material in the field of communication and dissemination such as: website, folders, Power-Point presentation and other informative material and merchandising articles.

The brand book illustrates:

- the elements which have to be used for the promotion of the visual identity of the project
- the usage rules of these elements
- the „forbidden situations" in which the elements are incorrectly used

In detail it provides guidance for the handling of:

- The project's logo (with all relevant information such as colours, logo variations, rules for application, positioning, proportions, etc.)
- Templates for Word and Power-Point documents (including font types, colours, styles, etc.)
- Examples of dissemination products (roll-up, poster...)

Figure 1 below shows the brand book and 2 example pages:

Figure 1: Brand Book

Figure 2 shows the SIMPLI-CITY project logo, which was used for any kind of communication products, such as the website, brochure, poster, etc.

Figure 2: Project Logo

3.1.2 SIMPLI-CITY Project Factsheet

In February 2013 a project factsheet was developed. It was updated according to the new style-guide / template of the FP7 in December 2013, and is available for download on the “Project” page of the SIMPLI-CITY website.

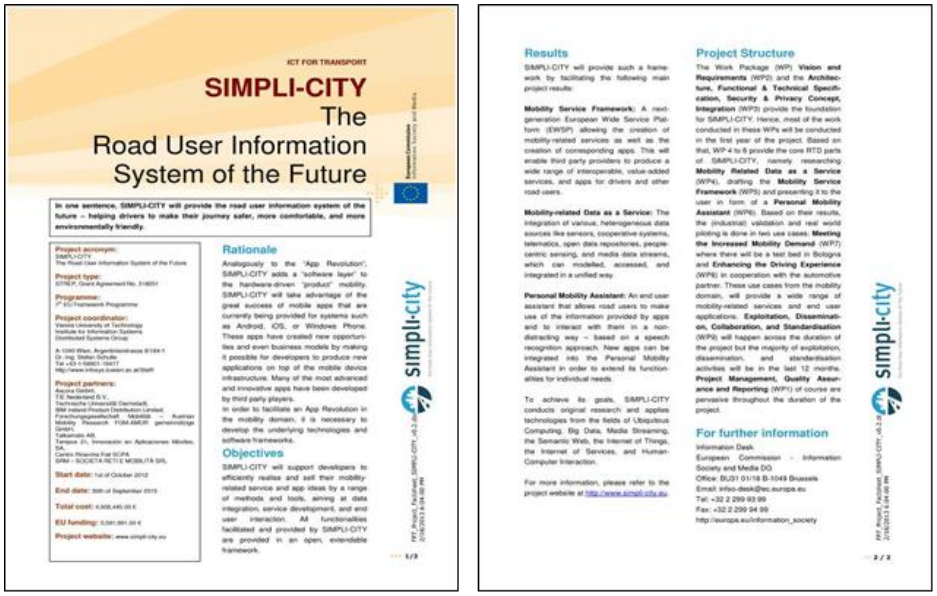
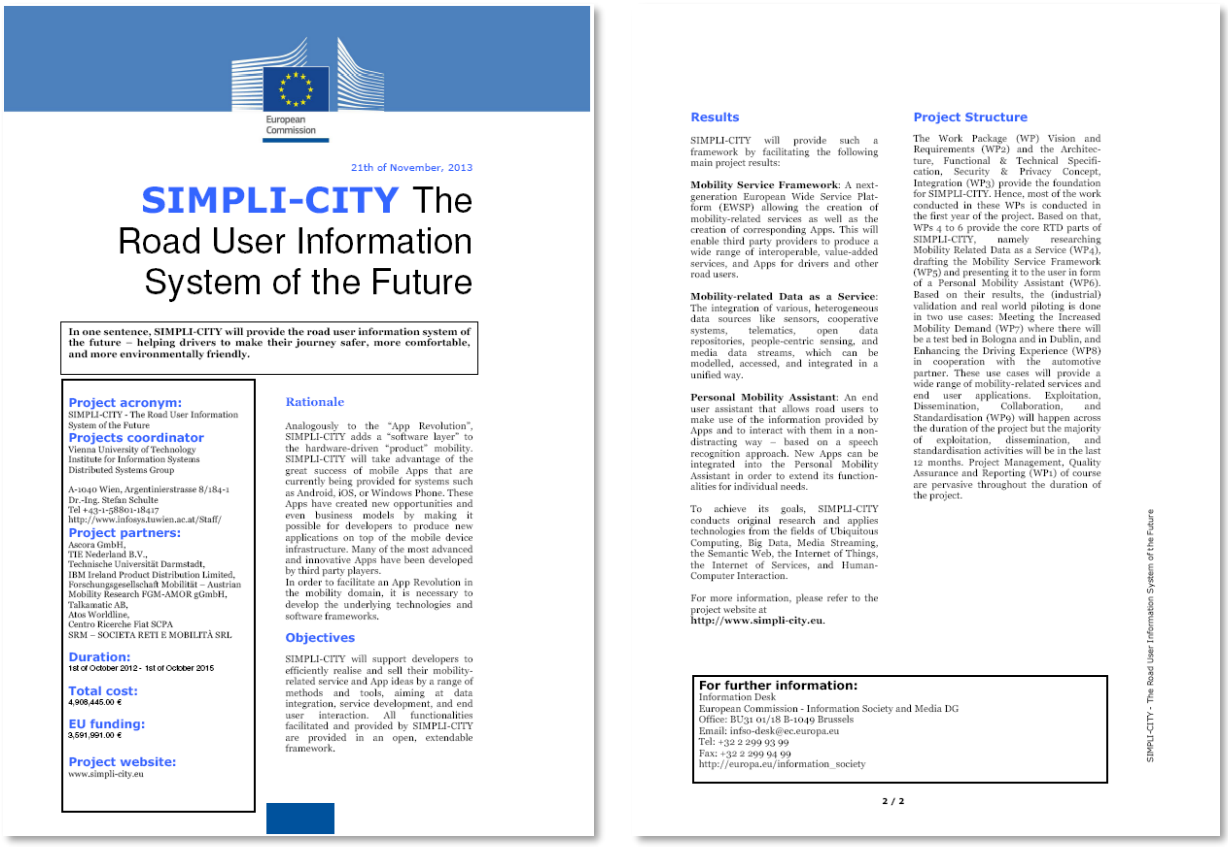


Figure 3: Project Factsheet (Version from February 2013)



European Commission

21th of November, 2013

SIMPLI-CITY The Road User Information System of the Future

In one sentence, SIMPLI-CITY will provide the road user information system of the future – helping drivers to make their journey safer, more comfortable, and more environmentally friendly.

Project acronym:
SIMPLI-CITY - The Road User Information System of the Future

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Project partners:
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TIE Nederland B.V.,
Technische Universität Darmstadt,
IBM Ireland Product Distribution Limited,
Forschungsgesellschaft Mobilität – Austrian Mobility Research FGM-AMOR gGmbH,
Talkamatic AB,
Atos Worldline,
Centro Ricerche Fiat SCPA
SRM – SOCIETA RETI E MOBILITÀ SRL

Duration:
1st of October 2012 - 1st of October 2015

Total cost:
4,908,445.00 €

EU funding:
3,591,991.00 €

Project website:
www.simpli-city.eu

Rationale

Analogously to the "App Revolution", SIMPLI-CITY adds a "software layer" to the hardware-driven "product" mobility. SIMPLI-CITY will take 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 applications on top of the mobile device infrastructure. Many of the most advanced and innovative Apps have been developed by third party players.
In order to facilitate an App Revolution in the mobility domain, it is necessary to develop the underlying technologies and software frameworks.

Objectives

SIMPLI-CITY will support developers to efficiently realise and sell their mobility-related service and App ideas by a range of methods and tools, aiming at data integration, service development, and end user interaction. All functionalities facilitated and provided by SIMPLI-CITY are provided in an open, extendable framework.

Results

SIMPLI-CITY will provide such a framework by facilitating the following main project results:

Mobility Service 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 will enable 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 conducts original research and applies 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.

Project Structure

The Work Package (WP) Vision and Requirements (WP2) and the Architecture, Functional & Technical Specification, Security & Privacy Concept, Integration (WP3) provide the foundation for SIMPLI-CITY. Hence, most of the work conducted in these WPs is conducted in the first year of the project. Based on that, WPs 4 to 6 provide the core RTD parts of SIMPLI-CITY, namely researching Mobility Related Data as a Service (WP4), drafting the Mobility Service Framework (WP5) and presenting it to the user in form of a Personal Mobility Assistant (WP6). Based on their results, the (industrial) validation and real world piloting is done in two use cases: Meeting the Increased Mobility Demand (WP7) where there will be a test bed in Bologna and in Dublin, and Enhancing the Driving Experience (WP8) in cooperation with the automotive partner. These use cases will provide a wide range of mobility-related services and end user applications. Exploitation, Dissemination, Collaboration, and Standardisation (WP9) will happen across the duration of the project but the majority of exploitation, dissemination, and standardisation activities will be in the last 12 months. Project Management, Quality Assurance and Reporting (WP1) of course are pervasive throughout the duration of the project.

For further information:
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Fax: +32 2 299 94 99
http://europa.eu/information_society

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SIMPLI-CITY - The Road User Information System of the Future

Figure 4: Project Factsheet (Updated Version from December 2013)

3.1.3 SIMPLI-CITY Press Information Package

In order to facilitate contact with the media a Press Information Package (containing a brief introduction to the project, the project logos in different formats, and some graphical material) was prepared and provided on the project's website for download in August 2013. This Press Information Package was updated regularly.

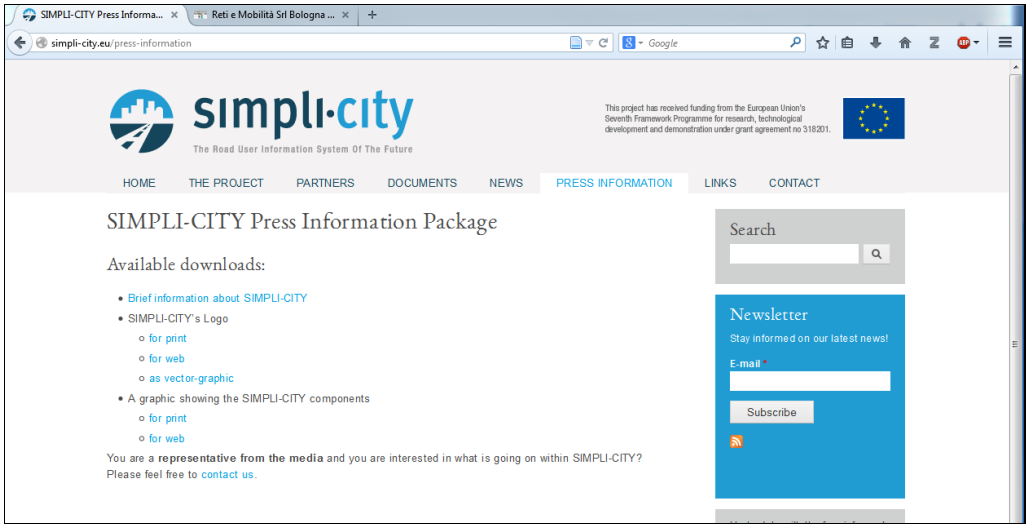

Figure 5: Press Information Package for Download from www.simpli-city.eu

3.1.4 SIMPLI-CITY Roll-up

Two versions of the SIMPLI-CITY roll-up were elaborated and designed, and the partners could individually choose the one that fitted to their needs best. For each partner one roll-up (size: 210 x 85 cm) was produced.

Figure 6: The Two Versions of the SIMPLI-CITY Roll-up

3.1.5 SIMPLI-CITY Poster

Two SIMPLI-CITY posters (format: DIN A1) were created. The posters were designed such that they complement each other and could be displayed either each of them stand-alone or both of them side by side. For each project partner a set of posters was produced.

Figure 7: Set of SIMPLI-CITY Posters

3.1.6 SIMPLI-CITY Pop-up Card

The SIMPLI-CITY pop-up card – a card that pops-up a city in 3D - is an eye-catching means to give brief information about the project and promote the project's website.

In August 2013 each project partner got 200 pop-up cards (format: DIN A4 folded) to be used as support for the partners' promotion activities.

Figure 8: SIMPLI-CITY Pop-up Card

Figure 9: SIMPLICITY Pop-up Card

3.2 Newsletters

In total five newsletters were published within the project duration, the first in project month 12. The newsletters were sent out electronically via email, and in addition hard copies of the newsletters were printed and distributed by the partners in different dissemination events such as workshops, conferences, fairs, exhibitions, etc.

Figure 10: The SIMPLI-CITY Newsletter as Electronic and Printed Version

The first newsletter, which briefly introduced SIMPLI-CITY and gave some basic information about the scope, the objectives and the envisaged results of the project, was sent out in September 2013 in electronic version to the mailing list (35 contacts). Additionally 1000 hard copies were printed and distributed by all 10 partners in several dissemination events.

Figure 11: SIMPLI-CITY Newsletter No. 1

The second newsletter included information about the SIMPLI-CITY user survey and the award winning demo STAR-CITY, as well as a description of the SIMPLI-CITY Information App and an invitation to the first SIMPLI-CITY Workshop. The newsletter was sent out in electronic format to the updated mailing list (130 contacts) at the beginning of April 2014, and in addition 1000 printed versions of the newsletter were distributed.

Figure 12: SIMPLI-CITY Newsletter No. 2

The third SIMPLI-CITY newsletter included an invitation for the SIMPLI-CITY webinar, information about the PMA – SIMPLI-CITY's user interface, and a short report about the Hackathon that was dedicated to SIMPLI-CITY's components' integration. This newsletter issue was distributed electronically to the mailing list (130 contacts) at the beginning of September 2014. In addition 500 hard copies of this newsletter were printed.

Figure 13: SIMPLI-CITY Newsletter No. 3

The fourth SIMPLI-CITY newsletter informed about selected project results with a focus on the Eco-Driving use case and technical results in the fields of sensor data integration and service support. This newsletter issue was distributed electronically to the mailing list (130 contacts) in March 2015. In addition 500 hard copies of this newsletter were printed and distributed by the partners.

Figure 14: SIMPLI-CITY Newsletter No. 4

The fifth and final SIMPLI-CITY newsletter included an invitation to the 2nd SIMPLI-CITY workshop, which was hold as a joint workshop together with 3 other European projects at

the IAA / New Mobility World in Frankfurt on the Main (Germany) at the 23rd of September 2015. Furthermore, the newsletter gave an overview of SIMPLI-CITY's major outcomes and achievements, and presented some of the exploitable project innovations.

Figure 15: SIMPLI-CITY Newsletter No. 5

3.3 SIMPLI-CITY Slide Library

In order to support the partners in their dissemination activities, a slide library providing basic information about the project was prepared. The initial version of the SIMPLI-CITY slide library was available end of October 2013. Throughout the course of the project the slide library was regularly updated to keep pace with the project's developments. In September 2015 the slide library included 36 slides.

Figure 16: Examples of Slides Included in the SIMPLI-CITY Slide Library

3.4 SIMPLI-CITY App

Partner Ascora developed a SIMPLI-CITY information App for Android and iOS devices. This App was released in the Google Play Store and in the Apple App Store in March 2013. It brings news and updates about SIMPLI-CITY on the go. The iOS version takes just 2.2MB and is compatible down to iOS 4 and the iPhone 3GS. The 5-star rated Android version consumes 7.6MB of storage and is compatible for Android 2.2 “Froyo” and newer.

Figure 17: SIMPLI-CITY Information App, Screenshot

3.5 The SIMPLI-CITY Website

The project’s website (http://www.simpli-city.eu) is in operation since 18.12.2012. Throughout the course of the project the website was updated regularly.

It contains information about the project and the partners, includes a section for project related news, and a list of links to thematically related web-resources. Furthermore the website provides the possibility to download the project’s deliverables and abstracts of the publications, and to contact the project’s coordinator.

In addition, during the runtime of the project, the website invited the visitor to subscribe for the SIMPLI-CITY newsletters. From April 2014 to June 2014 an invitation for the SIMPLI-CITY Workshop at the ITS Helsinki and a registration page for the workshop was available on the SIMPLI-CITY website. From July 2014 to September 2014 an invitation for the SIMPLI-CITY Webinar and a registration page for the webinar were available on the SIMPLI-CITY website. From August to September 2015 an invitation for the SIMPLI-CITY Workshop at the IAA New Mobility World in Frankfurt/Main, and a registration page for the workshop were available on the SIMPLI-CITY website.

The following screenshots from www.simpli-city.eu give an impression of the SIMPLI-CITY website.


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PARTNERS
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news
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Award Winning Paper
SIMPLI-CITY Webinar
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This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 318201.
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Stay informed on our latest news!
E-mail *
Subscribe
news
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SIMPLI-CITY – The Road User Information System of the Future
> Read more
SIMPLI-CITY Newsletter
The fifth and final SIMPLI-CITY newsletter is available now!
> Read more
SIMPLI-CITY video
SIMPLI-CITY the next generation road user information system
> Watch video
Up-to-date with the free info app!
Google play
Available on the App Store
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The project
"SIMPLI-CITY – The Road User Information System of the Future" will foster the usage of full-fledged road user information systems – helping drivers to make their journey safer, more comfortable, and more environmentally friendly.
Therefore a holistic framework is needed which structures and bundles potential services that could deliver data from the various sources to road user information systems as well as allows road users to make use of the data and to integrate it into their driving experience.
Thus, by providing such a framework, SIMPLI-CITY will facilitate two main RTD results:
A next-generation European wide service platform allowing the creation of mobility-related services as well as creation of corresponding apps. This will enable third party providers to create a wide range of interoperable, value-added services, and applications for drivers and other road users.
An end user assistant allowing road users to make use of the information provided by applications and to interact with them in a non-distracting way – based on a speech recognition approach.
To reach these results, SIMPLI-CITY will define tools and approaches in following areas:
Adding a "software layer" to the hardware driven "product" mobility, analogously to the "App-Approach. Thereby, the project will support third party developers to efficiently realise and sell their mobility-related service ideas by a range of methods and tools, including the Mobility Services and Application Marketplaces.
Delivering a Mobility Service Framework as the foundation for all services and end user applications facilitated by the project. Based on the latest developments in Service-oriented Computing, the framework will introduce mobility-specific extensions allowing service invocation on different mobile devices whilst considering connectivity quality and other context-related information.
Following the Mobility-related Data as a Service approach allowing data from sensors, cooperative systems, telematics, open data repositories, user-centric sensing, and media data streams to be modelled, accessed, and integrated in a unified way. The Mobility-related Data as a Service approach of SIMPLI-CITY goes far beyond the current possibilities to exploit data in common apps: It will enable service developers to easily integrate data coming from arbitrary, technologically heterogeneous sources.
The elaboration of the SIMPLI-CITY Personal Mobility Assistant (PMA). This PMA will allow end users to interact with services in an intuitive, non-distracting way. The PMA is a voice-based, multimodal user interface and execution environment. It allows application interaction without distracting the potential users, notably drivers, in a much more convenient and precise way than current solutions are able to do. New applications can be integrated into the PMA in order to extent its functionalities for individual needs.
While SIMPLI-CITY enables a wide range of mobility-related services, the project will present its real-world application in two dedicated use cases:
Search
Newsletter
Stay informed on our latest news!
E-mail *
Subscribe
Up-to-date with the free info app!
Google play
Available on the App Store
Press Information
Please click here to visit the press information page.


Components | SIMPLI-CITY
SIMPLI_CITY_Newsletter_N...
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Mobility Service Framework:
A next-generation European-wide service platform allowing the creation of mobility-related services as well as the creation of corresponding Apps. This will enable third party providers to produce a wide range of interoperable, value-added services, and Apps for road users.
Mobility-related Data as a Service:
A framework for the integration of various different data sources like sensors, cooperative systems, telematics, open data repositories, people-centric sensing, and media data streams, so that these data can be accessed and utilised in a unified way.
Personal Mobility Assistant:
An end user assistant that allows road users to make easily use of the information provided by Apps and to interact with them based on a speech recognition approach.
MOBILITY SERVICES FRAMEWORK
Service Development API
Service Runtime Environment
Service Registry
Context-based Service Personalisation
Mobility Service and Application Marketplaces
MOBILITY-RELATED DATA AS A SERVICE
Privacy-aware Data Modelling and Access
Media Data Streams
User-centric Data and Open Data Management
Cloud-based Information Infrastructure
Sensor Abstraction and Interoperability Interfaces
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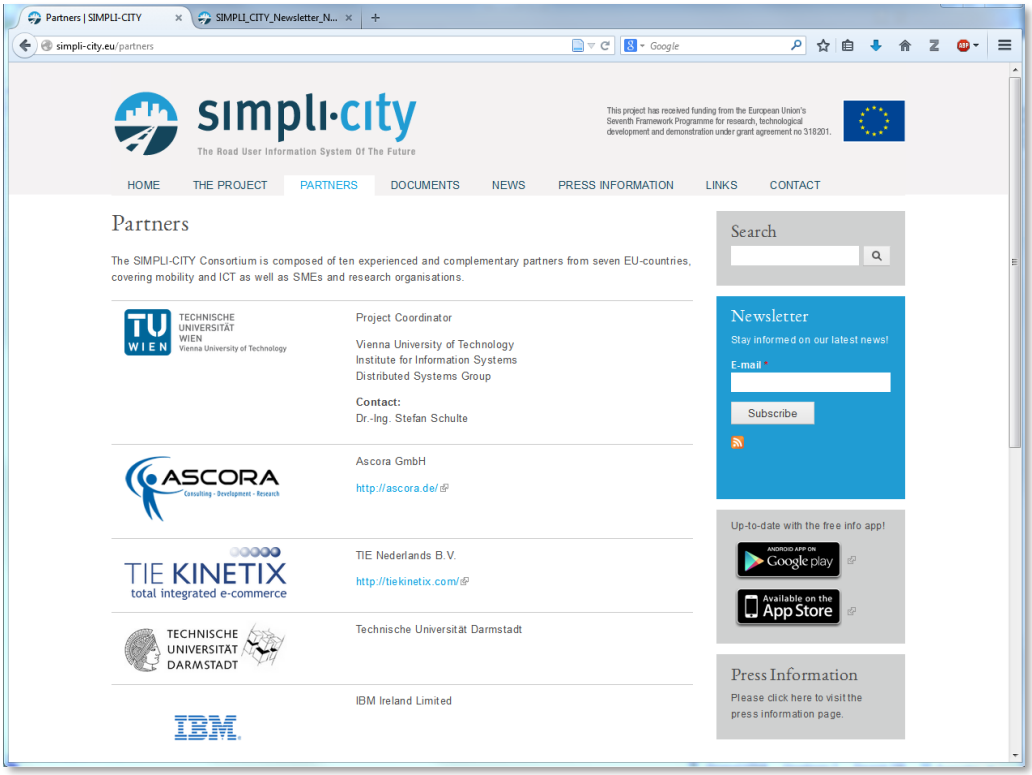
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The SIMPLI-CITY Consortium is composed of ten experienced and complementary partners from seven EU-countries, covering mobility and ICT as well as SMEs and research organisations.
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Project Coordinator
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Publications
2015
P. Hoenisch, I. Weber, S. Schulte, L. Zhu, and A. Fekete, "Four-fold Auto-scaling on a Contemporary Deployment Platform using Docker Containers (accepted for publication)," in 13th International Conference on Service Oriented Computing (ICSOC 2015), Goa, India, 2015, pp. NN-NN.
C. Hochreiner, S. Schulte, S. Dustdar, and F. Lecue, "Elastic Stream Processing for Distributed Environments (accepted for publication)," in IEEE Internet Computing, vol. NN, no. NN, pp. NN-NN, 2015.
P. Hoenisch, D. Schuller, S. Schulte, C. Hochreiner, and S. Dustdar, "Optimization of Complex Elastic Processes (accepted for publication)," in IEEE Transactions on Services Computing, vol. NN, no. NN, pp. NN-NN, 2015.
R. Zabolotnyi, P. Leitner, S. Schulte, S. Dustdar, "SPEEDL - A Declarative Event-Based Language for Cloud Scaling Definition (accepted for publication)," in The Future of Software Engineering For and In Cloud, Visionary Track of IEEE Services 2015, New York, US, 2015, pp. NN-NN.
F. Lecue, "Scalable Maintenance of Knowledge Discovery in an Ontology Stream (accepted for publication)," in Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2015), Buenos Aires, Argentina, 2015, pp. NN-NN.
F. Lecue, J. Z. Pan, "Consistent Knowledge Discovery from Evolving Ontologies (accepted for publication)," in Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI 2015), Austin, Texas, USA, 2015, pp. NN-NN.
C. Hochreiner, "Privacy-Aware Scheduling for Inter-Organizational Processes (accepted for publication)", in 7th Central-European Workshop on Services and their Composition (ZEUS 2015), Jena, Germany, 2015, vol. NN, pp. NN-NN.
D. Burgstahler, S. Zöller, M. Möbus, T. Walter, T. Rückelt and R. Steinmetz, "Navigate.KOM: Datenbankbasierter Informationsansatz für Fahrassistenzsysteme (accepted for publication)", in Proceedings of the AmE 2015 - Automotive meets Electronics, February 2015.
D. Burgstahler, M. Pelzer, A. Lotz, F. Knapp, H. Pu, T. Rückelt and R. Steinmetz,: "A Concept for a C2X-based Crossroad Assistant (accepted for publication)", in Proceedings of the the 2nd IEEE PerCom Workshop on Smart Environments: Closing the Loop (SmartE 2015), March 2015.
2014
W. Hummer, S. Schulte, P. Hoenisch, and S. Dustdar, "Context-Aware Data Prefetching in Mobile Service Environments (accepted for publication)," in The 4th IEEE International Conference on Big Data and Cloud Computing (BDCloud 2014), Sydney, Australia, 2014, pp. NN-NN
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Fifth issue of the SIMPLI-CITY newsletter
Dear Readers, Welcome to the fifth and final SIMPLI-CITY newsletter. During the last three years, the SIMPLI-CITY project has accomplished an...
> Read more
Successful Testing and Integrating Hackathon in Dublin
As the SIMPLI-CITY project is coming to an end, it is time to perfect the prototypes for the final deliverables. In order to do so, at the...
> Read more
SIMPLI-CITY at Collaboration Workshop in Berlin
On May 20th, SIMPLI-CITY met with the related projects MyWay, MOVEUS, STREETLIVE, MOVESMART, PETRA, and TEAM in Berlin to discuss potential...
> Read more
4 SIMPLI-CITY-related papers accepted for publication
The paper "Optimization of Complex Elastic Processes", which presents a novel approach to schedule business processes and optimise the used...
> Read more
SIMPLI-CITY partners work on business-plan
From 11th to 13th of March 2015 SIMPLI-CITY partners met at Vienna University of Technology. During this workshop meeting, collaborative work...
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Figure 18: Screenshots of the SIMPLI-CITY Website (www.simpli-city.eu)

The website's traffic was monitored with the web analytics application Piwik. The table below gives the actual cumulative numbers of visitors and page views for month 6, month 12, month 24, and month 36 of the project.

Table 3: www.simpli-city.eu - Visitors and Page Views (Cumulated Figures)

Metric	**Month 6** **(until 31.03.2013)**	**Month 12** **(until 27.09.2013)**	**Month 24** **(until 09.09.2014)**	**Month 36** **(until 28.09.2015)**
Visits	524	1349	3963	5972
Unique visitors	271	656	2147	3591
Page views	2542	5457	14651	21820
Unique page views	1517	3326	9200	14983

3.6 SIMPLI-CITY Workshops

3.6.1 SIMPLI-CITY Workshop I

The first SIMPLI-CITY workshop „Business meets Science" took place on the 16th of June 2014 in conjunction with the 10th ITS European Congress in Helsinki. The ITS Congress & Exhibition are two of Europe's largest events in the field of Intelligent Transport Systems and Services.

The promotion for the workshop began 2 months before the event. The theme "Business meets Science", related topics and an agenda were elaborated in close cooperation with all partners with the aim to attract as many participants as possible. An invitation with the agenda was designed as a leaflet and was printed (400 copies) and distributed by the partners in order to announce the workshop. From April to June 2014 an invitation for the first SIMPLI-CITY workshop was placed prominently on the SIMPLI-CITY homepage and a special page for the workshop was added to the site http://simpli-city.eu/workshop. Furthermore the workshop was advertised also via other electronic channels such as Facebook and several info-mailings. An article about the workshop was included in the second issue of the SIMPLI-CITY newsletter, which was distributed as electronic and printed version (1000 copies). Also the partners gave their best to convince their contacts as potential workshop guests directly Face-to-Face. Additionally the workshop was announced at the website of the ITS Congress (http://www.itsineurope.com/its10/).

Figure 19: Leaflet for the SIMPLI-CITY Workshop I

Unfortunately, despite the communication effort, the workshop did not lead to the expected success. There were only 16 registrations and finally 11 participants at the workshop. The small amount of participants can be explained with the expensive flight connections to Helsinki on the one hand and the unfavourable time of the workshop starting on Monday morning at 9:30am. (This time for the workshop was strongly recommended by the organisation of ITS).

However, the presentations given at the workshop were interesting and well prepared: a key note speech was given by Nino Zambara, as representative of the European Union. Stefan Schulte (Technical University of Vienna) as representative of the SIMPLI-CITY consortium gave an introduction to the project itself in the context of App development and market movements in Europe. David Burgstahler from the Technical University of Darmstadt presented new findings from the science perspective and showed possible future scenarios of App development in a growing European market. Sven Abels from the private company ASCORA described the business perspective and showed prospects and obstacles for App-developers. And Freddy Lecue from IBM Ireland presented the successful and awarded demonstration STAR-CITY, with digital animations and a small movie. In the panel session the participants took the opportunity for knowledge exchange to ask questions to the experts from the SIMPLI-CITY consortium, before Stefan Schulte summarised the workshop in a wrap-up session.

SIMPLI-CITY Webinar

Since the number of participants at the workshop was quite small, the consortium decided to organise an additional webinar with the same title and similar content as the workshop. The promotion started in July 2014. In addition to a specially designed invitation mailing, the webinar was announced in the third issue of the newsletter, and also promoted by the partners personally to their contacts.

Figure 20: Graphics Designed for Promotion of the SIMPLI-CITY Webinar

The webinar took place on the 18th of September 2014. 40 participants attended the online workshop. The webinar had a duration of 90 minutes. Stefan Schulte informed the participants about the project SIMPLI-CITY, its main challenges and objectives. After this introduction he continued with the Science aspects and showed possible developments of Information Systems in the future. The next presentation was held by Sven Abels who showed prospects and obstacles for App-Developers from the business perspective. Freddy Lecue made the final online presentation and informed the audience about Star-City. After the presentations, questions by the participants were answered by all panellists.

(Please refer to the deliverable D9.3.4 Workshop Report I for more information about the Workshop I and the Webinar.)

3.6.2 SIMPLI-CITY Workshop II

The second workshop "Smart Mobility Services for the Smart City: Architectures and Solutions towards a Service Market Place" took place in the framework of the International Motor Show IAA / New Mobility World (http://newmobilityworld.com/) in Frankfurt on the Main (DE) on the 23rd of September 2015.

SIMPLI-CITY hosted this workshop jointly with 3 further European projects STREETLIFE (www.streetlife-project.eu), PETRA (www.petraproject.eu), and MYWAY (myway-project.eu). The joint workshop was elaborated with the goal to strengthen the collaboration between the 4 projects and moreover to intensify the knowledge transfer. The IAA, the New Mobility World was chosen in order to attract the target group of private business actors.

Experts from science, business and authorities presented and discussed technical solutions with a special focus on smart mobility services for Smart Cities. The interactive workshop included a mixture of presentations and discussions and featured a panel session.

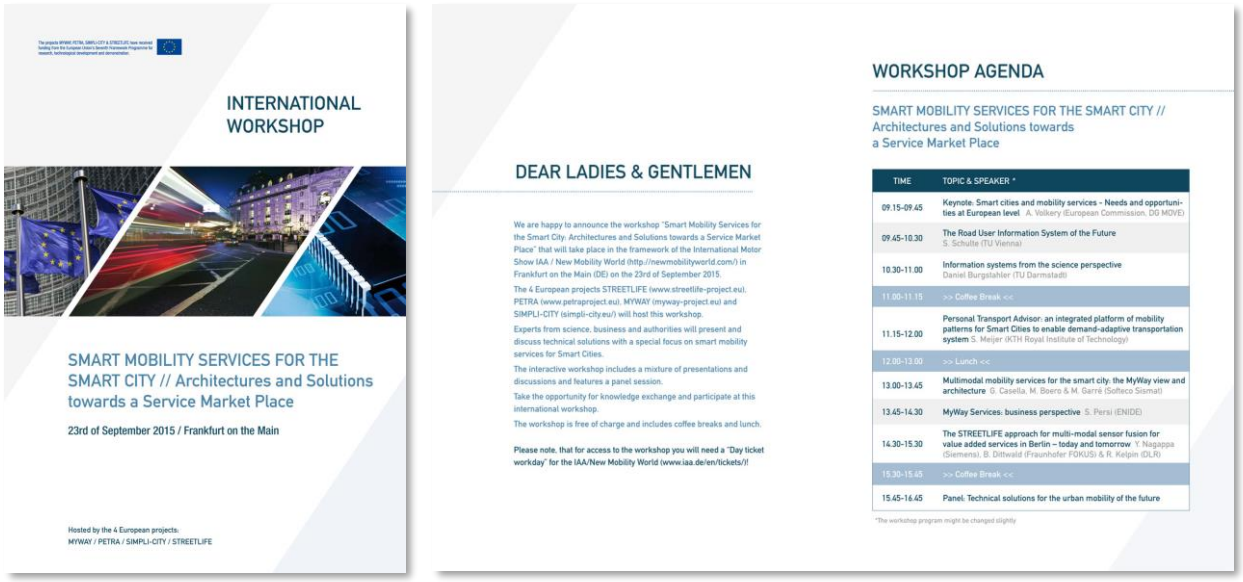

Figure 21: Workshop Invitation with Agenda

The keynote speech was held by the policy officer of Research and Innovative Transport Systems of the Directorate-General for Mobility and Transport of the European Commission Dr Axel Volkery. His presentation “Smart cities and mobility services: Needs and opportunities at European level” gave an introduction into the subject and pointed out the strategy of the European Commission.

After the keynote speech, Stefan Schulte of TU WIEN illustrated the major outcomes and achievements of SIMPLI-CITY with a special focus on its possible impacts for Smart-Cities and the collaboration between the projects.

Afterwards Daniel Burgstahler of TU Darmstadt gave an overview about the Information systems of the future also referring to the project outcomes and their importance for urban areas.

In the afternoon, presentations from the projects STREETLIFE, MyWay, and PETRA introduced their solutions regarding smart mobility services for cities.

At the end of the workshop Jose Lorenzo from ATOS moderated the panel session with the topic “Technical solutions for the urban mobility of the future”. Members of the 4 projects SIMPLI-CITY, STREETLIFE, MyWay and PETRA discussed together with the audience possible ICT solutions for Smart Cities. Stefan Schulte of TU Wien as representative of SIMPLI-CITY took the opportunity to explain the relevance of such ICT projects and their importance for the enhancement of the quality of life in urban areas. (Please refer to the deliverable D9.3.5 Workshop Report II for more information about this workshop.)

3.7 Media Relations

At the beginning of the project, TIE has issued a *press release*, which explains the project and emphasizes the benefits of it. This press release can be reached directly at the following URL addresses:

- TIE Kinetix main web page: http://tiekinetix.com/node/1203
- TIE Kinetix Investor Center: http://investorcenter.tiekinetix.com/news/tie-kinetix-technology-provider-european-union-projects-simpli-city-and-intuitel
- Noodls: http://www.noodls.com/view/332B62CAC9BF18C8AE907D1385C337057BE9F590
- TIE Kinetix's Facebook page: https://www.facebook.com/TIEKinetix/posts/387885421301578?ustart=1
- TIE Kinetix's Official Twitter Account

www.independent.ie/business/irish/ibm-tool-generate

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Friday 12 September 2014

Business Newsletter

Business Irish

IBM tool generates data on Dublin city traffic

Sarah McCabe

EMAIL

PUBLISHED 04/12/2013 | 02:30

SHARE

IBM RESEARCH has generated more than a year's worth of detailed data on Dublin traffic patterns, the company said yesterday, creating a highly effective tool for the city's planners.

The computing giant showcased the "smart cities" technology at its newly

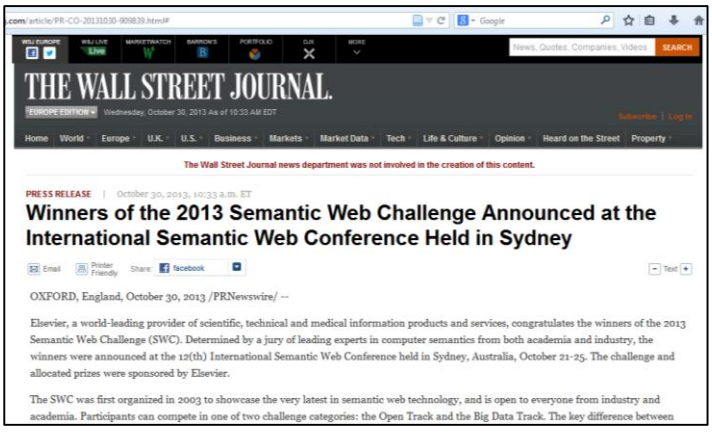
On December 3rd 2013, at the launch of the re-generated IBM Innovation Centre in Dublin, Freddy Lecue from IBM Research – Ireland, a member of the EU FP7 SIMPLI-CITY Consortium, demonstrated and presented the ISWC awarded STAR-CITY (i.e. SIMPLI-CITY WP4 and WP7) to the audience, including several delegates from Irish media. In addition to this presentation Freddy Lecue gave an interview to Irish Independent Newspaper and Sunday Business Post regarding "STAR-CITY"/SIMPLI-CITY.

The article that was published by Irish Independent based on this interview can be found at http://www.independent.ie/business/irish/ibm-tool-generates-data-on-dublin-city-traffic-29807008.html

In June 2014, SIMPLI-CITY partner TU Darmstadt welcomed a group of about 15 German journalists to inform them about the activities of the Multimedia Communication Lab in European projects, including SIMPLI-CITY.

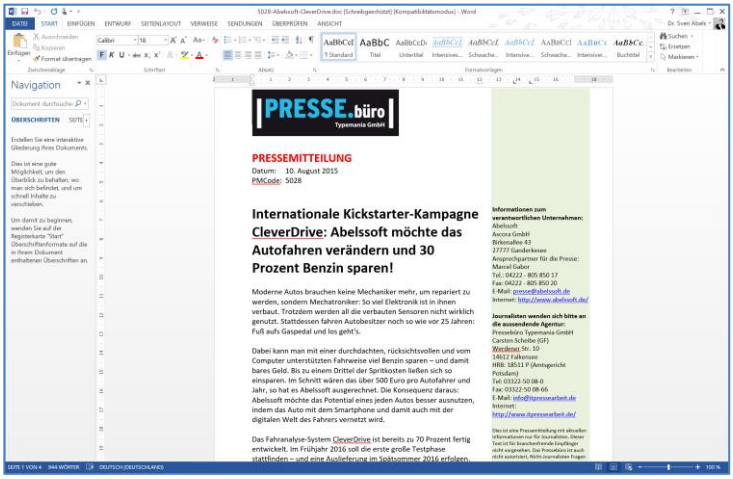
This visit of the journalists at TU Darmstadt led to coverage in different German media:

- RTL: TV report on June 26th 2014: http://www.rtl-hessen.de/video/4780/hessische-projekte-mit-eu-unterstuetzung
- Darmstädter Echo: Newspaper article on June 26th 2014: http://www.echo-online.de/region/suedhessen/EU-Geld-kommt-gut-an-in-Suedhessen;art24719,5169943
- Frankfurter Neue Presse: Newspaper article on June 26th 2014: http://www.kreisblatt.de/rhein-main/So-profitiert-Hessen-von-der-EU;art801,911527



The SIMPLI-CITY related paper "STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY", by Freddy Lecue et al was awarded the 3rd prize in the 2013 Semantic Web Challenge, and thus was announced in a Press Release published online at The Wall Street Journal on October 30, 2013.

http://online.wsj.com/article/PR-CO-20131030-909839.html



In August 2015, partner Ascora created a press release about its mini project CleverDrive, which was published to over 200 German media contacts by a professional agency (Pressebüro Typemania):

http://itpressearbeit.de/2015/08/10/internationale-kickstarter-kampagne-cleverdrive-abelssoft-mochte-das-autofahren-verandern-und-30-prozent-benzin-sparen/

Talkamatic adds Personal Mobility Assistant to SIMPLI-CITY

Pressmeddelande • 2015-09-04 09:05 CEST

The GU Ventures Incubator Company Talkamatic AB in Gothenburg, expert in Dialogue Management systems, has finalized their contribution to the Pan-European project of SIMPLI-CITY. The so-called Personal Mobility Assistant (PMA) is now a fully integrated part of the larger project, enabling European road users to use modern and highly flexible voice dialogue interaction to use multiple applications whilst travelling and moving around.

"It was with great excitement that we accepted the invitation autumn 2013 to join the European SIMPLI-CITY project", states Mr. Fredrik Kronlid, Managing Director at Talkamatic AB. "And

On 4th of September 2015, partner Talkamatic published a press release about the PMA component in SIMPLI-CITY being finalized.

The press release from Talkamatic can be found on the following web addresses:

http://www.talkamatic.se/press-release/
http://www.mynewsdesk.com/se/guventures/pressreleases/talkamatic-adds-personal-mobility-assistant-to-simpli-city-1212395?utm_campaign=send_list&utm_medium=email&utm_source=sendgrid
It was also advertised on the GU Ventures Facebook timeline:
https://www.facebook.com/GU-Ventures-178386592213144/timeline/

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2015-09-30 [Florian Aigner | Presseaussendung 89/2015]

Ein persönlicher Mobilitätsassistent für die Autofahrt

Daten nützen nichts, wenn sie komplex und schwer zugänglich sind. Neue Tools sollen Information zusammenführen und die Mobilität angenehmer, sicherer und umweltfreundlicher machen.

Es gibt unüberblickbar viele Daten, die für uns interessant sein können, während wir im Auto unterwegs sind. Ein Navigationssystem berechnet unsere Fahrtroute, es gibt öffentlich verfügbare Daten über freie Parkplätze in Parkhäusern, die aktuelle Verkehrssituation oder Öffnungszeiten von Stromtankstellen. Unser Terminkalender gibt Auskunft darüber, ob wir es gerade eilig haben, das Auto selbst erhebt über zahlreiche Sensoren Daten, von denen wir oft gar nichts wissen. Gleichzeitig ist das Internet voll von potenziell interessanter Zusatzinformation – etwa über Sehenswürdigkeiten entlang der Fahrtstrecke.

All diese Daten liegen in völlig unterschiedlicher Form vor, daher ist es oft schwierig für uns, sie zu verknüpfen und effizient zu nutzen. Wer will schon während der Fahrt am Smartphone unterschiedliche Webseiten aufrufen und ihre Daten vergleichen? Ein internationales Forschungsprojekt, geleitet von der TU Wien, hat nun eine Datenplattform für mobilitätsbezogene Daten entwickelt.

Angebot für App-Programmierer

„Die App-Revolution im Handymarkt hat gezeigt, dass viele innovative Apps von Drittanbietern zur

At the end of September 2015 TUV published a press release in German language. This press release titled "Ein persönlicher Mobilitätsassistent für die Autofahrt" ("A personal mobility assistant for car drive") informs about the approach and the results of SIMPLI-CITY aiming to make mobility more environmentally friendly, more comfortable, and more safe. It was also published in the news section of the TU Wien website.

http://www.tuwien.ac.at/aktuelles/news_detail/article/9689/

3.8 Scientific Publications

The publication of articles in scientific/technical journals and the presentation of SIMPLI-CITY related research findings at scientific conferences help to reach a wide range of scientists. Thus getting a paper published in an international journal or in conference proceedings supports the objective of promoting the project and its results to the international scientific community. In addition, conferences provide also an opportunity to discuss the findings and results with scientists from different research areas.

Within the runtime of the SIMPLI-CITY project, 33 SIMPLI-CITY related scientific papers have been published by the project partners, and further 3 scientific papers are accepted for publication in the next months.

Table 4 illustrates the relation of the scientific publications and the project's foreground, i.e. it lists the SIMPLI-CITY work packages, which delivered the relevant foreground for the respective papers.

The abstracts of these SIMPLI-CITY related scientific papers published in 2013, 2014, and 2015 can be found in subsections 3.8.1, 3.8.2 and 3.8.3 respectively.

Since the copyright of many of these papers is with the editors, the full papers must not be included in this report, but are submitted to the EC project officer only in a separate confidential document.

Table 4: Scientific Publications and Related SIMPLI-CITY Foreground

Scientific Papers	Related SIMPLI-CITY Work Packages
Enabling Virtual Manufacturing Enterprises with Cloud Computing – An Analysis of Criteria for the Selection of Database as a Service Offers	WP4
Energy-efficient Web Service Invocation on Mobile Devices: The Influence of Compression and Parsing	WP4
Realizing Elastic Processes with ViePEP	WP5
Introducing the Vienna Platform for Elastic Processes	WP5
Exploiting Platform Heterogeneity in Wireless Sensor Networks by Shifting Resource-Intensive Tasks to Dedicated Processing Nodes	WP4
Towards Constructive Evidence of Data Flow-Oriented Web Service Composition	WP4
Predicting Knowledge in An Ontology Stream	WP4
Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes	WP5
Self-Adaptive Resource Allocation for Elastic Process Execution	WP5
Push vs. Pull: An Energy Perspective	WP4
Cost-Driven Optimization of Cloud Resource Allocation for Elastic Processes	WP5
STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY (Semantic Web Challenge 2013)	WP4, WP7
Decision support for Web service adaptation	WP5
STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY (IUI 2014)	WP4, WP7
ViePEP – A BPMS for Elastic Processes	WP5
Towards Scalable Exploration of Diagnoses in an Ontology Stream	WP4, WP7
Predicting Severity of Road Traffic Congestion using Semantic Web Technologies	WP4, WP7
Profiling-Based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds	WP5
Switching Push and Pull: An Energy Efficient Notification Approach	WP4
Where is That Car Parked? A Wireless Sensor Network-Based Approach to Detect Car Positions	WP4
Semantic Traffic Diagnosis with STAR-CITY: Architecture and Lessons Learned from Deployment in Dublin, Bologna, Miami and Rio	WP4, WP7
Informationssysteme für Verkehrsteilnehmer: Datenintegration, Cloud-Dienste und der Persönliche Mobilitätsassistent	WP6
Architecture-centric Design of Complex Message-based Service Systems	WP5
Towards Consistency Checking over Evolving Ontologies (CIKM 2014)	WP4, WP7
Context-Aware Data Prefetching in Mobile Service Environments	WP4
Smart traffic analytics in the semantic web with STAR-CITY: Scenarios, system and lessons learned in Dublin City	WP4, WP7
Four-fold Auto-scaling on a Contemporary Deployment Platform using Docker Containers	WP5
Elastic Stream Processing for Distributed Environments	WP4
Optimization of Complex Elastic Processes	WP5
SPEEDL - A Declarative Event-Based Language for Cloud Scaling Definition	WP5

Scientific Papers	Related SIMPLI-CITY Work Packages
Scalable Maintenance of Knowledge Discovery in an Ontology Stream	WP4, WP7
Consistent Knowledge Discovery from Evolving Ontologies	WP4, WP7
Privacy-Aware Scheduling for Inter-Organizational Processes	WP5
A Concept for a C2X-based Crossroad Assistant," in 2nd IEEE PerCom Workshop on Smart Environments: Closing the Loop	WP4
Navigate.KOM: Datenbankbasierter Informationsansatz für Fahrassistenzsysteme	WP4
Context-Aware Personalization for Smart Mobile Cloud Services	WP4, WP5

3.8.1 Scientific Papers Published in 2013

Push vs. Pull: An Energy Perspective

Reference: D. Burgstahler, U. Lampe, N. Richerzhagen and R. Steinmetz, "Push vs. Pull: An Energy Perspective", in: Proceedings of the 2013 6th IEEE International Conference on Service Oriented Computing & Applications (SOCA 2013), p. 190-193, IEEE Computer Society, December 2013. ISBN 978-1-4799-2701-2.

Abstract: In many application scenarios, such as traffic guidance or ambient living, services need to notify mobile applications about status changes. Such notifications to mobile devices can be realized using two principal approaches, namely push- and pull- based. Apart from functional differences, the two options likely result in different energy consumption, which is an important aspect due to the battery constraints of contemporary mobile devices. This paper provides a detailed assessment of energy consumption in pull- and push-based notification scenarios, considering different payload sizes and notification intervals. Our results indicate that an educated choice among both options may, depending on the specific application scenario, facilitate energy savings of up to 19%.

Enabling Virtual Manufacturing Enterprises with Cloud Computing – An Analysis of Criteria for the Selection of Data base as a Service Offers

Reference: R. Hans, D. Dahlen, S. Zöller, D. Schuller, U. Lampe, "Enabling Virtual Manufacturing Enterprises with Cloud Computing – An Analysis of Criteria for the Selection of Database as a Service Offers", in Américo Azevedo: Advances in Sustainable and Competitive Manufacturing Systems, Porto, Portugal, 2013, pages 427-438.

Abstract: In our globalized world, small and medium-sized enterprises in the manufacturing domain face a highly competitive environment. They are subject to various challenges, such as very short product life cycles and a strong price competition with companies from low-cost countries. To remain competitive in such an environment, new forms of collaborations, like Virtual Manufacturing Enterprises, are required. An essential part of virtual organisations is data provisioning. Thereby, data from various sources like

factories' ERP systems or data provided by sensors need to be processed and stored. In this context, data storage is a crucial architectural element that influences both functional aspects and competitive aspects, especially costs, of Virtual Manufacturing Enterprises. For realizing Virtual Manufacturing Enterprises with low up-front investments, the application of new technologies, such as Cloud Computing, is required. For storage of information in databases "Database as a Service" offers from the Cloud can be exploited. However, since there is a huge amount of providers acting on a non-transparent market, it is difficult to find appropriate "Database as a Service" offerings. To overcome this problem, we provide a criteria catalogue for the selection of providers and their services. Further, we show how different offers, which at the first glance look very similar, could cause very different expenses. With our work, we simplify the selection and evaluation of Cloud storage providers and provide an evaluation of current Cloud storage service offers.

Energy-efficient Web Service Invocation on Mobile Devices: The Influence of Compression and Parsing

Reference: R. Hans, M. Zahn, U. Lampe, A. Papageorgiou, R. Steinmetz: "Energy-efficient Web Service Invocation on Mobile Devices: The Influence of Compression and Parsing", in: Proceedings of the 2nd International Conference on Mobile Services (MS 2013). P. 1-6, Institute of Electrical and Electronics Engineers (IEEE), June 2013. ISBN 978-0-7685-5029-9.

Abstract: In recent years, there has been a rapid growth in the number of smartphone applications, many of which rely on Web services as key building blocks. Unfortunately, the use of such applications and services requires substantial amounts of energy, which is specifically problematic in the context of battery-constrained mobile devices. In this paper, we examine the potential for energy-efficient mobile service consumption through fine-grained experiments. Our results indicate that energy savings of up to 21.5% may be achieved through the sophisticated use of compression, while the choice of an appropriate parsing strategy may yield savings of up to 53.4%. The results of our work facilitate the development of more energy-efficient, service-based mobile applications.

Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes

Reference: P. Hoenisch, S. Schulte, S. Dustdar, "Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes," in 6th IEEE International Conference on Service Oriented Computing and Applications (SOCA 2013), Kauai, HI, USA, 2013, pages 1-8.

Abstract: Today's extensive business process landscapes make it necessary to handle the execution of a large number of workflows. Especially if workflow steps require the invocation of resource-intensive applications or a large number of applications need to be carried out concurrently, process owners may have to

allocate extensive computational resources, leading to high fixed costs. Instead, process owners could make use of Cloud-based computational resources, dynamically leasing and releasing resources on demand, which could lead to lower costs. In the work at hand, we propose a resource-efficient workflow scheduling algorithm for business processes and Cloud-based computational resources. Through the integration into the Vienna Platform for Elastic Processes and an evaluation, we show the practical applicability and the benefits of our contributions. Specifically, we find that our approach reduces the resource demand if compared with an ad hoc approach.

Self-Adaptive Resource Allocation for Elastic Process Execution

Reference: P. Hoenisch, S. Schulte, S. Dustdar and S. Venugopal, “Self-Adaptive Resource Allocation for Elastic Process Execution”, in IEEE 6th International Conference on Cloud Computing (CLOUD 2013), Santa Clara, CA, USA, 2013, pages 220-227.

Abstract: Especially in large companies, business process landscapes may be made up from thousands of different process definitions and instances. As a result, a Business Process Management System (BPMS) needs to be able to handle the concurrent execution of a very large number of workflow steps. Many of these workflow steps may be resource-intensive, leading to ever-changing requirements regarding the needed computing resources to execute them. Using Cloud technologies, it is possible to allocate workflow steps to resources obtained on demand from Cloud platform providers. However, current BPMS do not feature the means to make use of Cloud resources in order to execute workflows. This work presents an approach to automatically lease and release Cloud resources for workflow executions based on knowledge about the current and future process landscape. This approach to self-adaptive resource allocation for elastic process execution is implemented as part of ViePEP, a research BPMS able to handle workflow executions in the Cloud.

Predicting Knowledge in An Ontology Stream

Reference: F. Lecue, J. Z. Pan, “Predicting Knowledge in An Ontology Stream”, in Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013), Beijing, China, 2013, pp. 2662-2669.

Abstract: Recently, ontology stream reasoning has been introduced as a multidisciplinary approach, merging synergies from Artificial Intelligence, Database, World-Wide-Web to reason on semantic augmented data streams. Although knowledge evolution and real-time reasoning have been largely addressed in ontology streams, the challenge of predicting its future (or missing) knowledge remains open and yet unexplored. We tackle predictive reasoning as a correlation and interpretation of past semantics augmented data over exogenous ontology streams. Consistent predictions are constructed as Description Logics entailments by selecting and applying

relevant cross-streams association rules. The experiments have shown accurate prediction with real and live stream data from Dublin City in Ireland.

Towards Constructive Evidence of Data Flow-Oriented Web Service Composition

Reference: F. Lecue, “Towards Constructive Evidence of Data Flow-Oriented Web Service Composition”, in Proceedings of the 12th International Semantic Web Conference (ISWC 2013), Sydney, Australia, 2013, p. 298-313.

Abstract: Automation of service composition is one of the most interesting challenges facing the Semantic Web and the Web of services today. Despite approaches, which are able to infer a partial order of services, its data flow remains implicit and difficult to be automatically generated. Enhanced with formal representations, the semantic links between output and input parameters of services can be then exploited to infer their data flow. This work addresses the problem of effectively inferring data flow between services based on their representations. To this end, we introduce the non-standard Description Logic reasoning join, aiming to provide a “constructive evidence” of why services can be connected and how non trivial links (many to many parameters) can be inferred in data flow. The preliminary evaluation provides evidence in favour of our approach regarding the completeness of data flow.

STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY

Reference: F. Lecue, S. Tallevi-Diotallevi, J. Hayes, R. Tucker, V. Bicer, M. Sbodio, P. Tommasi, “STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY”, awarded the 3rd prize at the Semantic Web Challenge 2013, http://challenge.semanticweb.org/2013/winners.html, IBM Research, Smarter Cities Technology Centre Damastown Industrial Estate, Dublin, Ireland.

Abstract: This paper presents STAR-CITY, a system supporting semantic traffic analytics and reasoning for city. STAR-CITY, which integrates (human and machine-based) sensor data using variety of formats, velocities and volumes, has been designed to provide insight on historical and real-time traffic conditions, all supporting efficient urban planning. Our system demonstrates how the severity of road traffic congestion can be smoothly analyzed, diagnosed, explored and predicted using semantic web technologies. Our prototype of semantics-aware traffic analytics and reasoning, experimented in Dublin City Ireland and Bologna City Italy, works and scales efficiently with real, historical together with live and heterogeneous stream data.

Exploiting Platform Heterogeneity in Wireless Sensor Networks by Shifting Resource-Intensive Tasks to Dedicated Processing Nodes

Reference: A. Reinhardt, D. Burgstahler, “Exploiting Platform Heterogeneity in Wireless Sensor Networks by Shifting Resource-Intensive Tasks to Dedicated Processing Nodes”, in Proceedings of the 14th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), IEEE Press, June 2013, pages 1-9. ISBN 978-1-4673-5826-2.

Abstract: Platform heterogeneity in wireless sensor networks is often seen as a major challenge for application development. Once embedded systems with different processor architectures, computational power, and memory are part of the same network, algorithms and applications must be adapted to this additional degree of complexity. As a result, current sensor network deployments are (with exception of the sink node) commonly comprised of devices of identical make and model. In this paper, we show how device heterogeneity may be exploited to improve the energy efficiency of the sensor network by shifting resource-intensive processing tasks to other nodes within the network. To this end, we analyse the energy demand for representative processing operations and wireless communications on six heterogeneous state-of-the-art sensor platform types. Based on the created models, we assess the achievable energy savings when tasks are shifted to more powerful processing nodes. Our results show that platform heterogeneity, although often being perceived as a hindrance to the easy deployment of applications, also serves as an enabler for increased energy efficiency of the network.

Introducing the Vienna Platform for Elastic Processes

Reference: S. Schulte, P. Hoenisch, S. Venugopal and S. Dustdar, “Introducing the Vienna Platform for Elastic Processes”, in Performance Assessment and Auditing in Service Computing Workshop (PAASC 2012) at 10th International Conference on Service Oriented Computing (ICSOC 2012), Shanghai, China, volume 7759 of Lecture Notes on Computer Science, 2013, pages 179-190.

Abstract: Resource-intensive tasks are playing an increasing role in business processes. The emergence of Cloud computing has enabled the deployment of such tasks onto resources sourced on-demand from Cloud providers. This has enabled so-called elastic processes that are able to dynamically adjust their resource usage to meet varying workloads. Traditional Business Process Management Systems (BPMSs) do not consider the needs of elastic processes such as monitoring facilities, tracking the current and future system landscape, reasoning about optimally utilizing resources given Quality of Service constraints, and executing necessary actions (e.g., start/stop servers, move services). This paper introduces ViePEP, a research BPMS capable of handling the aforementioned requirements of elastic processes.

Realizing Elastic Processes with ViePEP

Reference: S. Schulte, P. Hoenisch, S. Venugopal and S. Dustdar, “Realizing Elastic Processes with ViePEP”, in 10th International Conference on Service Oriented Computing (ICSOC 2012) – Demos, volume 7759 of Lecture Notes on Computer Science, 2013, pages 439-443.

Abstract: Online business processes are faced with varying workloads that require agile deployment of computing resources. Elastic processes leverage the on-demand provisioning ability of Cloud Computing to allocate and de-allocate resources as required to deal with shifting demand. To realize elastic processes, it is necessary to track the current and future system landscape,

monitor the process execution, reason about how to utilize resources in an optimal way, and carry out the necessary actions (e.g., start/stop servers, move services).
Traditional Business Process Management Systems (BPMS) do not consider such needs of elastic process. Within this demo, we present ViePEP, a research BPMS able to execute and monitor resource-, costand QoS-elastic, service-based workflows and optimize the overall system landscape based on a reasoning of the non-functional requirements of current and forthcoming elastic processes.

Cost-Driven Optimization of Cloud Resource Allocation for Elastic Processes

Reference: S. Schulte, D. Schuller, P. Hoenisch, U. Lampe, S. Dustdar, and R. Steinmetz, “Cost-Driven Optimization of Cloud Resource Allocation for Elastic Processes”, International Journal of Cloud Computing, vol. 1, no. 2, pp. 1-15, 2013.

Abstract: Today's extensive business process landscapes make it necessary to handle the execution of a large number of business processes and individual process steps. Especially if process steps require the invocation of resource-intensive applications or a large number of applications need to be executed concurrently, process owners may have to allocate extensive computational resources, leading to high fixed cost. In the work at hand, we propose an alternative to the provision of fixed resources, based on automatic leasing and releasing of Cloud-based computational resources. For this, we present an integrated approach which addresses the cost-driven optimization of Cloud-based computational resources for business processes in order to realize so-called Elastic Processes. Through an evaluation, we show the practical applicability and benefits of our contributions. Specifically, we find that our approach substantially reduces the cost compared to an ad hoc approach.

3.8.2 Scientific Papers Published in 2014

Where is That Car Parked? A Wireless Sensor Network-Based Approach to Detect Car Positions

Reference: D. Burgstahler, F. Knapp, S. Zöller, T. Rückelt, and R. Steinmetz, "Where is That Car Parked? A Wireless Sensor Network-Based Approach to Detect Car Positions", in 9th IEEE LCN International Workshop on Practical Issues in Building Sensor Network Applications (IEEE SenseApp 2014), Edmonton, Canada, 2014, pp. 514-522.

Abstract: The global trend of increased urbanization makes space rare in city environments in general and for parking in particular. In addition, cars become bigger and often use more than one parking space. As a result neighbouring parking spaces can be affected by a parked car. So, a basically free parking space might be too narrow for an arriving car depending on the arriving car’s size. Therefore, means to detect car positions on parking spaces in a fine granular way are required to detect such situations and avoid inefficient

parking space searches. Wireless sensor networks provide the possibility to sense the exact occupation of a parking space and potential influences on neighbouring parking spaces. However, current solutions focus only on the detection if a parking space is occupied or not. In our work, we present a sensor deployment and a machine learning-based approach able to provide the mentioned more fine-granular detection level. We have conducted an extensive real-world evaluation of our solution, in particular considering different characteristics of today's car bodies. In our tests, our approach achieved an accuracy of more than 98%.

Switching Push - Pull: An Energy Efficient Notification Approach

Reference: D. Burgstahler, N. Richerzhagen, F. Englert, R. Hans, and R. Steinmetz, "Switching Push - Pull: An Energy Efficient Notification", in: 3rd International Conference on Mobile Services (MS 2014), Anchorage, AK, USA, 2014, p. 68-75. ISBN 978-1-4799-5060-7.

Abstract: An increasing number of modern smartphone applications are dependent on information updates from the cloud. To realize such information updates mainly two communication approaches are common, namely push- and pull. Due to different communication patterns both approaches differ in their energy consumption and notification latency. The energy constrained nature of mobile devices entails a sensible selection of the appropriate notification approach. In this paper we provide an evaluation of the energy consumption of both communication approaches. Based on this we provide a transition approach that is able to use the best of both, low latency and low energy consumption. Our results show that energy savings of up to 7% of the total smartphone battery per day can be achieved by switching between both approaches, depending on the context.

Informationssysteme für Verkehrsteilnehmer: Datenintegration, Cloud-Dienste und der Persönliche Mobilitätsassistent

Reference: D. Burgstahler, S. Schulte, S. Abels, K. Kipp, P. Hoenisch, S. Dustdar, and R. Steinmetz, "Informationssysteme für Verkehrsteilnehmer: Datenintegration, Cloud-Dienste und der Persönliche Mobilitätsassistent", in: PIK - Praxis der Informationsverarbeitung und Kommunikation, vol. 37, December 2014, pp. 197-213.

Abstract: In theory, road users can use a variety of information sources these days. However, in practice the usage of this huge amount of available information is rather difficult for the end-user, since the information is presented in various different apps, software services or other data sources. Thus a comprehensive view of the information that is relevant for road users is difficult or sometimes even not possible. In this article different research approaches in the field of information systems for road users are presented, which should support software developers with provision of relevant information to end-users. Among these approaches are data integration, usage of mobility data in

cloud services and integration of cloud services into a personal mobility assistant, which offers a multimodal user interface.

Architecture-centric Design of Complex Message-based Service Systems

Reference: C. Dorn, P. Waibel, S. Dustdar, “Architecture-centric Design of Complex Message-based Service Systems”, in the 12th International Conference on Service Oriented Computing (ICSOC 2014), Paris, France, 2014, pp. 184-198.

Abstract: Complex, message-based service systems discourage central execution control, require extremely loose coupling, have to cope with unpredictable availability of individual (composite) services, and may experience a dynamically changing number of service instances. At the topmost level, the architecture of such a complex system often follows a messaging style most naturally. A major problem during the design of these systems is achieving an overall consistent configuration (i.e., ensuring intended message routing across producers, consumers, and brokers). While orchestration or choreography-based approaches support the design of individual composite services along a workflow-centric paradigm, they are an awkward fit for specifying a message-centric architecture. In this paper, we present an architecture-centric approach to designing complex service systems. Specifically we propose modelling the system's high-level architecture with an architecture description language (ADL). The ADL captures the message-centric configuration which subsequently allows for consistency checking. An architecture-to-configuration transformation ensures that the individual deployed services follow the architecture without having to rely on a central coordinator at runtime. Utilizing our provided tool support, we demonstrate the successful application of our methodology on a real world service system.

ViePEP – A BPMS for Elastic Processes

Reference: P. Hoenisch, “ViePEP – A BPMS for Elastic Processes”, in 6th Central-European Workshop on Services and their Composition (ZEUS 2014), Potsdam, Germany, published on CEUR-WS Vol-1140, pages 61-68.

Abstract: In today’s IT industry resource-intensive tasks are playing an increasing role in business processes. By the emergence of Cloud computing it is nowadays possible to deploy such tasks onto computing resources leased in an on-demand fashion from Cloud providers. This enabled the realization of so-called Elastic Processes (EPs). These are able to dynamically adjust their used resources in order to meet varying workloads. Till now, traditional Business Process Management Systems (BPMSs) do not consider the needs of Elastic Processes such as monitoring the current system load, reasoning about optimally utilized resources, in order to ensure given Quality of Service constraints while executing required actions such as starting, stopping servers or moving services from one server to another. This paper focuses on our current work on ViePEP, a research BPMS for the Cloud capable of handling the aforementioned requirements of EPs.

Context-Aware Data Prefetching in Mobile Service Environments

Reference: W. Hummer, S. Schulte, P. Hoenisch, and S. Dustdar, “Context-Aware Data Prefetching in Mobile Service Environments”, in The 4th IEEE International Conference on Big Data and Cloud Computing (BDCloud 2014), Sydney, Australia, 2014, pp. 214-221.

Abstract: Mobile environments, such as vehicular communication systems (VCSs), are typically subjected to network fluctuations and intermittent downtimes, e.g., if service consumers operate in a tunnel or switch between cells of an ISP. In this work, we present an approach for service and data prefetching from the Cloud, which allows to ensure continuous service delivery and consistent quality of experience (QoE). We leverage the fact that most applications have typical access patterns, for instance streaming, or polling in regular intervals. In our system model, we consider the context under which the consumer is currently executing, including time, location, and projected route (e.g., known from GPS navigation). Based on projections for network quality at future locations, we propose a decision problem for optimizing data prefetching and continuous QoE, and discuss different mechanisms for generating service requests for prefetching. We thoroughly evaluate our approach based on a popular data set of vehicular GPS traces in Switzerland, which we deploy and simulate in a Cloud environment. In our experiments we compare prefetching approaches and address different aspects, including successful and unsuccessful invocations, prefetching hits and misses, as well as age and usage of prefetched results.

Towards Scalable Exploration of Diagnoses in an Ontology Stream

Reference: F. Lecue, "Towards Scalable Exploration of Diagnoses in an Ontology Stream", in 28th Conference on Artificial Intelligence (AAAI 2014), Québec City, Québec, Canada, pp. 87-93.

Abstract: Diagnosis, or the process of identifying the nature and cause of an anomaly in an ontology, has been largely studied by the SemanticWeb community. In the context of ontology stream, diagnosis results are not captured by a unique fixed ontology but numerous time-evolving ontologies. Thus any anomaly can be diagnosed by a large number of different explanations depending on the version and evolution of the ontology. We address the problems of identifying, representing, exploiting and exploring the evolution of diagnoses representations. Our approach consists in a graph-based representation, which aims at (i) efficiently organizing and linking time-evolving diagnoses and (ii) being used for scalable exploration. The experiments have shown scalable diagnoses exploration in the context of real and live data from Dublin City.

Smart traffic analytics in the semantic web with STAR-CITY: Scenarios, system and lessons learned in Dublin City

Reference: F. Lecue, S. Tallevi-Diotallevi, J. Hayes, R. Tucker, V. Bicer, M. Sbodio, P. Tommasi, "Smart traffic analytics in the semantic web with STAR-CITY: Scenarios, system and lessons learned in Dublin City (available online)",

Journal of Web Semantics - Web Semantics: Science, Services and Agents on the World Wide Web, vol. 27-28, pp. 26-33, 2014

Abstract: This paper gives a high-level presentation of STAR-CITY, a system supporting semantic traffic analytics and reasoning for city. STAR-CITY, which integrates (human and machine-based) sensor data using variety of formats, velocities and volumes, has been designed to provide insight on historical and real-time traffic conditions, all supporting efficient urban planning. Our system demonstrates how the severity of road traffic congestion can be smoothly analysed, diagnosed, explored and predicted using semantic web technologies. Our prototype of semantics-aware traffic analytics and reasoning, illustrated and experimented in Dublin Ireland, but also tested in Bologna Italy, Miami USA and Rio Brazil works and scales efficiently with real, historical together with live and heterogeneous stream data. This paper highlights the lessons learned from deploying and using a system in Dublin City based on Semantic Web technologies.

STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY

Reference: F.Lecue, S. Tallevi-Diotallevi, J. Hayes, R. Tucker, V. Bicer, M. Sbodio, P. Tommasi, "Star-City: Semantic Traffic Analytics and Reasoning for CITY", in ACM International Conference on Intelligent user Interface (IUI 2014). Haifa, Israel, 2014, pp. 179-188.

Abstract: This paper presents STAR-CITY, a system supporting semantic traffic analytics and reasoning for city. STAR-CITY, which integrates (human and machine-based) sensor data using variety of formats, velocities and volumes, has been designed to provide insight on historical and real-time traffic conditions, all supporting efficient urban planning. Our system demonstrates how the severity of road traffic congestion can be smoothly analyzed, diagnosed, explored and predicted using semantic web technologies. We present how semantic diagnosis and predictive reasoning, both using and interpreting semantics of data to deliver useful, accurate and consistent inferences, have been exploited and adapted systematized in an intelligent user interface. Our prototype of semantics-aware traffic analytics and reasoning, experimented in Dublin City Ireland, works and scales efficiently with historical together with real live and heterogeneous stream data.

Predicting Severity of Road Traffic Congestion using Semantic Web Technologies

Reference: F. Lecue, R. Tucker, V. Bicer, P. Tommasi, S. Tallevi-Diotallevi, M. Sbodio “Predicting Severity of Road Traffic Congestion using Semantic Web Technologies”, in 11th Extended Semantic Web Conference (ESWC 2014), Anissaras, Crete, Greece, 2014, DOI 10.1007/978-3-319-07443-6_41, Online ISBN 978-3-319-07443-6, pp. 611-627.

Abstract: Predictive reasoning, or the problem of estimating future observations given some historical information, is an important inference task for obtaining insight on cities and supporting efficient urban planning. This paper, focusing on transportation, presents how severity of road traffic congestion can be

predicted using semantic Web technologies. In particular we present a system which integrates numerous sensors (exposing heterogeneous, exogenous and raw data streams such as weather information, road works, city events or incidents) to improve accuracy and consistency of traffic congestion prediction. Our prototype of semantics-aware prediction, being used and experimented currently by traffic controllers in Dublin City Ireland, works efficiently with real, live and heterogeneous stream data. The experiments have shown accurate and consistent prediction of road traffic conditions, main benefits of the semantic encoding.

Semantic Traffic Diagnosis with STAR-CITY: Architecture and Lessons Learned from Deployment in Dublin, Bologna, Miami and Rio

Reference: F. Lecue, R. Tucker, S. Tallevi-Diotallevi, G. Liguori, M. Borioni, R. Nair, Y. Gfoukas, A. Rademaker, L. Barbosa, “Semantic Traffic Diagnosis with STAR-CITY: Architecture and Lessons Learned from Deployment in Dublin, Bologna, Miami and Rio”, in the 13th International Semantic Web Conference (ISWC 2014), Trento, Italy, 2014, pp. 292-307.

Abstract: IBM STAR-CITY is a system supporting Semantic road Traffic Analytics and Reasoning for CITY. The system has been designed (i) to provide insight on historical and real-time traffic conditions, and (ii) to support efficient urban planning by integrating (human and machine based) sensor data using variety of formats, velocities and volumes. Initially deployed and experimented in Dublin City (Ireland), the system and its architecture have been strongly limited by its flexibility and scalability to other cities. This paper describes its limitations and presents the “any-city” architecture of STAR-CITY together with its semantic configuration for flexible and scalable deployment in any city. This paper also strongly focuses on lessons learnt from its deployment and experimentation in Dublin (Ireland), Bologna (Italy), Miami (USA) and Rio (Brazil).

Decision support for Web service adaptation

Reference: A. Papageorgiou, A. Miede, S. Schulte, D. Schuller and R. Steinmetz, “Decision support for Web service adaptation”, Pervasive and Mobile Computing, vol. 12, Jun. 2014, pp. 197-213.

Abstract: With the Internet of Services, Web services from all areas of life and business will be offered to service consumers. Even though Web service technologies make it easy to consume services on arbitrary devices due to their platform independence, service messaging is heavyweight. This may cause problems if services are invoked using devices with limited resources, e.g., smartphones. To overcome this issue, several adaptation mechanisms to decrease service messaging have been proposed. However, none of these are the best-performing under all possible system contexts. In this paper, we present a decision support system that aims at helping an operator to apply appropriate adaptation mechanisms based on the system context. We formulate the corresponding decision problem and present two scoring algorithms – one

Quality of Service-based and one Quality of Experience-based.
Missing data and, thus, an incomplete system context is a serious challenge for scoring algorithms. Regarding the problem at hand, missing data may lead to errors with respect to the recommended adaptation mechanisms. To address this challenge, we apply the statistical concept of imputation, i.e., substituting missing data. Based on the evaluation of different imputation algorithms used for one of our scoring algorithms, we show which imputation algorithms significantly decrease the error imposed by the missing data and decide whether imputation algorithms tailored to our scenario should be investigated.

Towards Consistency Checking over Evolving Ontologies

Reference: J. Wu and F. Lecue, “Towards Consistency Checking over Evolving Ontologies”, in the 23rd ACM Conference on Information and Knowledge Management (CIKM 2014), Shanghai, China, November 3-7, 2014, pp. 909-918.

Abstract: Data captured in OWL ontologies is generally considered to be more prone to changes than the schema in many situations. Such changes often necessitate consistency checking over the resulting ontologies in order to maintain coherent knowledge, specifically in dynamic settings. In this paper, we present an approach to check the consistency over an evolving ontology resulting from data insertions and deletions, given by some expressive underlying Description Logic dialect. The approach, assuming an initially consistent ontology, works by syntactically identifying “relevant" and representative parts of the data for the given updates, i.e., the part that may contribute to subsequent consistency checking. Our approach has demonstrated its efficacy in checking consistency over large and real-world ontologies and outperforms existing approaches in several circumstances.

Profiling-Based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds

Reference: R. Zabolotnyi, P. Leitner, and S. Dustdar, "Profiling-Based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds", in 40th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2014), Verona, Italy, 2014, pp. 119-126.

Abstract: With the recent advances of cloud computing, effective resource usage (e.g., CPU, memory or network) becomes an important question as application developers have to continuously pay for rented resources, even if they are not used effectively. In order to maintain required performance levels, it is currently common to reserve resources for peak resource usage or possible resource usage overlaps, if more than one task is executed on a host. While this is a reasonable approach for long-running applications or web servers, for some applications with disperse resource usage over time, this strategy causes significant over-provisioning and thus resource wastage and financial loss. In this paper we present a profiling-based task scheduling approach for

factory-worker applications that schedules tasks within the defined resource limitations (e.g., existing machine memory size or network quota) and distributes the tasks in the cloud environment in order to use resources effectively. The evaluation of our approach approved the efficiency of the proposed algorithm and minimal performance overhead. In case of the evaluated application, the presented scheduling process leads up to 33% resource savings with only 1% of performance loss.

3.8.3 Scientific Papers Published in 2015

A Concept for a C2X-based Crossroad Assistant

Reference: D. Burgstahler, M. Pelzer, A. Lotz, F. Knapp, H. Pu, T. Rückelt, and R. Steinmetz, “A Concept for a C2X-based Crossroad Assistant”, in 2nd IEEE PerCom Workshop on Smart Environments: Closing the Loop (SmartE 2015), St. Louis, Missouri, 2015, pp. 360-364.

Abstract: In urban crossroad areas the traffic flow is commonly not efficient. This results in an unnecessary high traffic density within cities and a resulting environmental pollution by the waste of fuel. To improve this situation, the driver should be enabled to better slow down, to better accelerate, to better decide, to better come in and to better follow within crossroads. This can be achieved by a C2X-based crossroads assistant that brings information about crossroads with lanes and traffic lights on time to the driver to decide on a convenient crossing strategy. Within this paper we introduce our concept for such a crossroads assistant that is based on newly standardized C2X message types. We have developed a novel graphical user interface for interpreting this new information sources in an intuitive, informative but not distractive way to the driver. A first prototype is already implemented and under test.

Navigate.KOM: Datenbankbasierter Informationsansatz für Fahrassistenzsysteme

Reference: D. Burgstahler, S. Zöller, M. Möbus, T. Walter, T. Rückelt, and R. Steinmetz, “Navigate.KOM: Datenbankbasierter Informationsansatz für Fahrassistenzsysteme”, in 6. GMM-Fachtagung, AmE 2015 – Automotive meets Electronics, Dortmund, Germany, 2015, pp. 111-116.

Abstract: Most infotainment-based driver assistance systems, e.g., the navigation system, are based on relatively static map data combined with a continuous data acquisition from different vehicle sensors. In addition, the current position is received with an external antenna, commonly by the use of GPS. Additional information, e.g., congestion information, is already available in combination with a cellular communication module. The application feature itself, e.g., a route calculation, is commonly based on all available data according to a user selected priority, e.g., fastest route. However, a lot of further parameters cannot be considered because of so far missing acquisition techniques. As an example, one could mention the daily changes in the road network in terms of

roadworks, temporarily erected traffic signs, diversions, and many more. Many modern vehicles are already equipped with sensors that are able to detect such changes. Our approach is to transfer such newly gained knowledge to a central information server. This causes the users of this extended information set also to contribute, similar the crowdsourcing concept. On the server side, the received information is firstly filtered and processed. Redundancy is used to increase reliability and accuracy. For the communication management between the vehicles and the central information server we use a message broker. Vehicles can publish detected information to the broker and request location dependent information as additional information. In our setup we have used an Android smartphone as mobile device platform. This enables high flexibility and also allows to continue the usage of the application outside of the vehicle. In our particular setup, traffic signs are detected by a vehicle built-in camera and the information is transferred to the vehicle data bus. By the use of a CAN adapter, this information is read out by a mini computer and transferred via Wi-Fi to the smartphone. As mentioned before, the data is send to the message broker that relays the data to the information server.

Privacy-Aware Scheduling for Inter-Organizational Processes

Reference: C. Hochreiner, “Privacy-Aware Scheduling for Inter-Organizational Processes” in 7th Central-European Workshop on Services and their Composition (ZEUS 2015), Jena, Germany, 2015, CEUR-WS, vol. 1360, pp. 63-68.

Abstract: Due to the increasing specialization of companies in a globalized world, inter-organizational process enactments have become increasingly relevant in recent years. Nevertheless there are hardly any scheduling approaches that meet the requirements of these inter-organizational processes, especially in terms of privacy aspects. In this paper we present a privacy-aware scheduling approach for hybrid clouds, which represents a vital starting point to design a holistic execution environment for inter-organizational process enactments.

Elastic Stream Processing for Distributed Environments

Reference: C. Hochreiner, S. Schulte, S. Dustdar, and F. Lecue, “Elastic Stream Processing for Distributed Environments (accepted for publication)”, in IEEE Internet Computing, vol. NN, no. NN, pp. NN-NN, 2015.

Abstract: The current development towards the Internet of Things introduces new demands and the need for more flexibility for stream processing models. To counter these challenges, the authors propose an elastic stream processing model for a distributed environment, building on top of Cloud computing and allowing a scalable and more flexible solution compared to traditional approaches Elastic Stream Processing in a Distributed Environment.

Optimization of Complex Elastic Processes

Reference: P. Hoenisch, D. Schuller, S. Schulte, C. Hochreiner, and S. Dustdar, “Optimization of Complex Elastic Processes (accepted for publication)”, in

IEEE Transactions on Services Computing, vol. NN, no. NN, pp. NN-NN, 2015.

Abstract: Business Process Management is a matter of great importance in different industries and application areas. In many cases, it involves the execution of resource-intensive tasks in terms of computing power such as CPU and RAM. Due to the emergence of Cloud computing, theoretically unlimited resources can be used for the enactment of business processes. These Cloud resources render several challenges for Business Process Management Systems to ensure a predefined Quality of Service level during Cloud-based process enactment. Therefore, new solutions for process scheduling and resource allocation are required to tackle these challenges. Within this paper, we present a novel approach to schedule business processes and optimize the used Cloud-based computational resources in a cost-efficient way, thus realizing so-called elastic processes. For that, we specify the Service Instance Placement Problem, i.e., an optimization model which defines the setting of how service instances are scheduled among resources. Through extensive evaluations we show the benefits of our contributions and compare the novel approach against a baseline which follows an ad hoc approach.

Four-fold Auto-scaling on a Contemporary Deployment Platform using Docker Containers

Reference: P. Hoenisch, I. Weber, S. Schulte, L. Zhu, and A. Fekete, “Four-fold Auto-scaling on a Contemporary Deployment Platform using Docker Containers (accepted for publication)”, in 13th International Conference on Service Oriented Computing (ICSOC 2015), Goa, India, 2015, pp. NN-NN.

Abstract: With the advent of Docker, it becomes popular to bundle Web applications (apps) and their libraries into lightweight linux containers and offer them to a wide public by deploying them in the cloud. Compared to previous approaches, like deploying apps in cloud-provided virtual machines (VMs), the use of containers allows faster start-up and less overhead. However, having containers inside VMs makes the decision about elastic scaling more flexible but also more complex. In this contemporary approach to service provisioning, four dimensions of scaling have to be considered: VMs and containers can be adjusted horizontally (changes in the number of instances) and vertically (changes in the computational resources available to instances). In this paper, we address this four-fold auto-scaling by formulating the scaling decision as a multi-objective optimization problem. We evaluate our approach with realistic apps, and show that using our approach we can reduce the average cost per request by about 20-28%.

Context-Aware Personalization for Smart Mobile Cloud Services

Reference: W. Hummer, S. Schulte, “Context-Aware Personalization for Smart Mobile Cloud Services”, in 2nd Workshop on Intelligent Service Clouds, co-located with ICSOC'15, Goa, India, 2015, pp. NN-NN.

Abstract: The advent of the Internet of Things and the increasing sensorization of smart devices that surround us in our everyday lives are spurring the demand for

context-aware applications to offer personalized services. With the rapid advances in sensor technology, distributed software architectures and backend infrastructures need to be able to systematically deal with increasing amounts of real-time context data. In this paper, we present an approach for intelligent service clouds to cater for the new challenges associated with complex context-aware applications. Based on an illustrative scenario from the connected car domain, we introduce a detailed system model and approach for context-based personalization of mobile services. Our solution focuses on a three-phase approach with context change analysis, context state management, and context-triggered adaptation actions. We discuss details of our prototype implementation and put the contributions into perspective with the related work. After discussing our preliminary results, we draw a roadmap for future work towards context-aware vehicle information systems.

Scalable Maintenance of Knowledge Discovery in an Ontology Stream

Reference: F. Lecue, “Scalable Maintenance of Knowledge Discovery in an Ontology Stream”, in Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2015), Buenos Aires, Argentina, 2015, pp. NN-NN.

Abstract: In dynamic settings where data is exposed by streams, knowledge discovery aims at learning associations of data across streams. In the semantic Web, streams expose their meaning through evolutive versions of ontologies. Such settings pose challenges of scalability for discovering (a posteriori) knowledge. In our work, the semantics, identifying knowledge similarity and rarity in streams, together with incremental, approximate maintenance, control scalability while preserving accuracy of streams associations (as semantic rules) discovery.

Consistent Knowledge Discovery from Evolving Ontologies

Reference: F. Lecue, J. Z. Pan, “Consistent Knowledge Discovery from Evolving Ontologies”, in Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI 2015), Austin, Texas, USA, 2015, pp. 189-195.

Abstract: Deductive reasoning and inductive learning are the most common approaches for deriving knowledge. In real world applications when data is dynamic and incomplete, especially those exposed by sensors, reasoning is limited by dynamics of data while learning is biased by data incompleteness. Therefore discovering consistent knowledge from incomplete and dynamic data is a challenging open problem. In our approach the semantics of data is captured through ontologies to empower learning (mining) with (Description Logics) reasoning. Consistent knowledge discovery is achieved by applying generic, significative, representative association semantic rules. The experiments have shown scalable, accurate and consistent knowledge discovery with data from Dublin.

SPEEDL - A Declarative Event-Based Language for Cloud Scaling Definition

Reference: R. Zabolotnyi, P. Leitner, S. Schulte, S. Dustdar, “SPEEDL - A Declarative Event-Based Language for Cloud Scaling Definition”, in The Future of Software Engineering For and In Cloud, Visionary Track of IEEE Services 2015, New York, US, 2015, pp. 71-78.

Abstract: Contemporary cloud providers offer out-of-the-box auto-scaling solutions. However, defining a nontrivial scaling behavior that goes beyond the feature set provided by existing solutions is still challenging. In this paper we present SPEEDL, a declarative and extensible domain-specific language that simplifies the creation of elastic scaling behavior on top of IaaS clouds. SPEEDL simplifies the creation of event-driven policies for resource management (How many resources, and what resource types, are needed?), as well as task mapping (Which tasks should be handled by which resources?). Based on a dataset of real-life scaling policies, we demonstrate that SPEEDL can cover most scaling behaviors real-life developers want to express, and that the resulting SPEEDL policies are at the same time substantially more compact, easier to read, and less error-prone than the same behaviour expressed via a general-purpose programming language.

3.9 SIMPLI-CITY Related Presentations

During the runtime of the SIMPLI-CITY project, partners gave 30 SIMPLI-CITY related presentations to interested stakeholders from the scientific community as well as industry and public authorities.

3.9.1 SIMPLI-CITY Related Presentations in 2013

SIMPLI-CITY at IJCAI 2013 in Beijing, China

A SIMPLI-CITY related presentation (title: *Diagnosing traffic congestion in Dublin City using the Semantic Web*) has been given at the 2nd International workshop on Semantic Cities during the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013), Beijing, China, 2013 on August 5th. IBM Research and Microsoft Research have joint-organised the event.
The presentation was related to the first results of the project’s technical work package WP4 and described SIMPLI-CITY’s approach to reasoning with mobility-related data, i.e. giving explanation of road traffic congestion in Dublin City. The presenter was Freddy Lecue from IBM Research.

Link to the event: http://research.ihost.com/semanticcities13/

SIMPLI-CITY at IEEE Cloud 2013 in Santa Clara, USA

A SIMPLI-CITY related presentation (title: *Self-Adaptive Resource Allocation for Elastic Process Execution*) has been given by Philipp Hoenisch from the Vienna University of Technology at the IEEE 6th International Conference on Cloud Computing (Cloud 2013), Santa Clara, California, USA, 27th June – 2nd July 2013.

The presentation was related to the research topics underlying SIMPLI-CITY's technical work package WP5, and described how a Service Platform for SIMPLI-CITY can look like: It is important that such a Service Platform is able to automatically scale up and down, so that it can meet the required resource demand in order to serve several hundreds of user requests simultaneously.

Link to the event: http://www.thecloudcomputing.org/2013/

SIMPLI-CITY at 2013 RTD Cooperation meeting in Berlin, Germany

Ascora has given a 30 Minute presentation of SIMPLI-CITY at the 2013 RTD Cooperation meeting hosted by sofd GmbH at Berlin, in May 2013. The presentation has outlined the main goals of the project with a focus on the Personal Mobility Assistant (PMA).

SIMPLI-CITY at the Cloudi/o expert meeting in Stuttgart

Ascora has led a 45 Minute discussion for presenting the SIMPLI-CITY Cloud-based Information Infrastructure at the Cloudi/o expert meeting in Stuttgart, Germany, in September 2013. The meeting has included other ICT companies as well as a hospital department from the German Charite hospital and external experts for data management and privacy aspects.

SIMPLI-CITY at Dialogverkstad 2013 in Gothenburg, Sweden

Talkamatic has given a brief presentation of SIMPLI-CITY at Dialogverkstad in Gothenburg, Sweden, hosted by the Dialogue Technology Lab at the Department of Philosophy, Linguistics and Theory of Science. Dialogverkstad is an annual Swedish one-day workshop devoted to dialogue systems and dialogue technology, bringing together academia and industry.

SIMPLI-CITY at Vienna University of Technology's "Beginners' Day", Vienna, Austria

At the TU Vienna's Beginners' Day, on 23rd of September 2013, all new students of the Faculty of Informatics are informed about the research work of the different research groups. Christoph Dorn from SIMPLI-CITY partner TUV has briefly introduced the Distributed System's Group research work, including a 5 minute presentation of the SIMPLI-CITY project's basic ideas.

SIMPLI-CITY at the launch event of the IBM Innovation Centre, Dublin, Ireland

On December 3rd 2013, at the launch of the re-generated IBM Innovation Centre in Dublin, Freddy Lecue presented the ISWC awarded STAR-CITY (i.e. SIMPLI-CITY WP4 and WP7) to the audience.

SIMPLI-CITY presented in lecture at TU Vienna, Austria

2013-11-06: Dr.-Ing. Stefan Schulte presented SIMPLI-CITY as part of the Distributed Systems lecture on "Current Trends in Distributed Systems" at TU Vienna on November 6th, 2013, to an audience of ~100 students. The talk gave a broad overview on the

SIMPLI-CITY Service Runtime Environment as an example for state-of-the-art distributed systems.

SIMPLI-CITY at MoMM 2013 in Vienna, Austria

2013-12-03: Dr.-Ing. Stefan Schulte gave a keynote talk titled "Mobile Mobility: The Road User Information Systems of the Future" at the 11th International Conference on Advances in Mobile Computing & Multimedia (MoMM 2013) that was hold from 2-4 December 2013 in Vienna, Austria. Within this keynote, current research gaps in road user information systems, namely the need to overcome heterogeneous and missing interoperability of relevant data sources, a missing end-to-end integration of data and functionality, and the demand for a homogeneous, unified user interface to road user information systems, have been identified. To show current advances in the field, ongoing research from SIMPLI-CITY, which contributes to solve these issues, has been presented.

SIMPLI-CITY at SOCA 2013 in Kauai, USA

2013-12-17: In his talk "Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes", Philipp Hoenisch presented research from WP5 at the 6th IEEE International Conference on Service Oriented Architecture in Kauai, HI, USA. In particular, research conducted as part of the work on the SIMPLI-CITY Mobility Services Framework and the scalability of Service Runtime Environments was presented.

SIMPLI-CITY at ISWC 2013 in Sydney, Australia

Presentation of "STAR-CITY (Semantic Traffic Analytics and Reasoning for City)" in October 2013 in Sydney, Australia by Freddy Lecue during the semantic web challenge session (demo only). STAR-CITY is the underlying reasoning framework of SIMPLI-CITY (WP4) for analysing, diagnosing and predicting congestion in a city.

In addition, Freddy Lecue presented also "Towards Constructive Evidence of Data Flow-Oriented Web Service Composition" a paper that is related to the data correlation component of SIMPLI-CITY's WP4.

3.9.2 SIMPLI-CITY Related Presentations in 2014

SIMPLI-CITY at ZEUS 2014 in Potsdam, Germany

2014-02-21: In his talk "ViePEP - A BPMS for Elastic Processes", Philipp Hoenisch gave an overview on elasticity mechanisms for service-based business processes. This work is a result of the research activities in T5.3 on the SIMPLI-CITY Mobility Services Framework. The presentation was part of the 6th Central European Workshop on Services and their Composition (ZEUS 2014) in Potsdam, Germany.

SIMPLI-CITY presented to journalists visiting TU Darmstadt, Germany

In the course of a journalists' visit at TU Darmstadt on 24th of June 2014, Daniel Burgstahler presented SIMPLI-CITY as a research project that enables smartphones and tablets to deal with a wide range of information in the mobility context, whereby the focus

of the project is to bring information from a variety of heterogeneous sources (such as reports about traffic jams, the weather forecast, available parking spaces, connections to public transport, and so on) together and make this easily available to the user by multi modal user interfaces. This project presentation led to coverage in several German media.

SIMPLI-CITY at ITS Europe Congress 2014 in Helsinki, Finland

2014-06-17: Dr.-Ing. Stefan Schulte gave a brief presentation about SIMPLI-CITY's Service Framework at the Special Interest Session SIS04 to an audience of about 100 people, as part of the discussion on “Europe-wide service platforms – towards an ‘Internet of mobility’” at ITS Europe Congress 2014 in Helsinki, Finland.

SIMPLI-CITY at SEAA 2014 in Verona, Italy

2014-08-22: Rosty Zabolotnyi gave a presentation on "Profiling-based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds" at the 40th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2014) in Verona, Italy. In this WP5-related talk, Cloud-based scalability and elasticity mechanisms were presented.

SIMPLI-CITY at IUI 2014 in Haifa, Israel

Presentation of "Star-City: Semantic Traffic Analytics and Reasoning for CITY" in February 2014 in Haifa, Israel by Marco Luca Sbodio. This paper is related to STAR-CITY, which is the underlying reasoning framework of SIMPLI-CITY (WP4) for analysing, diagnosing and predicting congestion in a city.

SIMPLI-CITY at AAAI 2014 in Quebec, Canada

Presentation of "Towards Scalable Exploration of Diagnoses in an Ontology Stream" in July 2014 in Quebec City, Canada by Freddy Lecue. This paper is related to the diagnosis reasoning required in WP7 scenario, and jointly elaborated within WP4.

SIMPLI-CITY at the ESWC 2014 in Anissaras, Greece

Presentation of "Predicting Severity of Road Traffic Congestion using Semantic Web Technologies" in May 2014 in Anissaras, Crete, Greece. This paper is related to the prediction reasoning required in WP7 scenario, and jointly elaborated within WP4. This paper won the “Best In Use Paper” award at ESWC 2014.

SIMPLI-CITY at Vienna University of Technology's “Beginners’ Day”, Vienna, Austria

At the TU Vienna’s Beginners' Day, on 22nd of September 2014, all new students of the Faculty of Informatics were informed about the research work of the different research groups. Christoph Dorn from SIMPLI-CITY partner TUV has briefly introduced the Distributed System’s Group research work, including a 5 minute presentation of the SIMPLI-CITY project’s basic ideas.

SIMPLI-CITY at ICSOC 2014 in Paris, France

2014-11-05: In his talk “Architecture-centric Design and Configuration of Complex Service Systems”, Christoph Dorn (TUV) presented work related to the design of services as investigated as part of the SIMPLI-CITY Mobility Services Framework and especially T5.1 and T5.3. The presentation was part of the 12th International Conference on Service Oriented Computing.

SIMPLI-CITY at BDCloud 2014 in Sydney, Australia

2014-12-01: In his talk “Context-Aware Data Prefetching in Mobile Service Environments”, Waldemar Hummer (TUV) presented work from T4.5 of SIMPLI-CITY, namely smart prefetching algorithms for mobile devices and road users. The presentation was part of the 4th IEEE International Conference on Big Data and Cloud Computing.

3.9.3 SIMPLI-CITY Related Presentations in 2015

SIMPLI-CITY at AAAI 2015 in Austin, USA

Presentation of " Freddy Lécué, Jeff Z. Pan: Consistent Knowledge Discovery from Evolving Ontologies." in January 2015 in Austin, USA by Freddy Lecue. This paper is related to the knowledge management required in WP7 scenario, and jointly elaborated within WP4. Presentation of ½ day tutorial (audience: 70). The results of deploying STAR-CITY (as a sub-component of SIMPLI-CITY), and its related AI technologies in cities such as Dublin, Bologna, Miami, Rio and the lessons learned were discussed. The final part of the tutorial aimed at discussing future AI opportunities including scalability issues for large cities.

SIMPLI-CITY at IJCAI 2015 in Buenos Aires, Argentina

Presentation of "Scalable Maintenance of Knowledge Discovery in an Ontology Stream" in July 2015 in Buenos Aires, Argentina by Freddy Lecue. This paper is related to the scalable reasoning required in WP7 scenario, and jointly elaborated within WP4.

SIMPLI-CITY at ZEUS 2015 in Potsdam, Germany

2015-02-21: In his talk “Privacy-Aware Scheduling for Inter-Organizational Processes”, Christoph Hochreiner (TUV) gave an overview on several privacy aspects which needs to be considered in inter-organizational processes. This work is a result of the research activities in T5.3 on the SIMPLI-CITY Mobility Services Framework. The presentation was part of the 7th Central European Workshop on Services and their Composition (ZEUS 2015) in Jena, Germany.

SIMPLI-CITY at MyWay Collaboration Meeting, Berlin, Germany

2015-05-20: In a joint collaboration meeting with the EU “sister projects” MyWay, MOVEUS, STREETLIFE, MOVESMART, PETRA and TEAM, Stefan Schulte gave two presentations about SIMPLI-CITY. First an overall overview of the project and its goals

and second a general introduction to the “European Wide Service Platform” and according activities.

SIMPLI-CITY at the IMAGINE 2015 in Vienna, Austria

2015-06-11: Philipp Hoenisch gave a presentation “The Road User Information System of the Future” on SIMPLI-CITY’s general use case scenario. He presented the idea behind SIMPLI-CITY and showed a short demo to an audience consisting out of about 15 people at IMAGINE 2015.

SIMPLI-CITY at the Services 2015 in New York, USA

2015-07-02: Presentation of “SPEEDL – A Declarative Event-Based Language for Cloud Scaling Definition” in New York, USA by Christoph Hochreiner. This presentation was related to the Mobility Service Framework created in WP5 and especially the SIMPLI-CITY Service Runtime Environment (T5.3).

SIMPLI-CITY at the IGW Institute at TU Wien, Vienna, Austria

On the 15th of April 2015 SIMPLI-CITY was presented by Stefan Schulte to about 20 interested researchers at the Institute for Design & Assessment of Technology (“Institut für Gestaltungs- und Wirkungsforschung” IGW) of the TU Wien, who are working in the research fields of human computer interaction and assistive technologies.

SIMPLI-CITY at Vienna University of Technology’s “Beginners’ Day”, Vienna, Austria

2015-09-21: At the TU Vienna’s Beginners’ Day, on 21st of September 2015, all new students of the Faculty of Informatics were informed about the research work of the different research groups. Stefan Schulte from SIMPLI-CITY partner TUV has briefly introduced the Distributed System’s Group research work, including a 5 minute presentation of the SIMPLI-CITY project’s basic ideas.

3.10 Partners’ other Dissemination & Communication Activities

In addition to the publications, presentations and media relations mentioned in the previous chapters, the consortium partners have promoted SIMPLI-CITY also via personal contacts, distribution of SIMPLI-CITY material, piggyback dissemination (i.e. including SIMPLI-CITY information in third parties’ information channels), web articles, blogs, etc. The following lines provide an overview of these activities:

ASC

- Partner Ascora GmbH has placed information about SIMPLI-CITY at its website showing the main goals of the project and its participation
- Partner Ascora GmbH has distributed self-printed flyers of SIMPLI-CITY at the OPDIS plenary meeting
- Partner Ascora GmbH has presented SIMPLI-CITY at an internal cooperation meeting with sofd GmbH
- Partner Ascora GmbH has established active cooperations with the Cloudi/o and OPDIS RTD projects

- Dissemination-specific website for WP8 outcomes and its exploitation: http://www.cleverdrive-app.com

CRF

- The staff working for the project at CRF presented SIMPLI-CITY during a periodic Unit Internal Meeting
- CRF distributed SIMPLI-CITY's promotional material (pop-up cards and printed newsletters) to internal employees, interns, consultants, companies involved in other project, etc., who visited CRF's office to attend project meetings and training courses
- Staff working for SIMPLI-CITY at CRF prepared a brief Project Overview summarizing main output and key benefits for CRF as contribution to department annual report presented at the CRF staff meeting
- In 2015 the staff working for SIMPLI-CITY at CRF presented SIMPLI-CITY to other department of CRF.

FGM

- FGM listed SIMPLI-CITY at the company's website http://www.fgm.at/index.php?id=2340&ID1=2142&stat=0&projekt_id=77
- FGM distributed SIMPLI-CITY's promotional material (pop-up cards and printed newsletters) to representatives of European cities, consultants, universities, companies, etc., who visited FGM's office to attend project meetings and training courses
- FGM submitted information about the project as well as about the workshops and the webinar to the European Platform on Mobility Management (EPOMM) and to the Transport Research & Innovation Portal (TRIP) to be published on these organisations' websites www.epomm.eu and www.transport-research.info respectively

IBM

- IBM Research - Ireland presented the SIMPLI-CITY project to two EU groups (the Council Research Working Party and European Research Area Committee (ERAC) group), in June 2013, as part of Horizon 2020 events.
- In 2013 the staff working for SIMPLI-CITY at IBM also included a project summary and updates in the Divisional Executive reviews and presented very early data model prototype demonstrations to the Lab Director and to other teams within the lab.
- In 2014 the staff working for SIMPLI-CITY at IBM presented SIMPLI-CITY to other entities of IBM.
- In 2015, we discuss the project with other FP7 and H2020 related projects where IBM is involved.
- Presentation of SIMPLI-CITY to automotive partners in IBM in 2015.
- Presentation of SIMPLI-CITY to various divisions of IBM (research, software group, communication)

SRM

- SRM disseminated the SIMPLI-CITY project providing information by means of the company's website. Beside the section in English

(http://www.srmbologna.it/?page_id=283), a section in Italian is specifically aimed to provide information about the project at local level (http://www.srmbologna.it/?page_id=131).

- SRM distributed SIMPLI-CITY information material among the participants of the CIVITAS Forum in Brest (30.9.-2.10.2013) and informally informed the participants of the Forum about the SIMPLI-CITY project. (http://www.civitas.eu/index.php?id=206)
- On 8.10.2013 SRM distributed SIMPLI-CITY pop-up cards and briefly presented SIMPLI-CITY, and other European projects in which SRM or the Municipality of Bologna are partners, at a meeting with the French Agency for International Business Development, public authority for business under the French Embassy in Italy. The meeting was hosted by the Municipality of Bologna under the topic "Urban mobility in the city of Bologna", and about 20 delegates and technicians from French cities administrations and private companies involved in urban mobility attended the meeting.
- In December 2013 project flyers about SIMPLI-CITY were distributed during the 2013 Annual POLIS Conference in Brussels (BE).
- In January 2014 SRM informed cities and stakeholders about SIMPLI-CITY, and asked them to answer the SIMPLI-CITY user survey, by compilation of a news-entry that was published at the website of the POLIS Network (www.polisnetwork.eu/publicnews/561/45/SIMPLI-CITY-project-needs-you-what-is-your-opinion-about-transport-) and in INFOPOLIS, the newsletter of the Network (www.polisnetwork.eu/membersnewsletter/65/78/Issue-92).
- In April 2014 in Donostia-San Sebastian the SIMPLI-CITY project was introduced to about 15 participant partners during the steering committee meeting of the P-REACT project (http://p-react.eu/), in which SRM is a partner.
- In May 2014 SRM organised a working meeting at local level with the Municipality of Bologna and the traffic-related data provider. About 10 stakeholders participated at this meeting. During this meeting SRM provided the stakeholders with an update on the project development and distributed project dissemination material.
- In May 2014 in Brussels (BE) the SIMPLI-CITY project was introduced to about 20 participant partners during the steering committee meeting of the EPTA project (www.eptaproject.eu/) in which SRM is lead partner.
- On 23-26 September 2014 SRM disseminated the SIMPLI-CITY project at the CIVITAS Forum in Casablanca (MA) (www.civitas.eu/content/civitas-forum-conference-2014). Information material was distributed among the conference's participants, and the project's roll-up was exposed. Furthermore, a dedicated notebook was continuously showing a demo on "STAR-CITY" (i.e., SIMPLI-CITY WP4 and WP7).
- In November 2014 project flyers about SIMPLI-CITY were distributed and the roll-up displayed during the 2014 Annual POLIS Conference in Madrid (ES). Furthermore, a dedicated notebook was continuously showing a demo on "STAR-CITY" (i.e., SIMPLI-CITY WP4 and WP7).
- In May 2015 project flyers about SIMPLI-CITY were distributed and the roll-up displayed during the 2nd Workshop of the EUSTO Project in which SRM is a partner (www.eusto.eu).

TALK

- Talkamatic promoted SIMPLI-CITY in the blog in the main page of their new company website http://www.talkamatic.se/
- Talkamatic created and published a press release about SIMPLI-CITY's Personal Mobility Assistant (PMA) with multimodal dialogue interface in September 2015

TIE

- TIE has developed a microsite specific for SIMPLI-CITY, which is published under TIE's main web page. This microsite contains the administrative information of the project and a friendly description targeted to all the users. The microsite is accessible in the TIE Kinetix Innovation website: http://innovation.tiekinetix.com/innovation/projects/simpli-city
- The RDI Department of TIE Nederland publishes an internal newsletter quarterly. This newsletter aims to inform all TIE Kinetix employees about the progresses and top stories of the different projects carried out by the RDI Department. All newsletters that have been published since the start of the SIMPLI-CITY project (in Oct'13, Jan'14, Apr'14, Jul'14) included a short update on the project. The April 2014 newsletter contained a large article about SIMPLI-CITY and SIMPLI-CITY was featured as the "Project of the Quarter" in this issue of the TIE newsletter.
- TIE placed a SIMPLI-CITY poster at its booth at the Smart Manufacturing & Industry 4.0 event in Manchester (07-09-2015), which attracted several visitors whose questions were answered.

TUDA

- Prof. Ralf Steinmetz briefly presented SIMPLI-CITY during a Horizon2020 event at the IHK (Chamber of Industry and Commerce Darmstadt Rhein Main Neckar) on 28.10.2013. (http://www.darmstadt.ihk.de/System/VstTermine/2584930/tg_28_10_2013_138472.html)
- On 19th of March 2014 Daniel Burgstahler from TUDA published a blog article "Meine Vision: Die Mobilität der Zukunft" (My vision: The mobility of the future) explaining SIMPLI-CITY's vision and the project in German language. http://blog.multimedia-communications.net/meine-vision-die-mobilitaet-der-zukunft/

TUV

- TUV presented SIMPLI-CITY to about 20 researchers at TU Vienna on 29th of May 2013. The presentation included a general introduction of the SIMPLI-CITY project, the most important technical aspects, and details of the research activities done by TUV within SIMPLI-CITY.
- On 2nd of September 2013 TUV presented SIMPLI-CITY to the leader of the IP TEAM (Tomorrow's Elastic Adaptive Mobility http://www.collaborative-team.eu/), which is a "sister project" of SIMPLI-CITY, i.e., funded by the EC within the same call and objective. The presentation included a general introduction of the SIMPLI-CITY project, the most important technical aspects of the project, as well as the envisioned use cases.
- SIMPLI-CITY is also listed at TUV institute's homepage http://www.infosys.tuwien.ac.at/projects.html

- On 2014-04-30 Stefan Schulte gave a brief presentation of SIMPLI-CITY's project goals to stakeholders from other European projects. This presentation was part of the project collaboration activities of the EU ICT Call 7 & 8 Concertation workshop in Brussels, Belgium.
- On 2014-06-17 Stefan Schulte gave a presentation on SIMPLI-CITY's general technical approach as well as the Mobility Services Framework at a bilateral meeting between MOBiNET and SIMPLI-CITY, which took place during the ITS Europe Congress.
- On 2015-02-13 Stefan Schulte and Freddy Lecue joined a call with TEAM, Mobinet and GET SERVICE. A presentation about the “first steps towards a unified data model” motivated by the outcome of T4.1 was given.
- On 2015-03-30 Stefan Schulte joined a collaboration activity call with 6 other projects which lead to a collaboration workshop in May 2015.
- On 2015-04-15 Stefan Schulte presented SIMPLI-CITY to about 20 researchers, ranging from students to professors at the IGW (Institut für Gestaltungs- und Wirkungsforschung) Institute at TU Wien.
- On 2015-05-21 in a collaboration meeting with MOBiNET, Stefan Schulte presented SIMPLI-CITY. The presentation included the overall approach and motivation of SIMPLI-CITY.
- September 2015: TUV created a press release, which was also published in the TU Wien news.

WORLD

- Information of the SIMPLI-CITY project on the web page of the company: http://www.tempos21.com/web/rd-projects/
- Internal newsletter for all the employees of Atos Spain describing the SIMPLI-CITY project, November 2012.
- Presentation of the project in the Tempos 21 stand of the Smart City Expo World Congress, in Barcelona November 2012 (http://www.smartcityexpo.com)
- Presentation of the project in the Tempos 21 stand of the Mobile World Congress, in Barcelona February 2013 (http://www.mobileworldcongress.com)
- Internal distribution of the first SIMPLI-CITY’s Newsletter to Worldline Spain employees, October 2013
- Presentation of the project’s apps to Worldline Spain employees on the company’s intranet, October 2013
- Presentation of the project and distribution of SIMPLI-CITY’s pop-up cards and newsletter on Worldline’s stand at the Mobile World Congress, in Barcelona February 2014 (http://www.mobileworldcongress.com)
- Presentation of the project and its evolution and distribution of SIMPLI-CITY’s marketing material on Worldline’s stand at the Mobile World Congress, in Barcelona March 2015 (http://www.mobileworldcongress.com)
- Presentation of the project (short description) in Worldline’s digital magazine (Worldline Mag), digital publication sent externally to the company’s customer database and internally to all employees.

4 Summary

As can be seen from the information given in chapter 3, all SIMPLI-CITY partners have been active with dissemination and communication activities in order to spread information about the project to stakeholders in Europe.

Within the SIMPLI-CITY project 30 SIMPLI-CITY related presentations were given, 36 scientific publications were made, and several other communication activities were conducted by the project partners.

The following two tables give an overview of the dissemination and communication activities that were carried out within the runtime of the SIMPLI-CITY project:

- Table 5 lists all dissemination activities performed by the project partners, and
- Table 6 gives details for all scientific publications related to SIMPLI-CITY.

Table 5: List of Dissemination Activities

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Presentation	TUV	SIMPLI-CITY: Project Overview	29/05/2013	TU Vienna, Vienna, Austria	Scientific Community	20	Austria
Presentation	ASC	SIMPLI-CITY – The Road User Information System of the Future	05/2013	Berlin, Germany	Industry	10	Germany
Presentation	IBM	Diagnosing traffic congestion in Dublin City using the Semantic Web	05/08/2013 to 10/08/2013	Beijing, China	Researchers	15	China, USA, India, Australia, UK, Italy, Ireland, Germany,
Presentation	TUV	SIMPLI-CITY: Project Overview	02/09/2013	Fraunhofer FOKUS, Berlin, Germany	Scientific Community	2	Germany
Presentation	ASC	Cloud based data management in RTD projects	09/2013	Stuttgart, Germany	Industry, Policy makers, Other (Hospital)	15	Germany
Presentation	TALK	SIMPLI-CITY, Alfred and Sam	04/09/2013	Gothenburg, Sweden	Academia and Industry	25	Sweden
Presentation	TUV	SIMPLI-CITY: Project Overview	23/09/2013	TU Vienna, Vienna	Computer science students (first semester)	100	Austria
Presentation	TUV	SIMPLI-CITY: Project Overview	06/11/2013	Vienna, Austria	Students	100	Austria
Presentation (Keynote)	TUV	Mobile Mobility: The Road User Information Systems of the Future	03/12/2013	Vienna, Austria	Scientists	50	China, Austria, Germany, France, Malaysia, etc.

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Presentation	TUV	Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes	17/12/2013	Kauai, Hi, USA	Scientists	25	Germany, USA, Japan, Austria, China, India
Presentation	TUV	ViePEP – A BPMS for Elastic Processes	21/02/2014	Potsdam, Germany	Scientists	40	Germany
Presentation	SRM	SIMPLI-CITY project	04/2014	P-REACT project meeting, Donostia San Sebastian, Spain	Scientific community, researchers	15	Europe
Presentation	TUV	SIMPLI-CITY: Project Overview	30/04/2014	Concertation meeting, Brussels, Belgium	EU project stakeholders	30	Europe
Presentation	SRM	SIMPLI-CITY: update	05/2014	Bologna, Italy	Policy makers, researchers	10	Italy
Presentation	SRM	SIMPLI-CITY project	05/2014	EPTA project meeting, Brussels, Belgium	Policy makers, scientific community, researchers	20	Europe
Presentation	TUV	SIMPLI-CITY: Project Overview	17/06/2014	Helsinki, Finland	ITS Experts	100	Europe
Presentation	TUV	SIMPLI-CITY: Project Overview and Mobility Services Framework	17/06/2014	Helsinki, Finland	EU project stakeholders	5	Europe
Presentation	TUV	Profiling-based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds	22/08/2014	Verona, Italy	Scientists	20	Germany, Italy, India

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Presentation	TUV	Architecture-centric Design of Complex Message-based Service Systems	05/11/2014	Paris, France	Scientists	100	International
Presentation	TUV	Context-Aware Data Prefetching in Mobile Service Environments	05/12/2014	Sydney, Australia	Scientists	25	Germany, USA, Japan, Austria, China, India, Australia
Presentation	IBM	Consistent Knowledge Discovery from Evolving Ontologies	01/2015	Austin, USA	Scientists	70	International
Presentation	TUV	Privacy-Aware Scheduling for Inter-Organizational Processes	20/02/2015	Jena, Germany	Scientists	15	Germany, Austria
Presentation	TUV	SIMPLI-CITY – The Road User Information System of the Future	20/05/2015	Berlin, Germany	Project stakeholders	35	Europe
Presentation	TUV	European Mobility/Wide Service Platform	20/05/2015	Berlin, Germany	Project stakeholders	35	Europe
Presentation	TUV	The Road User Information System of the Future	11/06/2015	Vienna, Austria	General public	15	Austria
Presentation	TUV	SPEEDL – A Declarative Event-Based Language for Cloud Scaling Definition	02/07/2015	New York, USA	Scientists	15	International
Presentation	IBM	Scalable Maintenance of Knowledge Discovery in an Ontology Stream	07/2015	Buenos Aires, Argentina	Scientists		International
Presentation and distribution of material	SRM	Urban Mobility in the city of Bologna	08/10/2013	Bologna, Italy	Policy makers, researchers	20	Italy

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Distribution of material	SRM	SIMPLI-CITY	30/09/2013 to 02/10/2013	CIVITAS Forum 2013, Brest, France www.civitas.eu/index.php?id=206	Cities, policy makers, scientific community, researchers	~400	Worldwide, focus on EU
Distribution of material	SRM	SIMPLI-CITY	12/2013	Annual POLIS Conference, Brussels, Belgium	Cities, policy makers, scientific community, researchers	~100	Europe
Distribution of material	SRM	SIMPLI-CITY and STAR-City	23/09/2014 to 26/09/2014	CIVITAS Forum 2014, Casablanca, Morocco	Policy makers, scientific community, researchers	~400	Worldwide, focus on EU
Distribution of material	SRM	SIMPLI-CITY and STAR-City	11/2014	Annual POLIS Conference, Madrid, Spain	Cities, policy makers, scientific community, researchers	~200	Europe
Distribution of material	SRM	SIMPLI-CITY	15/2015	2nd Workshop of the EUSTO Project, Bologna, Italy	Cities, policy makers, scientific community, researchers	75	Europe
Distribution of material	WORLD	SIMPLI-CITY	02/2014	Mobile World Congress, Barcelona, Spain www.mobileworldcongress.com	Mobile related industry, app developers		

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Distribution of material	TIE	SIMPLI-CITY poster and material at TIE's booth	07/09/2015	Smart Manufacturing & Industry 4.0 event in Manchester	research and industry		
Web	TIE	SIMPLI-CITY	Since beginning of project	http://tiekinetix.com/innovation/projects/simpli-city	General audience		
Web	SRM	SIMPLI-CITY	Since beginning of project	SRM Company's website, http://www.srmbologna.it/?page_id=28	General audience		
Web	SRM	SIMPLI-CITY User survey promotion	01/2014	POLIS website, www.polisnetwork.eu/publicnews/561/45/SIMPLI-CITY-project-needs-you-what-is-your-opinion-about-transport-	Cities, policy makers, scientific community, researchers		
Web	TUDA	Meine Vision: Die Mobilität der Zukunft (My vision: The mobility of the future)	19/03/2014	http://blog.multimedia-communications.net/meine-vision-die-mobilitaet-der-zukunft/	General German speaking audience		German speaking countries
3rd party's newsletter	SRM	User survey promotion	01/2014	POLIS newsletter, www.polisnetwork.eu/membersnewsletter/65/78/Issue-92	Cities, policy makers, scientific community, researchers		

Type of Activity	Main leader	Title	Date/Period	Place	Type of audience	Size of audience	Countries addressed
Press release	TIE	TIE Kinetix is technology provider in European Union Projects SIMPLI-CITY and INTUITEL	10/12/2012	TIE Kinetix web site, TIE Kinetix Investor Relations Other news portals, Facebook. Twitter	General audience		
Press Release	IBM	STAR-CITY	30/10/2014	Oxford, England	Wall street journal		
Press Release	ASC	Clever Drive App based on SIMPLI-CITY	08/2015	Germany			German speaking countries
Press Release	TALK	Talkamatic adds Personal Mobility Assistant to SIMPLI-CITY	09/2015	Sweden			International
Press Release	TUV	Ein persönlicher Mobilitätsassistent für die Autofahrt	09/2015	Vienna, Austria			German speaking countries
Press interview	IBM	STAR-CITY	03/12/2013	Dublin	journalists from Irish Independent Newspaper and Sunday Business Post		Ireland
Press interview	TUDA	Research projects funded by the EU in Hesse	24/06/2014	Darmstadt	German journalists	~15	Germany

Table 6: List of scientific (peer reviewed) publications

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Push vs. Pull: An Energy Perspective	D. Burgstahler	6th IEEE International Conference on Service Oriented Computing and Applications (SOCA 2013)		IEEE Computer Society	Washington, DC, USA	2013	190-193	DOI: 10.1109/SOCA.2013.17	Yes, at institute website: ftp://www.kom.e-technik.tu-darmstadt.de/papers/BLR13-2.pdf
Enabling Virtual Manufacturing Enterprises with Cloud Computing – An Analysis of Criteria for the Selection of Data base as a Service Offers	R. Hans	Advances in Sustainable and Competitive Manufacturing Systems – 23rd International Conference on Flexible Automation & Intelligent Manufacturing		Springer	Porto, Portugal	2013	427-438	ISBN 978-3-319-00557-7	No (editor copyright)
Energy-efficient Web Service Invocation on Mobile Devices: The Influence of Compression and Parsing	R. Hans	2nd International Conference on Mobile Services (MS 2013)		IEEE Computer Society	Washington, DC, USA	2013	1-6	ISBN 978-0-7685-5029-9	Yes, at institute website: ftp://ftp.kom.tu-darmstadt.de/papers/HZL+13.pdf

[1] Open Access is defined as free of charge access for anyone via Internet.

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Workflow Scheduling and Resource Allocation for Cloud-based Execution of Elastic Processes	P. Hoenisch	6th IEEE International Conference on Service Oriented Computing and Applications (SOCA 2013)			Kauai, HI, USA	2013	1-8	http://doi.ieeecomputersociety.org/10.1109/SOCA.2013.44	Yes, at institute website: http://hydra.infosys.tuwien.ac.at/staff/sd/papers/SOCA%202013%20Ph.%20Hoenisch.pdf
Self-Adaptive Resource Allocation for Elastic Process Execution	P. Hoenisch	IEEE 6th International Conference on Cloud Computing (CLOUD 2013)	---	IEEE Computer Society	Washington, DC, USA	2013	220-227	http://dx.doi.org/10.1109/CLOUD.2013.126	Yes, at institute website: http://www.infosys.tuwien.ac.at/staff/sd/publications.php
Predicting Knowledge in An Ontology Stream	F. Lecue	Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)		AAAI	Beijing	2013	2662-2669	ISBN: 978-1-57735-633-2	No (editor copyright)
Towards Constructive Evidence of Data Flow-Oriented Web Service Composition	F. Lecue	Proceedings of the 12th International Semantic Web Conference (ISWC 2013)	Lecture Notes in Computer Science Volume 8218, 2013	Springer	Sydney	2013	298-313	DOI 10.1007/978-3-642-41335-3_19	No (editor copyright)
STAR-CITY: Semantic Traffic Analytics and Reasoning for CITY	F. Lecue	Semantic Web Challenge 2013			Dublin	2013			Yes, at: http://challenge.semanticweb.org/2013/submissions/swc2013_submission_11.pdf

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Exploiting Platform Heterogeneity in Wireless Sensor Networks by Shifting Resource-Intensive Tasks to Dedicated Processing Nodes	A. Reinhardt	Proceedings of the 14th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)		IEEE Press	Madrid	2013	1-9	DOI: 10.1109/WoWMoM.2013.6583388	No (editor copyright)
Introducing the Vienna Platform for Elastic Processes	S. Schulte	Performance Assessment and Auditing in Service Computing Workshop (PAASC 2012) at 10th International Conference on Service Oriented Computing (ICSOC 2012)	---	Springer	Heidelberg Berlin	2013	179-190	http://dx.doi.org/10.1007/978-3-642-37804-1_19	Yes, at institute homepage: http://www.infosys.tuwien.ac.at/staff/sd/publications.php
Realizing Elastic Processes with ViePEP	S. Schulte	10th International Conference on Service Oriented Computing (ICSOC 2012) -- Demos	---	Springer	Heidelberg Berlin	2013	439-443	http://dx.doi.org/10.1007/978-3-642-37804-1_48	Yes, at institute homepage: http://www.infosys.tuwien.ac.at/staff/sd/publications.php
Cost-Driven Optimization of Cloud Resource Allocation for Elastic Processes	S. Schulte	International Journal of Cloud Computing	Vol. 1, No. 2	Hipore	New York, USA	2013	1-15	http://hipore.com/ijcc/2013/IJCC-Vol1-No2-2013-pp1-14-Schulte.pdf	Yes, available at http://hipore.com/ijcc/2013/IJCC-Vol1-No2-2013-pp1-14-Schulte.pdf

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Where is That Car Parked? A Wireless Sensor Network-Based Approach to Detect Car Positions	D. Burgstahler	IEEE SenseApp 2014		IEEE	Edmonton, Canada	2014	514-522	DOI: 10.1109/LCNW.2014.6927697	Yes, at institute website: ftp://ftp.kom.tu-darmstadt.de/papers/BKZR14.pdf
Switching Push - Pull: An Energy Efficient Notification Approach	D. Burgstahler	3rd International Conference on Mobile Services (MS 2014)		IEEE Computer Society	Washington, DC, USA	2014	68-75	ISBN 978-1-4799-5060-7	Yes, at institute website: ftp://ftp.kom.tu-darmstadt.de/papers/BRE+14.pdf
Informations-systeme für Verkehrsteilnehmer: Datenintegration, Cloud Dienste und der Persönliche Mobilitätsassistent	D. Burgstahler	PIK – Praxis der Informationsverarbeitung und Kommunikation	Vol. 37(3)	De Gruyter	Germany	2014	243-250	DOI: 10.1515/pik-2014-0024	Yes, at: http://www.infosys.tuwien.ac.at/staff/sd/papers/Zeitschriftenartikel%20St.%20Schulte%20Informationssysteme%202014.pdf
Architecture-centric Design of Complex Message-based Service Systems	C. Dorn	12th International Conference on Service Oriented Computing (ICSOC 2015), Goa, India	LNCS 8831	Springer	Paris, France	2014	184-198	DOI: 10.1007/978-3-662-45391-9_13	No (editor copyright)
ViePEP – A BPMS for Elastic Processes	P. Hoenisch	6th Central European Workshop on Services and their Composition (ZEUS 2014)		CEUR-WS		2014	61-68	http://ceur-ws.org/Vol-1140/paper10.pdf	Yes, available at http://ceur-ws.org/Vol-1140/paper10.pdf

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Context-Aware Data Prefetching in Mobile Service Environments	W. Hummer	4th IEEE International Conference on Big Data and Cloud Computing (BDCloud 2014), Sydney, Australia	12/2014	IEEE	Australia	2014	214-221	DOI: 10.1109/BDCloud.2014.104	No (editor copyright)
Towards Scalable Exploration of Diagnoses in an Ontology Stream	F. Lecue	28th Conference on Artificial Intelligence (AAAI 2014)		AAAI	Canada	2014	87-93	ISBN 978-1-57735-661-5	No (editor copyright)
Smart traffic analytics in the semantic web with STAR-CITY: Scenarios, system and lessons learned in Dublin City	F. Lecue	Journal of Web Semantics: Science, Services and Agents on the World Wide Web	Vol. 27-28 08-10/2014	Elsevier	Journal paper	2014	26-33	DOI: 10.1016/j.websem.2014.07.002	No (editor copyright)
Star-City: Semantic Traffic Analytics and Reasoning for City	F. Lecue	ACM International Conference on Intelligent user Interface (IUI 2014)		ACM	Israel	2014	179-188	ISBN: 978-1-4503-2184-6 DOI 10.1145/2557500.2557537	No (editor copyright)
Predicting Severity of Road Traffic Congestion using Semantic Web Technologies	F. Lecue	11th International Conference, ESWC 2014 – Best In Use Paper award		Springer	Greece	2014	611-627	DOI 10.1007/978-3-319-07443-6_41	No (editor copyright)

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Semantic Traffic Diagnosis with STAR-CITY: Architecture and Lessons Learned from Deployment in Dublin, Bologna, Miami and Rio	F. Lecue	the Semantic Web – ISWC 2014; 13th International Semantic Web Conference, Riva del Garda, Italy, October 19-23, 2014, Proceedings, Part II	Lecture Notes in Computer Science, Volume 8797	Springer	Italy	2014	292-307	ISBN 978-3-319-11915-1	No (editor copyright)
Decision support for Web service adaptation	A. Papageorgiou	Pervasive and Mobile Computing	Vol. 12	Elsevier	Amsterdam	2014	197-213	http://dx.doi.org/10.1016/j.pmcj.2013.10.004	Yes, preprint available at institute website: http://www.infosys.tuwien.ac.at/staff/sschulte/
Towards Consistency Checking over Evolving Ontologies	J. Wu	23rd ACM Conference on Information and Knowledge Management (CIKM 2014), Shanghai, China		ACM	New York, USA	2014	909-918	DOI: 10.1145/2661829.2662061	No (editor copyright)
Profiling-Based Task Scheduling for Factory-Worker Applications in Infrastructure-as-a-Service Clouds	R. Zabolotnyi	40th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2014)		IEEE Computer Society	Washington DC, USA	2014	119-126	http://dx.doi.org/10.1109/SEAA.2014.42	Yes, at institute website: http://www.infosys.tuwien.ac.at/staff/sd/publications.php
Navigate.KOM: Datenbankbasierter Informationsansatz für Fahrassistenzsysteme	D. Burgstahler	6. GMM-Fachtagung, AmE 2015 – Automotive meets Electronics, Dortmund, Germany, 2015				2015	111-116		No (editor copyright)

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
A Concept for a C2X-based Crossroad Assistant	D. Burgstahler	2nd IEEE PerCom Workshop on Smart Environments: Closing the Loop (SmartE 2015), St. Louis, Missouri, 2015		IEEE Computer Society	Washington DC, USA	2015	360-364	DOI: 10.1109/PERCOMW.2015.7134063	Yes, at institute website: ftp://ftp.kom.tu-darmstadt.de/papers/BPL+15.pdf
Privacy-Aware Scheduling for Inter-Organizational Processes	C. Hochreiner	7th Central-European Workshop on Services and their Composition (ZEUS 2015), Jena, Germany, 2015, CEUR-WS	vol. 1360	CEUR	Jena, Germany	2015	63-68	Not available	Yes, at institute homepage: http://www.infosys.tuwien.ac.at/staff/hochreiner/publications/2015_ZEUS.pdf
Elastic Stream Processing for Distributed Environments	C. Hochreiner	IEEE Internet Computing		IEEE		2015		Not available yet	No (editor copyright)
Optimization of Complex Elastic Processes	P. Hoenisch	IEEE Transactions on Services Computing		IEEE		2015		DOI: 10.1109/TSC.2015.2428246	No (editor copyright)
Four-fold Auto-scaling on a Contemporary Deployment Platform using Docker Containers	P. Hoenisch	13th International Conference on Service Oriented Computing (ICSOC 2015), Goa, India	11/2015	Springer	GOA, India	2015	NN-NN	Not available yet	No (editor copyright)
Context-Aware Personalization for Smart Mobile Cloud Services	W. Hummer	2nd Workshop on Intelligent Service Clouds, co-located with ICSOC'15		Springer	GOA, India	2015	NN-NN	Not available yet	No (editor copyright)

Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publi-cation	Relevant pages	Permanent identifiers (if available)	Is/Will open access[1] (be) provided to this publication?
Scalable Maintenance of Knowledge Discovery in an Ontology Stream	F. Lecue	Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI 2015), Buenos Aires, Argentina				2015			Yes, at: http://ijcai.org/papers15/Papers/IJCAI15-209.pdf
Consistent Knowledge Discovery from Evolving Ontologies	F. Lecue	Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI 2015), Austin, Texas, USA				2015	189-195		Yes, at: https://www.aaai.org/ocs/index.php/AAAI/AAAI15/paper/viewFile/9518/9243
SPEEDL - A Declarative Event-Based Language for Cloud Scaling Definition	R. Zabolotnyi	The Future of Software Engineering For and In Cloud, Visionary Track of IEEE Services 2015		IEEE	Washington, DC, USA	2015	71-78	DOI: 10.5167/uzh-110703	No (editor copyright)