

Münchner Kreis Mitgliederkonferenz
Von Terabytes zu Megadollars?
Die Welt neuer Informationsprodukte
München, 18. November 2000



Semantic Data Services: From Web 3.0 Towards Answer Engines and Multimodal Information Extraction

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Vorsitzender der Geschäftsführung (CEO)

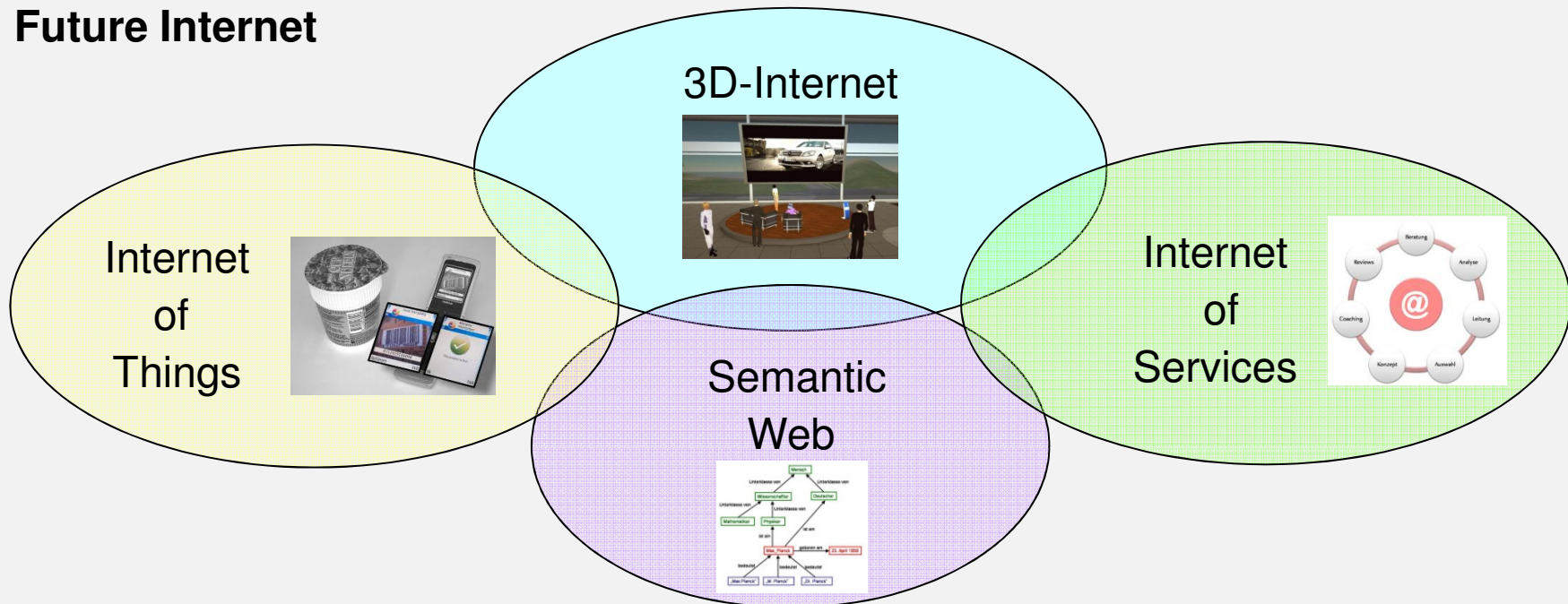


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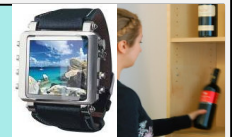
The Internet of the Future



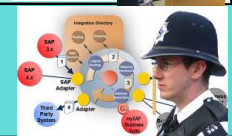
Future Internet



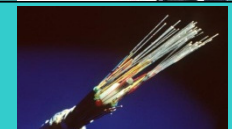
Multimodal Interaction



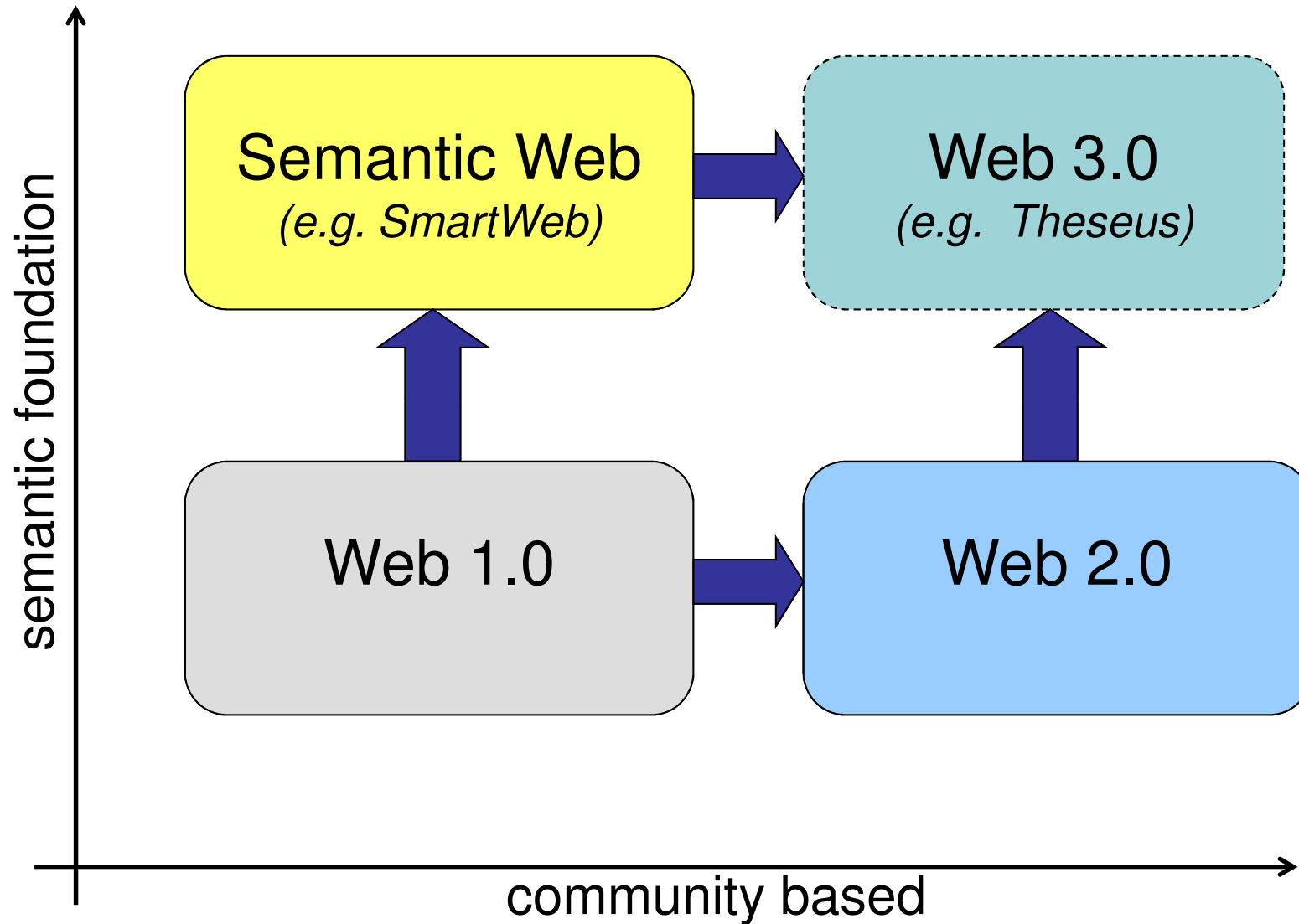
Security Infrastructure



Mobile Broadband Communication



Web 3.0 = Semantic Web + Web 2.0



SmartWeb: Getting Answers on the Go



Italy



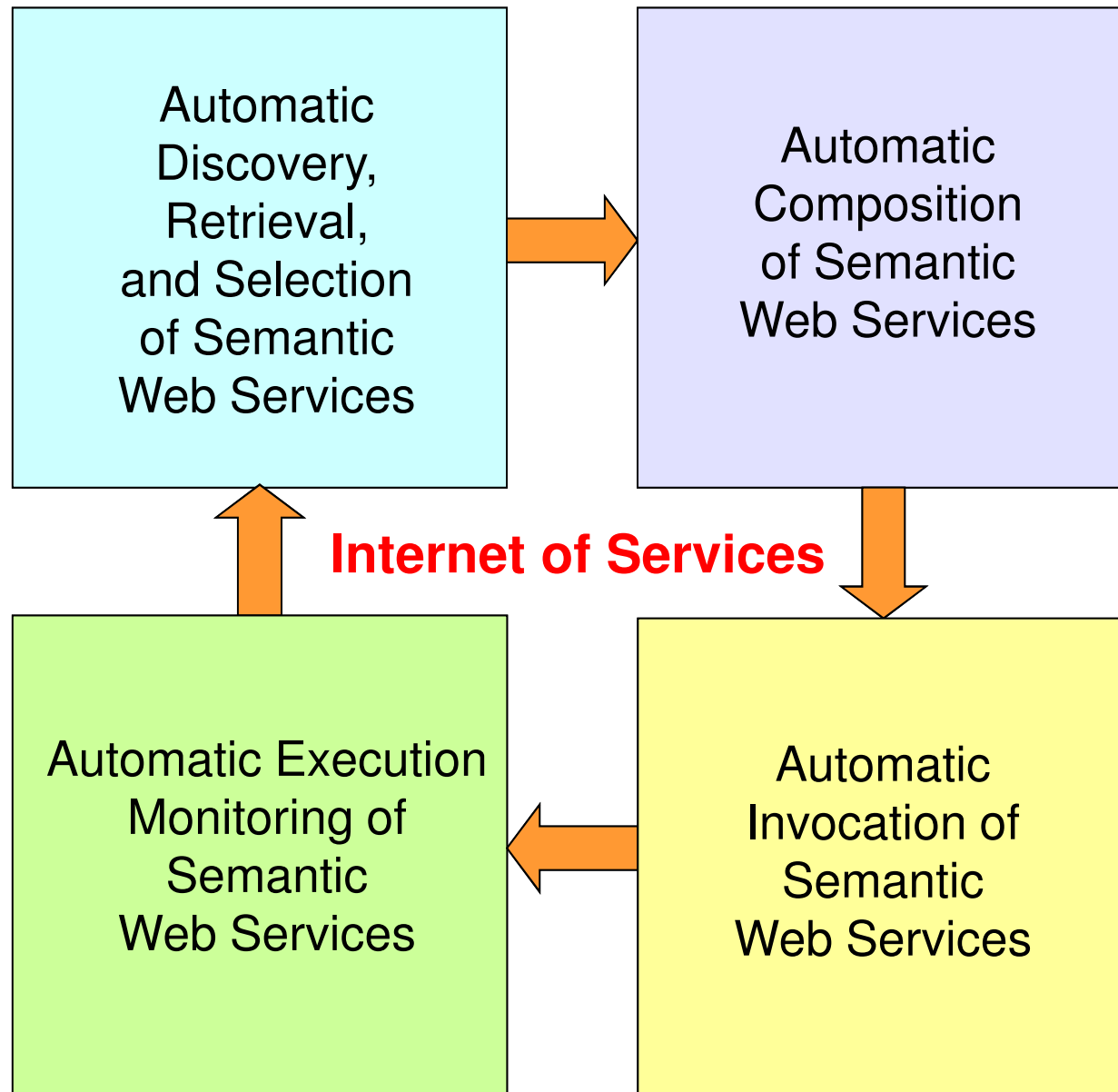
Personal guide for the
2006 FIFA world cup
in Germany

Outline of the Talk

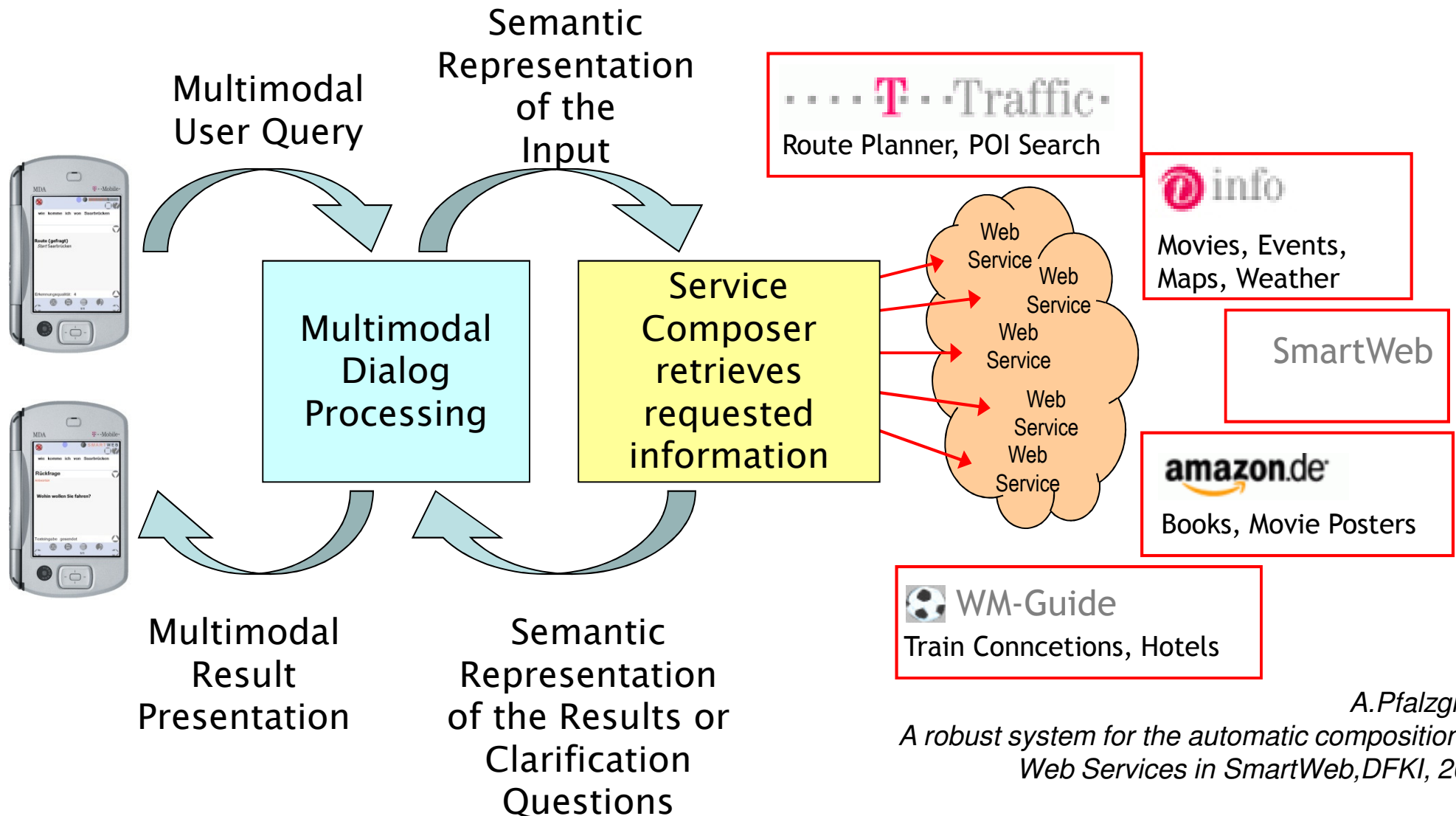


- 1. The Internet of Services**
- 2. Plan-based Composition of Semantic Web Services**
- 3. Crossmodal Mobile Access to Data-Centric Services**
- 4. Plan-based Composition of Semantic Web Services**
- 5. Multimodal Information Extraction for QA Systems**
- 6. Conclusions**

Automated Semantic Composition of Data-Centric Web Services in the Internet of Services

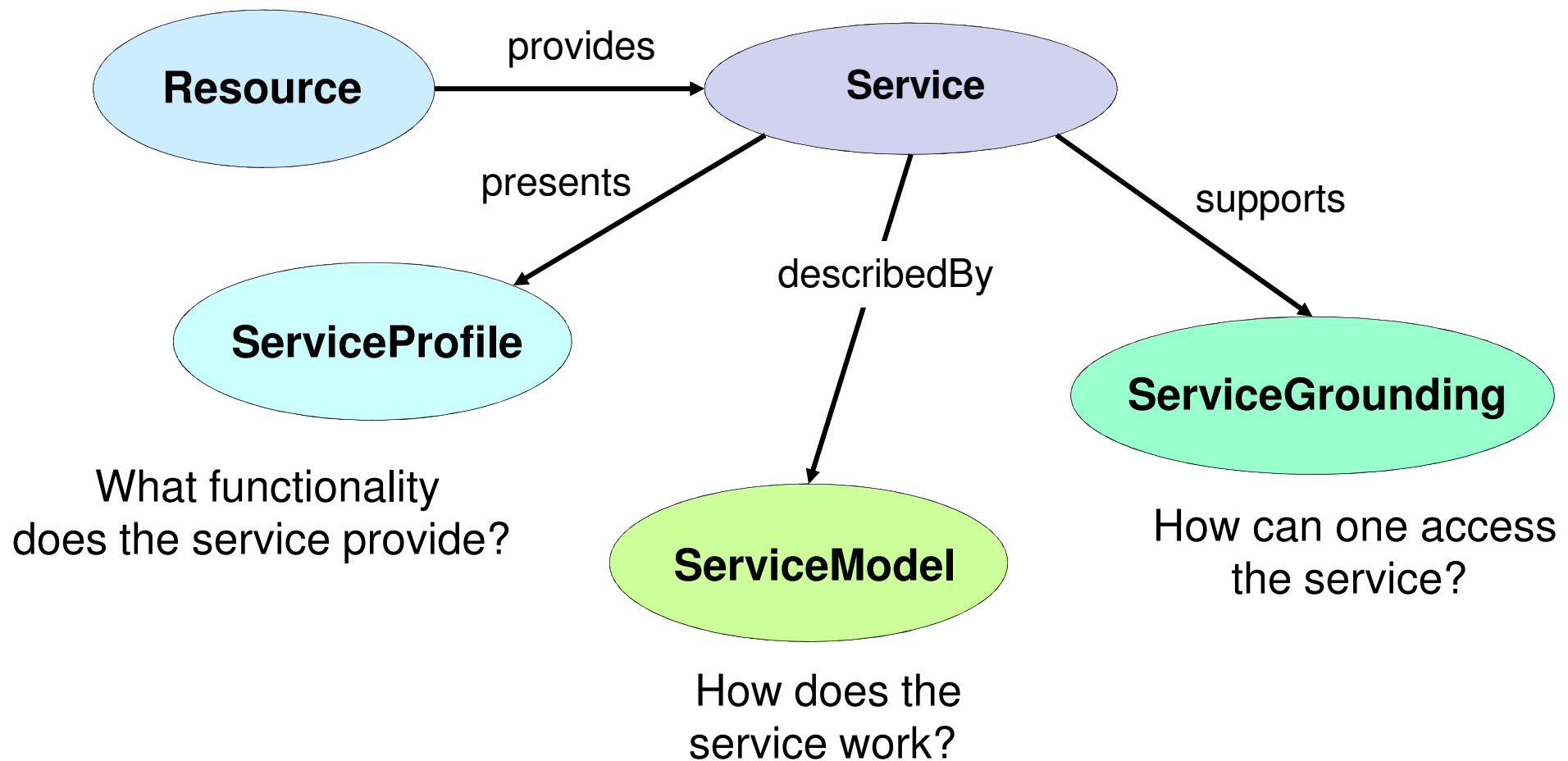


Plan-based Composition of Heterogeneous Web Services in SmartWeb



A.Pfalzgraf:
*A robust system for the automatic composition of
Web Services in SmartWeb,DFKI, 2006*

The Top-Ontology of Web Services in OWL-S



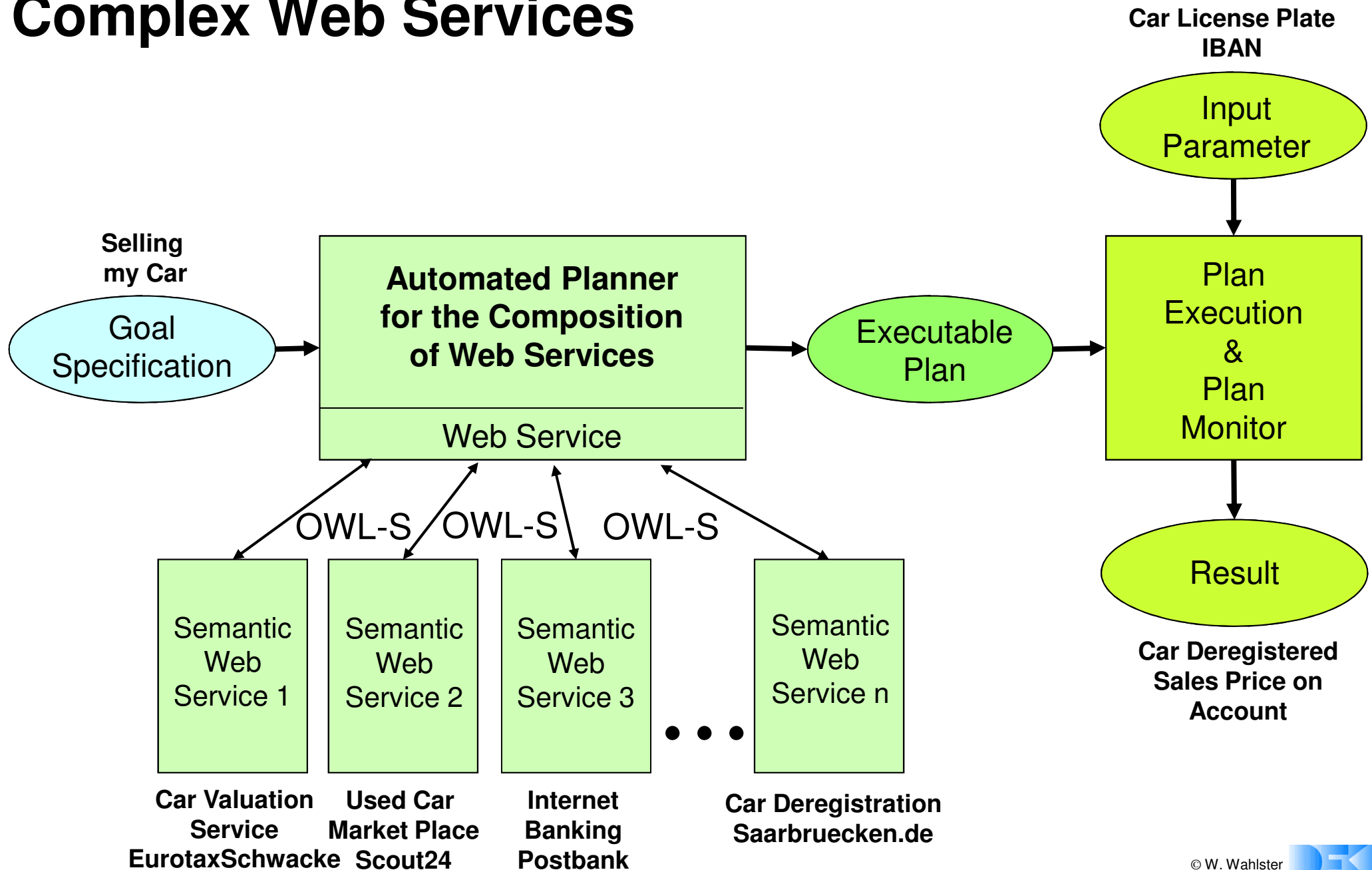
Goals of a Formal Description of Web Services



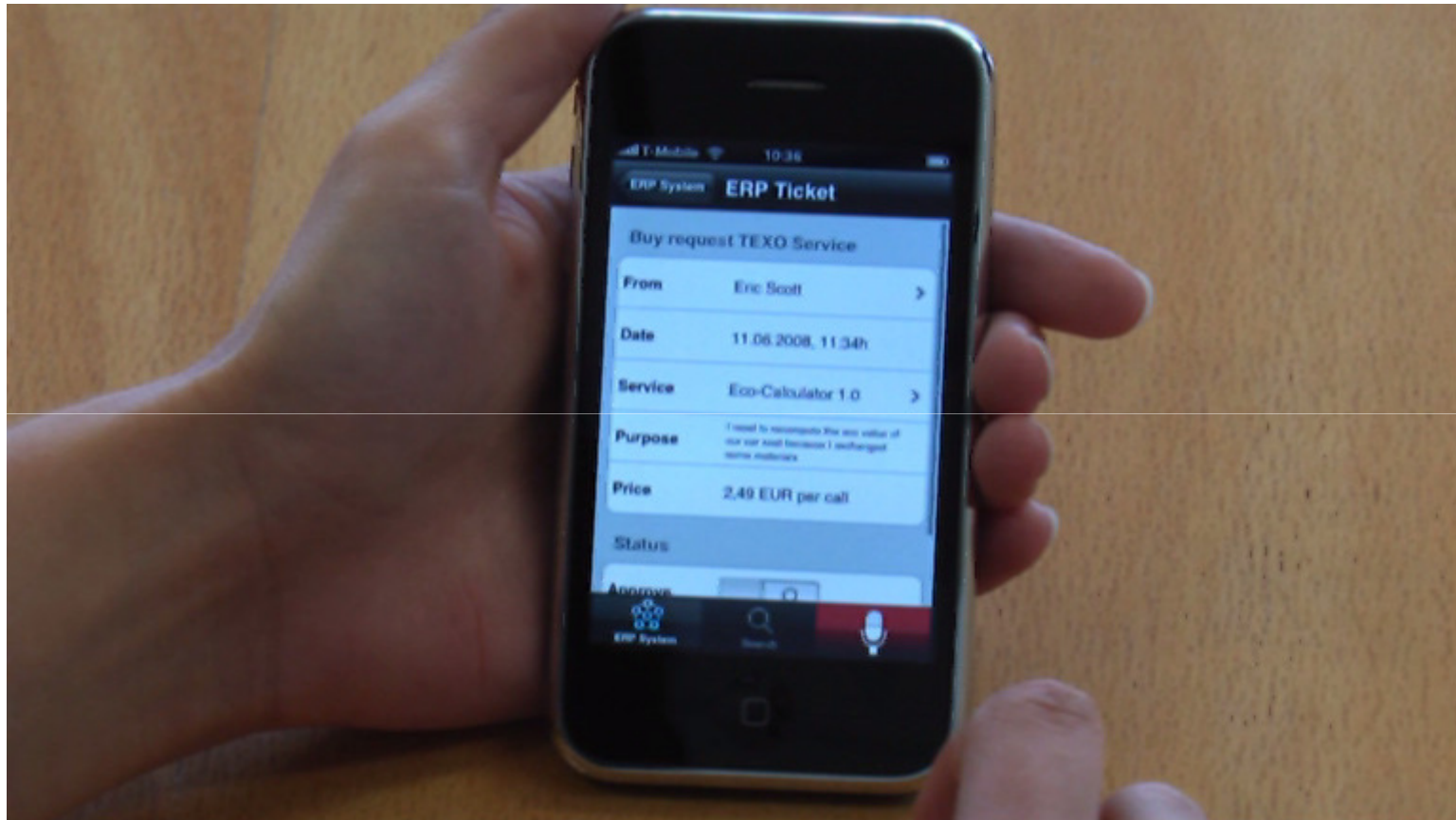
A machine-understandable semantic description should answer the following questions:

- **Who is offering the service?**
- **Who is using this service?**
- **What is offered?**
- **Where is the service offered ?**
- **Why is the service offered?**
- **How is the service offered?**
- **How reliable is the service?**
- **What does the service cost?**
- **What are the constraints for using the service?**
- **What service level agreement is offered?**

Plan-based Composition of Complex Web Services



Spoken Dialogs for the Selection of Web Services on the iPhone: DFKI's contribution to Theseus



Online Video Retrieval: Finding Similar Video TV Video Streams with DFKI's InViRe System



InViRe



Query
ZDF-07-04-20-0064.flv



Result (66.86%)
ZDF-07-03-30-0016.flv

Result (61.08%)
ZDF-07-03-30-0034.flv

Result (59.00%)
ZDF-07-03-19-0029.flv

Result (57.84%)
ZDF-07-04-18-0051.flv

Result (57.25%)
ZDF-07-03-30-0086.flv

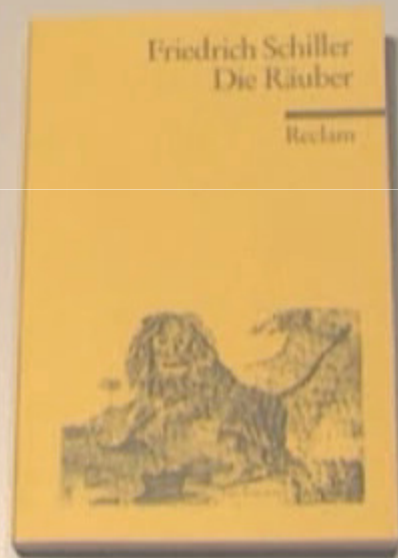


more random videos

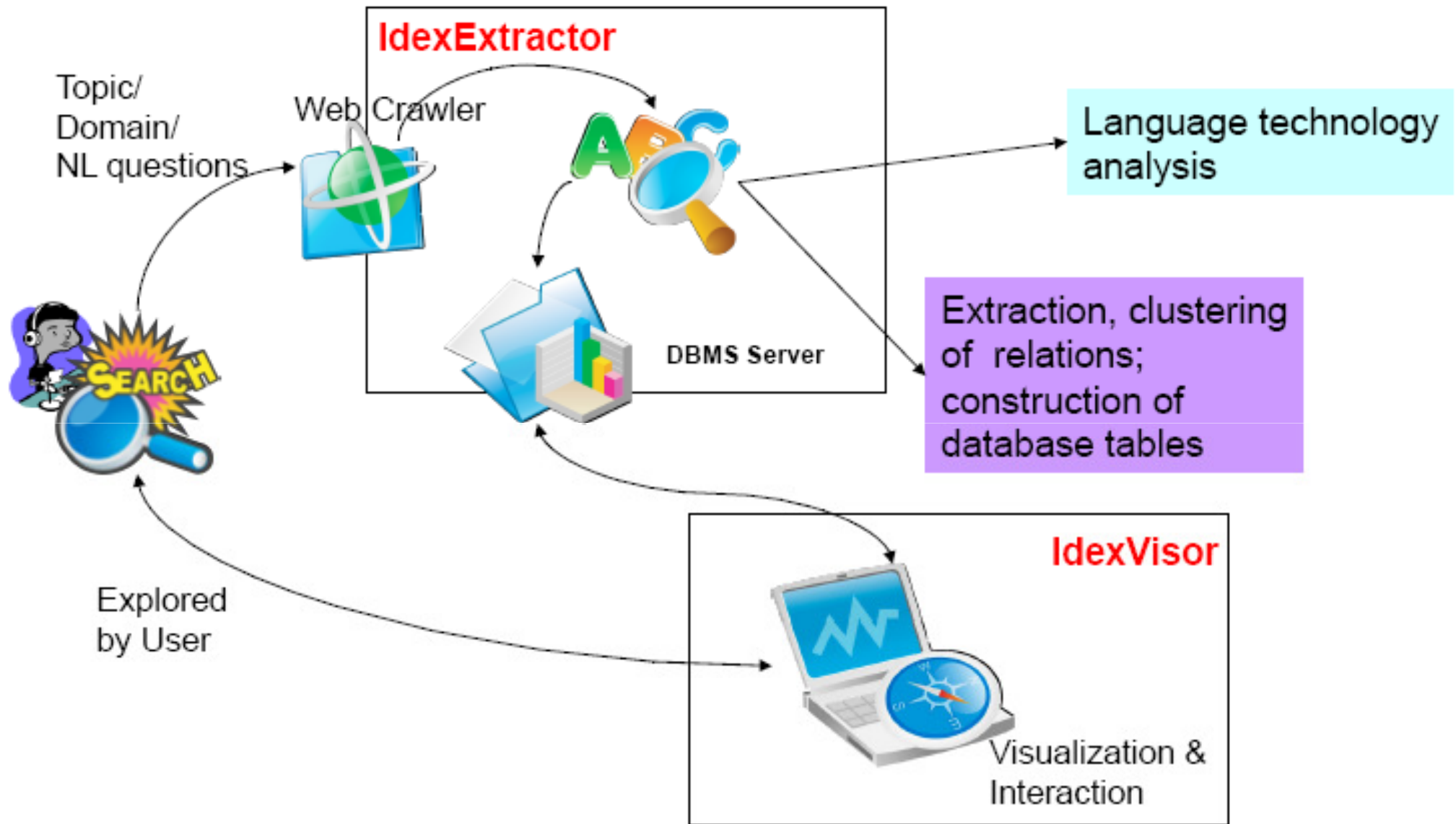
[settings](#)



Crossmodal Queries: Combining Picture and Speech Input on a SmartPhone with SmartWeb



Information Extraction Technologies at DFKI

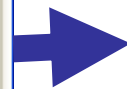
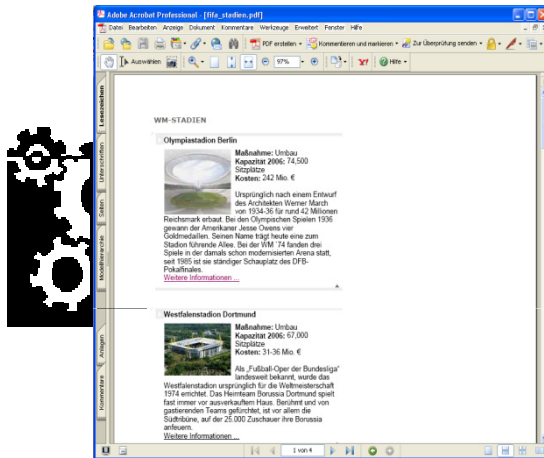


Information Extraction Services: Layout Analysis, Picture Extraction and Ontological Annotation for PDF Documents



HTML document with
text, images and layout information

Pictures with Ontological
Annotation



PDF2HTML
Converter



Layout
Analysis



Olympic Stadium Berlin



Football Stadium
Dortmund

PDF documents
from the Web

Results

Precision	Recall	F-Measure
96%	90%	93%

Answer Extraction from the Deep Web



Input: Show me a picture of Chirac honoring Blatter



Mandela
celebrates
FIFA decision
(0-8-1.jpg)



Jaques
Chirac
honors Josef
S. Blatter
(0-8-2).jpg



Score 0.9

PDF found
in Deep
Web

....



Score 0.17

....



Score 0.17

SmartWeb: Mobile Web Services Access in a Mercedes



What's in the movies today?

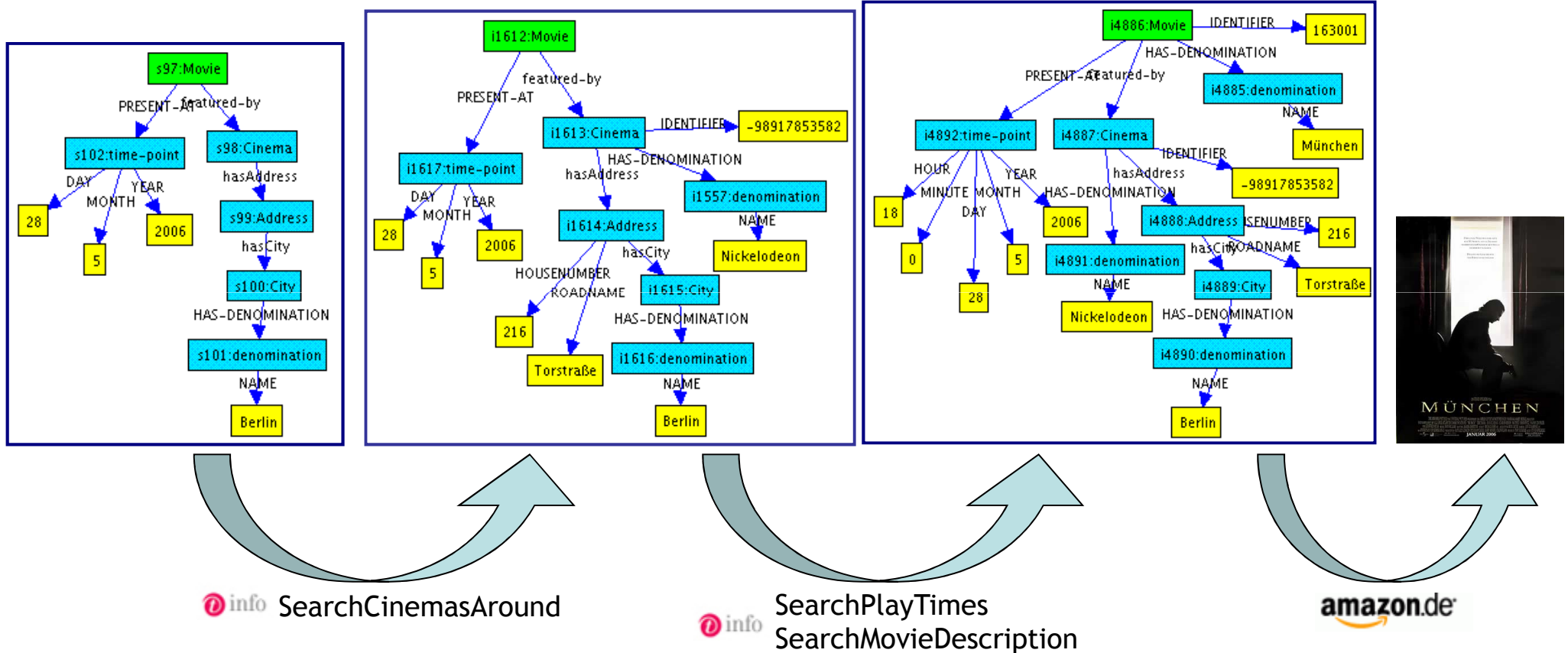
Where do I get the lowest price Diesel?

Where are speed traps today?

ServiceComposer: Composition of four Web Services to Answer a Single Question



Query: „What's in the movies today?“



Movie Poster
annotated with
MPEG-7

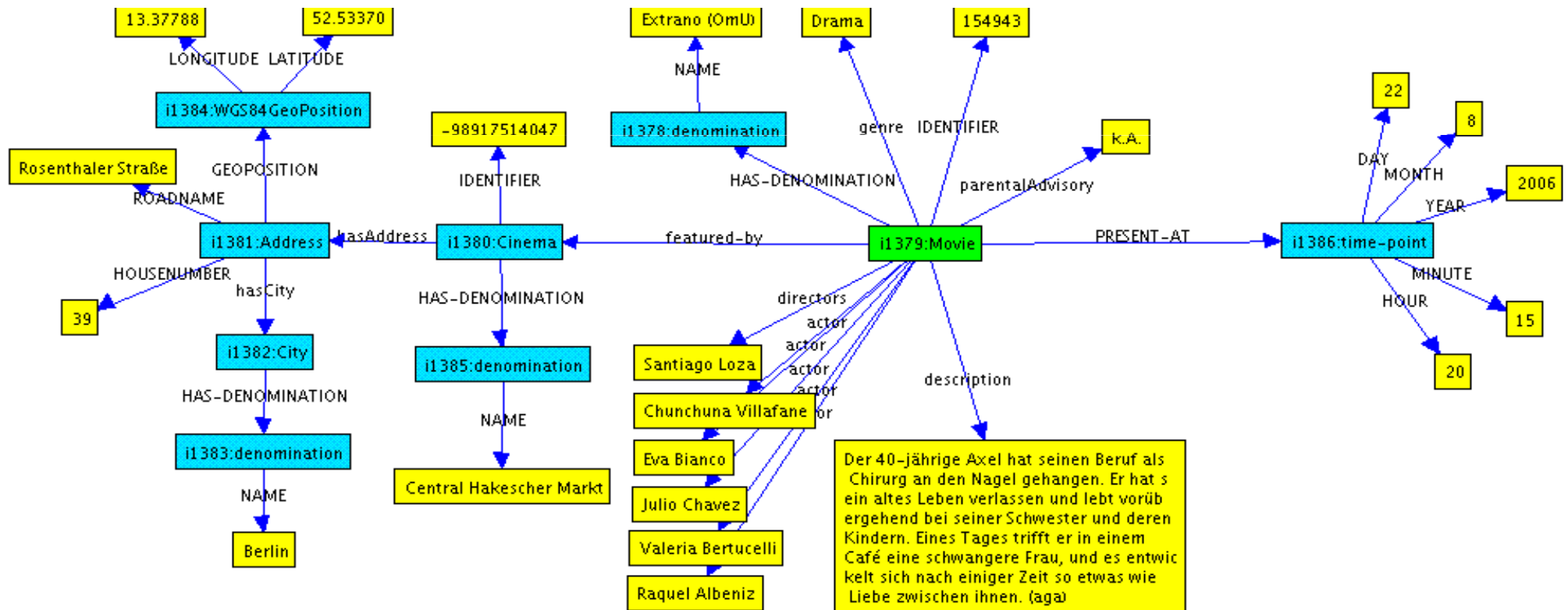
Automatic Service Execution in SmartWeb



“What’s in the movies today?”

SearchPlayTimes: Search for movies played at the given date in a specific cinema

SearchMovieDescription: Search for details of a specific movie (title, actors etc.)



Voice Portal in the Car: Combining Semantic and Local Search in Yellow Pages, Navigation and Call Handling



Composed Web Services in the Car



Audio	Tel	Video	Navi	www-Info
Zielführung		Adressbuch		Ortsinformation



130 km/h
2:6 h
275.12 km

Kinderärzte hier in der

1. Göhmann (544 m)
2. Bisping-Kuske (787 m)
3. Bilger (889 m)
4. Schott (1748 m)
5. Bernert (1907 m)

Main

+ - Details Start Anfrage

SmartWeb Hauptmenü  

*Please call
Göhmann!*

Interoperability of Services:
Yellow Pages, Navigation,
Phone Call

Audio	Tel	Video	Navi	www-Info
Adressbuch		Telefon		

Nummer: Göhmann ((0511) 8114600)



Verbunden



SmartWeb Hauptmenü  



Conclusion

- Consumers are more **willing to pay for services than for data**: data-centric semantic web services as killer app for Web 3.0.
- The success of the **Android Market** and **iPhone App Store** has shown that consumers are willing to pay for useful services.
- **Plan-based Semantic Service Composition** can become one of the major applications of the future Internet of Services.
- **Semantic Information Extraction** from unstructured multimedia data will be one of the key services.

**Thank you very much
for your attention.**

