

Unified Service Description Language

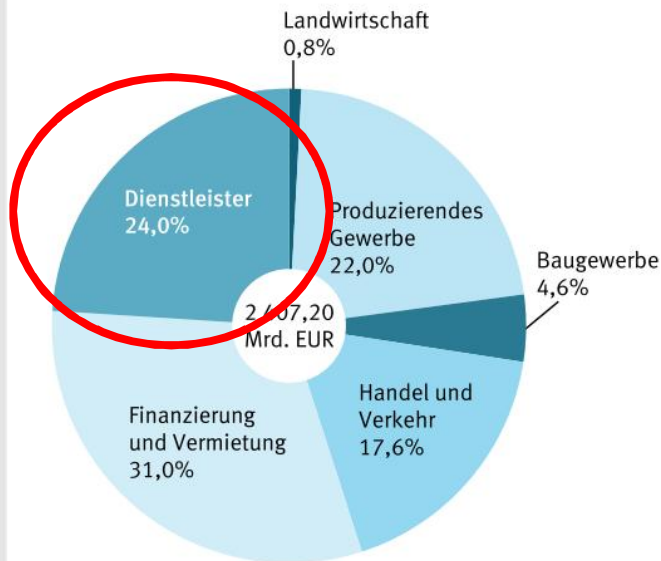
Enabling the Internet of Services

Dr. Kay Kadner, SAP AG, SAP Research, Chair USDL XG
kay.kadner@sap.com, 2011-05-16

Growth due to increasing service orientation

Struktur 2009 ¹⁾

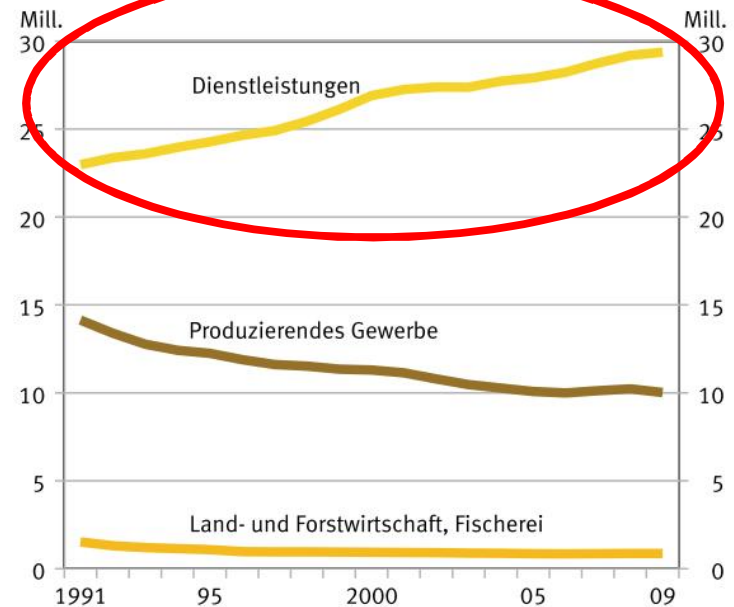
Entstehung des Bruttoinlandsprodukts



1) In jeweiligen Preisen.

Entwicklung der Erwerbstätigkeit ¹⁾ nach Wirtschaftssectoren ²⁾

Jahresdurchschnittswerte der Erwerbstätigenrechnung

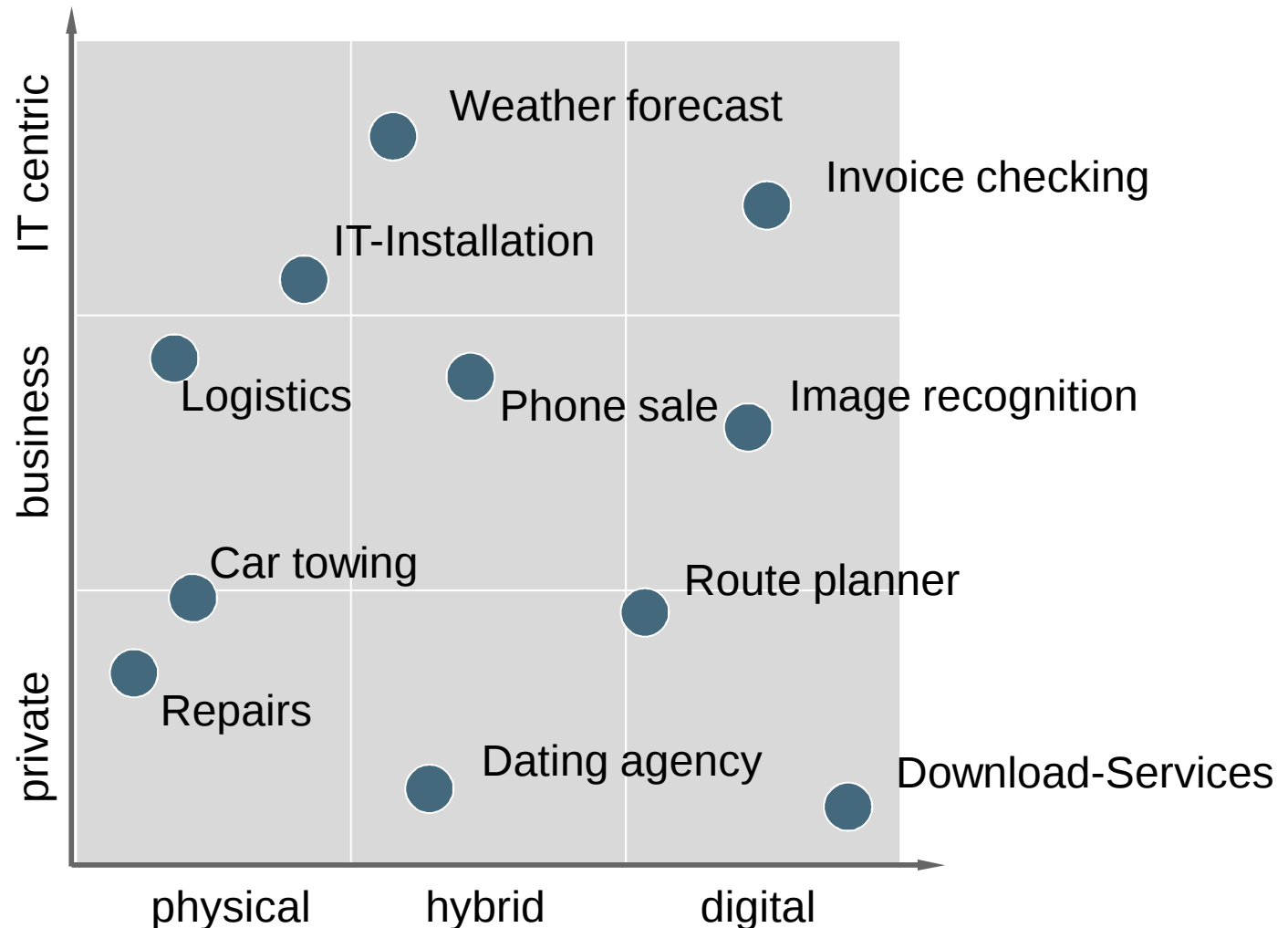


1) Erwerbstätige mit Arbeitsort in Deutschland (Inlandskonzept). Stand: Februar 2010. – 2) Klassifikation der Wirtschaftszweige, Ausgabe 2003 (WZ 2003).

Source: Statistical Yearbook 2010 For the Federal Republic of Germany including »International tables«, Federal Statistical Office of Germany, 2010.

Diversity of Services

– a unified service description is needed



Why is USDL essential for the Internet of Services?

WSDL / WS-*

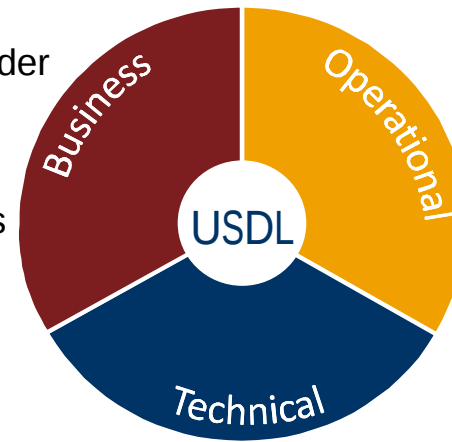


Made for computers (SOA)

Made for people (IoS)



- Service Provider
- Agents
- Price plans
- Service levels
- Availability
- Licenses



- Functionality
- Dependencies
 - Interactions
 - Bundling
- Composition
- Resources

For IT Service only:

- Interface
- Protocol
- Link to WS-*

The USDL XG

37 Members

13 Organisations

4 Invited experts

Attensity,
DFKI, SAP,
Siemens

HP, Ontotext,
Open University,
University of
Stanford

CA
technologies,
Fraunhofer
Gesellschaft,
DERI Galway

Gather feedback

New spec
elements

Modify spec
elements

Further
application
scenarios

Specify test cases

Energy

Healthcare

Searching

Marketplace

Define serialization

XML / XSD

Linked data

USDL allows to comprehensively describe all kinds of services that

Claim new and foster existing markets

Create new business models for the Internet of Services

USDL editor and model are open source, more to come

<http://www.w3.org/2005/Incubator/usdl/>

<http://www.internet-of-services.com>

<https://sourceforge.net/projects/usdleditor/>

<https://sourceforge.net/projects/usdlmodel/>

<http://theseus-programm.de/en-us/theseus-application-scenarios/texto/default.aspx>

Outlook – What is next?



You would like to engage yourself / your organization further?

You got excited as we are about the potential of USDL?

**Join us – we are able to integrate further test scenarios,
the team is keen on growing...**



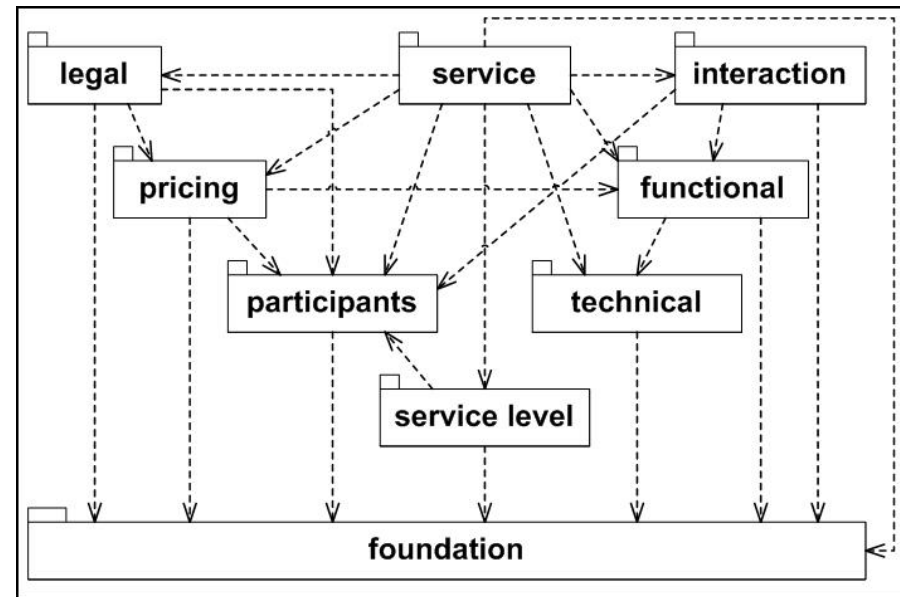
Some details about USDL - current specification

Divided into modules

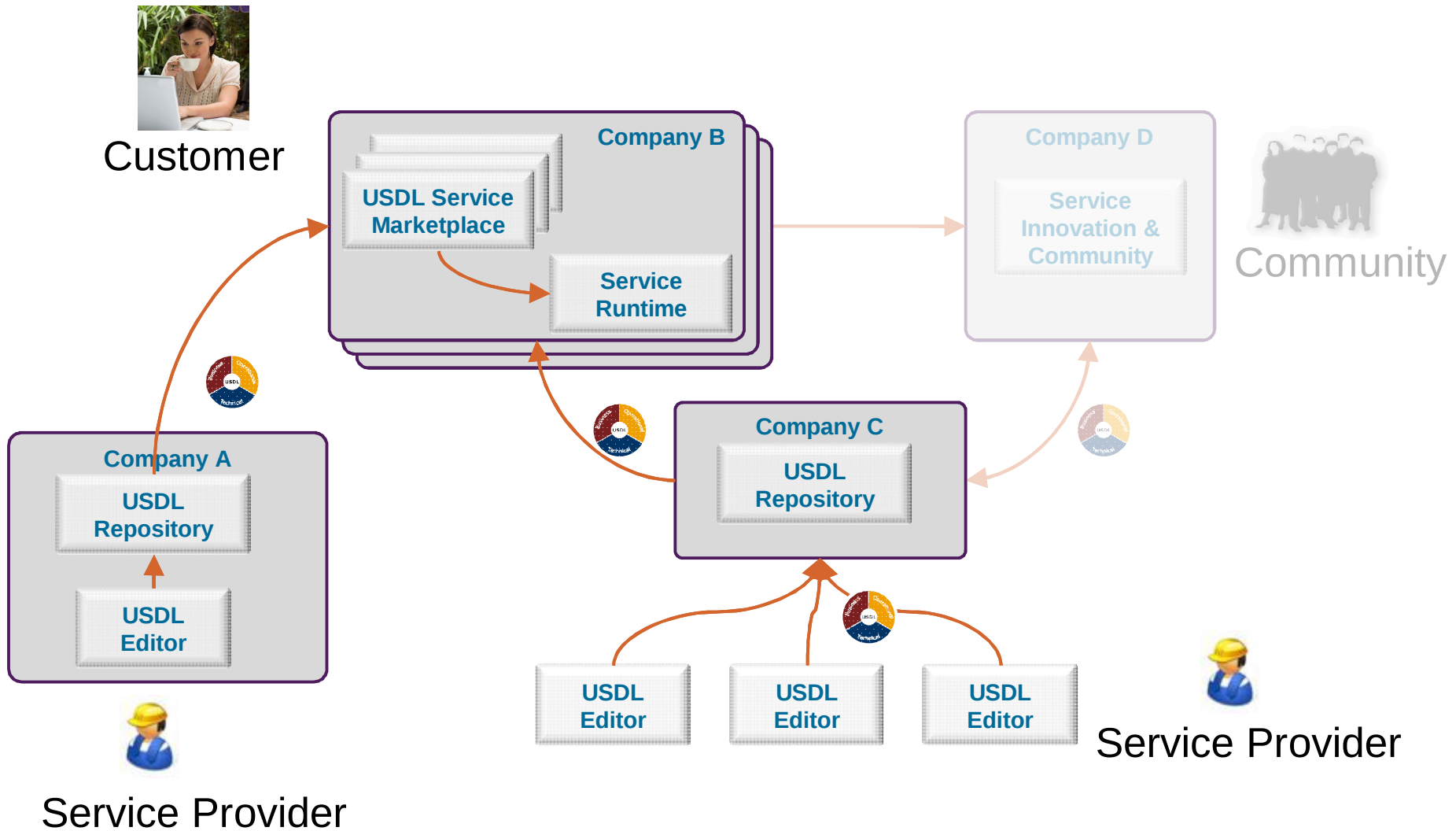
- Foundation (concepts independent to services but crucial for all others, like *Organization*, *Person*, *Resource*, *Time*, *Location*, etc.)
- Service (concepts that are core to all others like *Service* and *Service Bundle*)
- Service level (service quality, reliability, etc.)
- Technical (technical interface)
- Functional (capabilities)
- Interaction (business protocols, behavior)
- Participants (contains roles like *Provider*)
- Pricing (price models, price plans, discounts)
- Legal (legal issues with this service)

Serialization under investigation

- XML Schema
- Linked Data

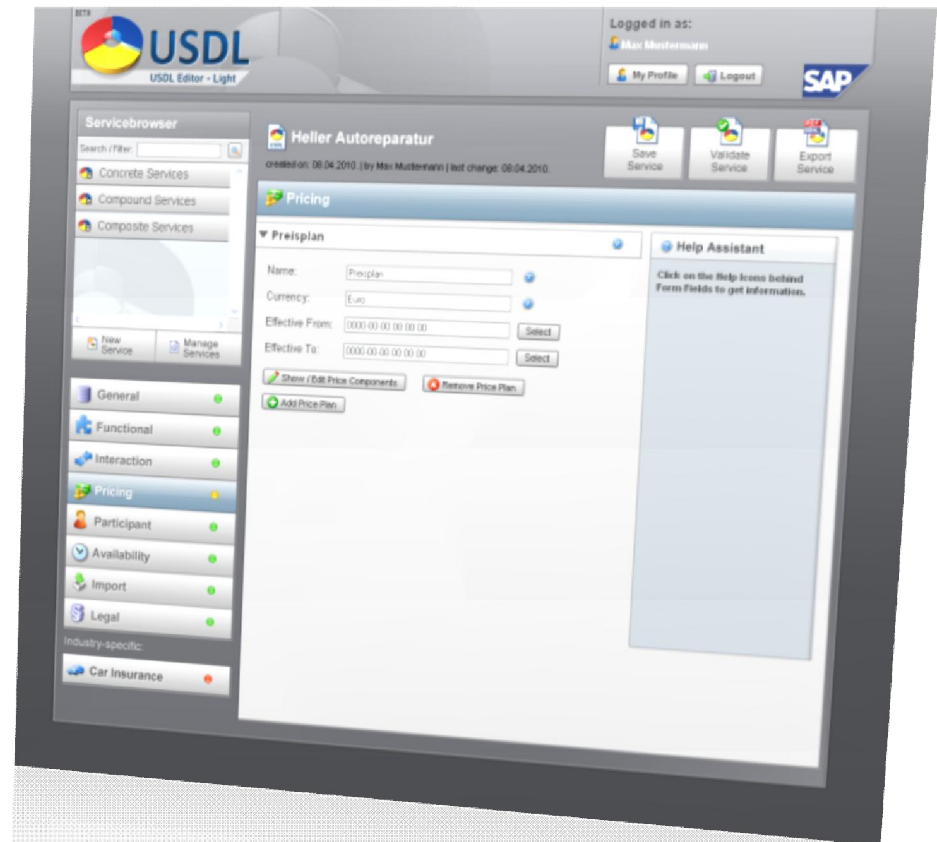
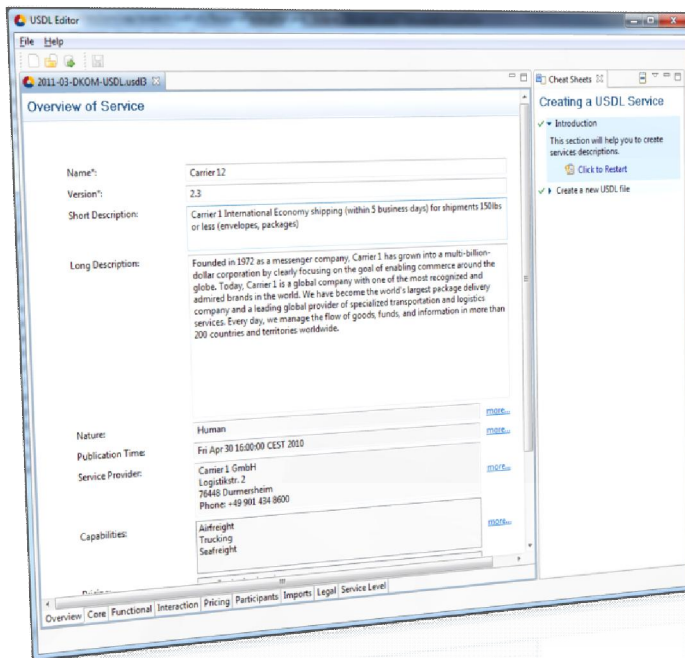


Potential infrastructure setup



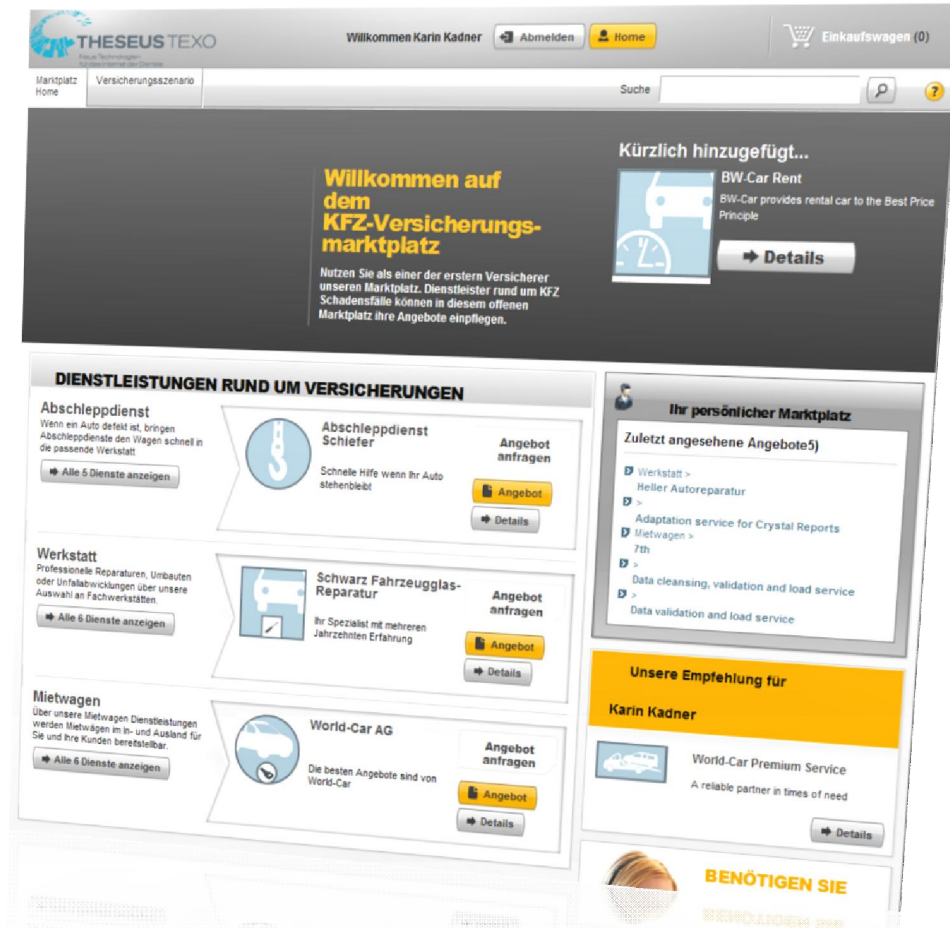
Tool landscape – two editors

Developer Version (Eclipse)

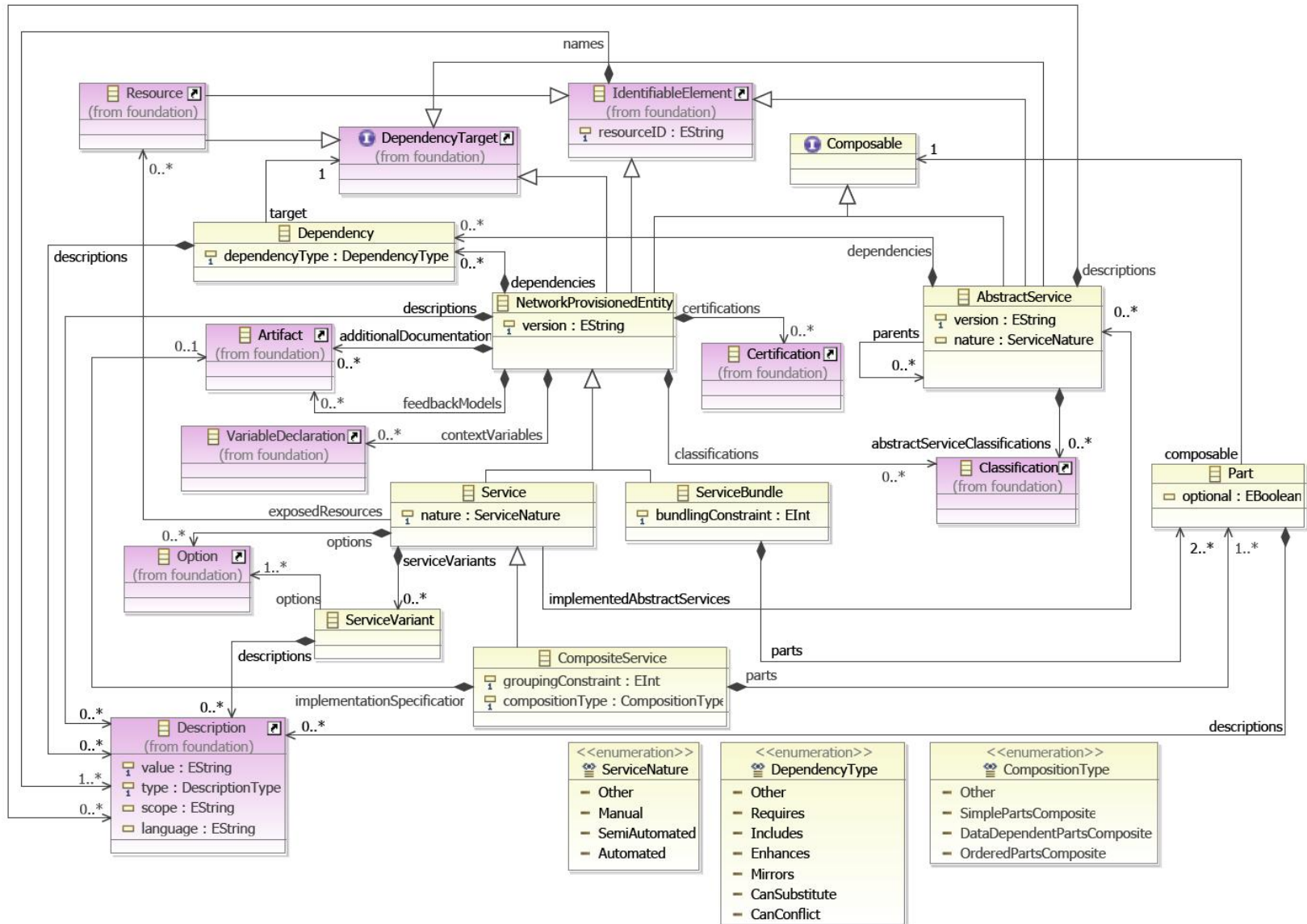


User Version (Web Editor)

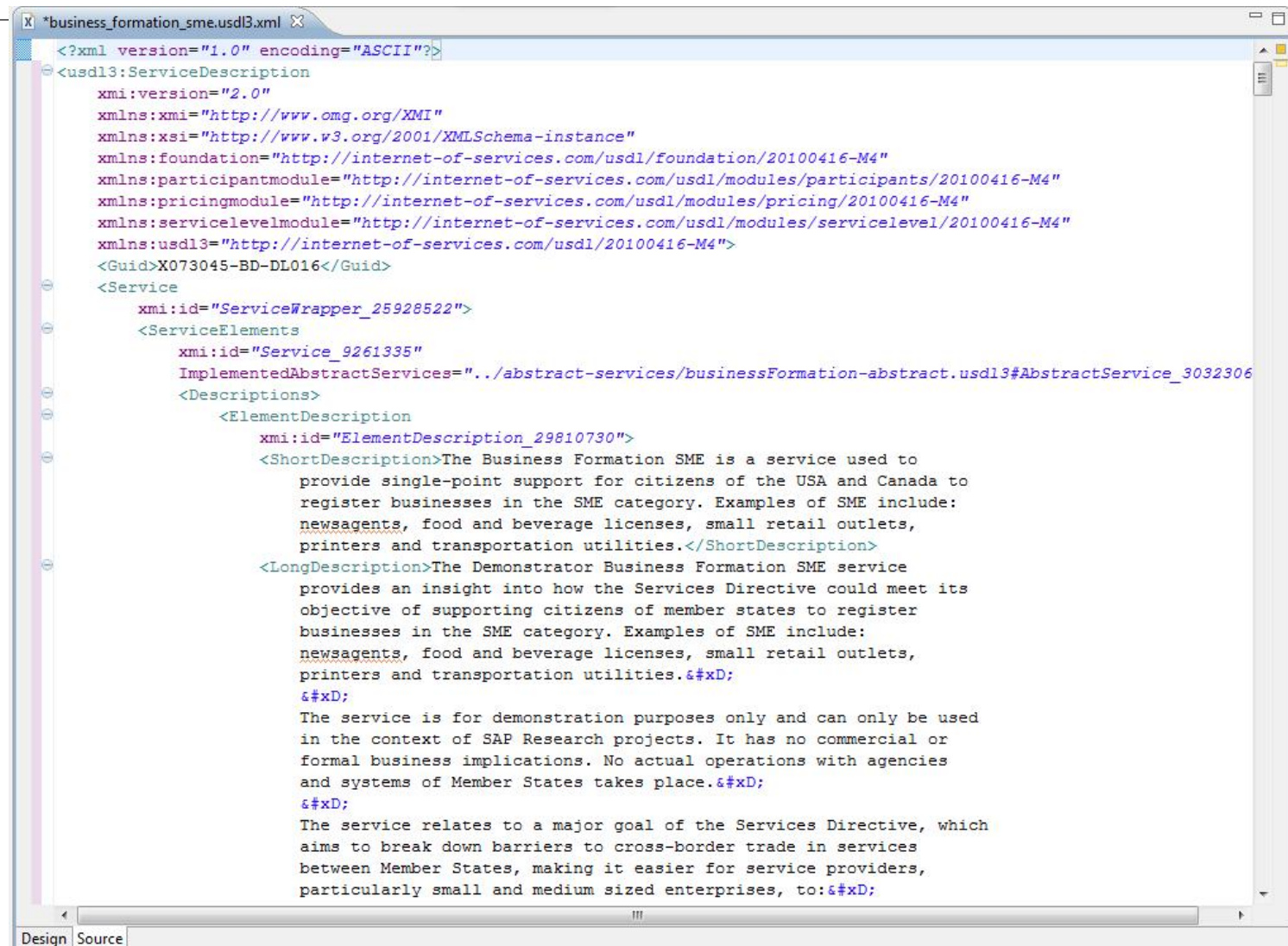
Tool landscape continued – Repository and Marketplace



Model example – Service.ecore

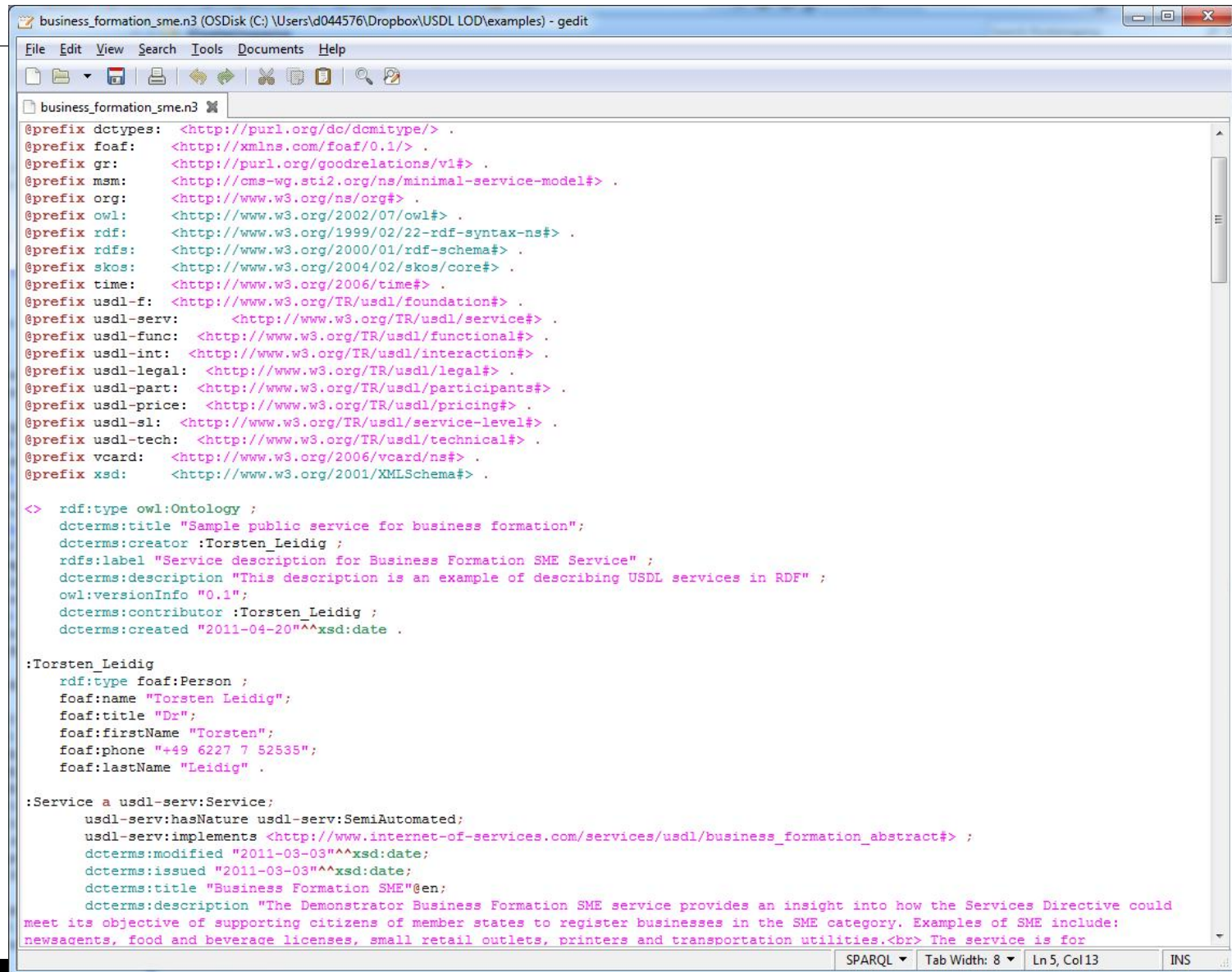


Serialization formats – XML



```
<?xml version="1.0" encoding="ASCII"?>
<usdl3:ServiceDescription
  xmi:version="2.0"
  xmlns:xmi="http://www.omg.org/XMI"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:foundation="http://internet-of-services.com/usdl/foundation/20100416-M4"
  xmlns:participantmodule="http://internet-of-services.com/usdl/modules/participants/20100416-M4"
  xmlns:pricingmodule="http://internet-of-services.com/usdl/modules/pricing/20100416-M4"
  xmlns:servicelevelmodule="http://internet-of-services.com/usdl/modules/servicelevel/20100416-M4"
  xmlns:usdl3="http://internet-of-services.com/usdl/20100416-M4">
  <Guid>X073045-BD-DL016</Guid>
  <Service
    xmi:id="ServiceWrapper_25928522">
    <ServiceElements
      xmi:id="Service_9261335"
      ImplementedAbstractServices="../abstract-services/businessFormation-abstract.usdl3#AbstractService_3032306"
      <Descriptions>
        <ElementDescription
          xmi:id="ElementDescription_29810730">
          <ShortDescription>The Business Formation SME is a service used to
            provide single-point support for citizens of the USA and Canada to
            register businesses in the SME category. Examples of SME include:
            newsagents, food and beverage licenses, small retail outlets,
            printers and transportation utilities.</ShortDescription>
          <LongDescription>The Demonstrator Business Formation SME service
            provides an insight into how the Services Directive could meet its
            objective of supporting citizens of member states to register
            businesses in the SME category. Examples of SME include:
            newsagents, food and beverage licenses, small retail outlets,
            printers and transportation utilities.&#xD;
            &#xD;
            The service is for demonstration purposes only and can only be used
            in the context of SAP Research projects. It has no commercial or
            formal business implications. No actual operations with agencies
            and systems of Member States takes place.&#xD;
            &#xD;
            The service relates to a major goal of the Services Directive, which
            aims to break down barriers to cross-border trade in services
            between Member States, making it easier for service providers,
            particularly small and medium sized enterprises, to:&#xD;
```

Serialization formats – Notation 3



```
business_formation_sme.n3 (OSDisk (C:) \Users\d044576\Dropbox\USDL LOD\examples) - gedit
File Edit View Search Tools Documents Help
business_formation_sme.n3
@prefix dctypes: <http://purl.org/dc/dcmitype/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix gr: <http://purl.org/goodrelations/v1#> .
@prefix msm: <http://cms-wg.sti2.org/ns/minimal-service-model#> .
@prefix org: <http://www.w3.org/ns/org#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix time: <http://www.w3.org/2006/time#> .
@prefix usdl-f: <http://www.w3.org/TR/usdl/foundation#> .
@prefix usdl-serv: <http://www.w3.org/TR/usdl/service#> .
@prefix usdl-func: <http://www.w3.org/TR/usdl/functional#> .
@prefix usdl-int: <http://www.w3.org/TR/usdl/interaction#> .
@prefix usdl-legal: <http://www.w3.org/TR/usdl/legal#> .
@prefix usdl-part: <http://www.w3.org/TR/usdl/participants#> .
@prefix usdl-price: <http://www.w3.org/TR/usdl/pricing#> .
@prefix usdl-sl: <http://www.w3.org/TR/usdl/service-level#> .
@prefix usdl-tech: <http://www.w3.org/TR/usdl/technical#> .
@prefix vcard: <http://www.w3.org/2006/vcard/ns#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<> rdf:type owl:Ontology ;
dcterms:title "Sample public service for business formation";
dcterms:creator :Torsten_Leidig ;
rdfs:label "Service description for Business Formation SME Service" ;
dcterms:description "This description is an example of describing USDL services in RDF" ;
owl:versionInfo "0.1";
dcterms:contributor :Torsten_Leidig ;
dcterms:created "2011-04-20"^^xsd:date .

:Torsten_Leidig
rdf:type foaf:Person ;
foaf:name "Torsten Leidig";
foaf:title "Dr";
foaf:firstName "Torsten";
foaf:phone "+49 6227 7 52535";
foaf:lastName "Leidig" .

:Service a usdl-serv:Service;
usdl-serv:hasNature usdl-serv:SemiAutomated;
usdl-serv:implements <http://www.internet-of-services.com/services/usdl/business_formation_abstract#> ;
dcterms:modified "2011-03-03"^^xsd:date;
dcterms:issued "2011-03-03"^^xsd:date;
dcterms:title "Business Formation SME"@en;
dcterms:description "The Demonstrator Business Formation SME service provides an insight into how the Services Directive could meet its objective of supporting citizens of member states to register businesses in the SME category. Examples of SME include: newsagents, food and beverage licenses, small retail outlets, printers and transportation utilities.<br>The service is for
```



Thank You!

Contact information:

Dr. Kay Kadner
Senior Researcher
SAP AG, Chemnitzer Str. 7a, 01157 Dresden, Germany
+49 351 4811 6127
kay.kadner@sap.com

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