

A Framework for the classification of Situation Dependent Services

Fachvortrag auf der American Conference on Information Systems (AMCIS) 2002, Dallas, USA

Inhalt:

Auseinandersetzung mit dem Thema Kontextsensitivität
Definition von Einflussvariablen
Beschreibung gängiger Ansätze zur Klassifizierung

Leistungsbereich: Produktentwicklung

Ansprechpartner: Jens Wehrmann

Dokumentart: Präsentation

Kontakt

Safari GmbH Office Mannheim
Goethestraße 18 D-68161 Mannheim

Safari GmbH Office München
Reitmorstraße 4 D-80358 München

Tel: +49 - 621 - 18 144 720
Fax: +49 - 621 - 18 144 740

info@safari-gmbh.de
www.safari-gmbh.de

Dieses Werk ist urheberrechtlich geschützt. Alle Rechte, auch die der Übersetzung, des Nachdrucks und der Vervielfältigung vorbehalten. Kein Teil des Werkes darf ohne schriftliche Genehmigung der Safari GmbH in irgendeiner Form (Fotokopie, Mikrofilm, Datenträger oder einem anderen Verfahren) reproduziert oder unter Verwendung elektronischer Systeme verarbeitet, vervielfältigt oder verbreitet werden.



A Framework for the classification of Situation Dependent Services

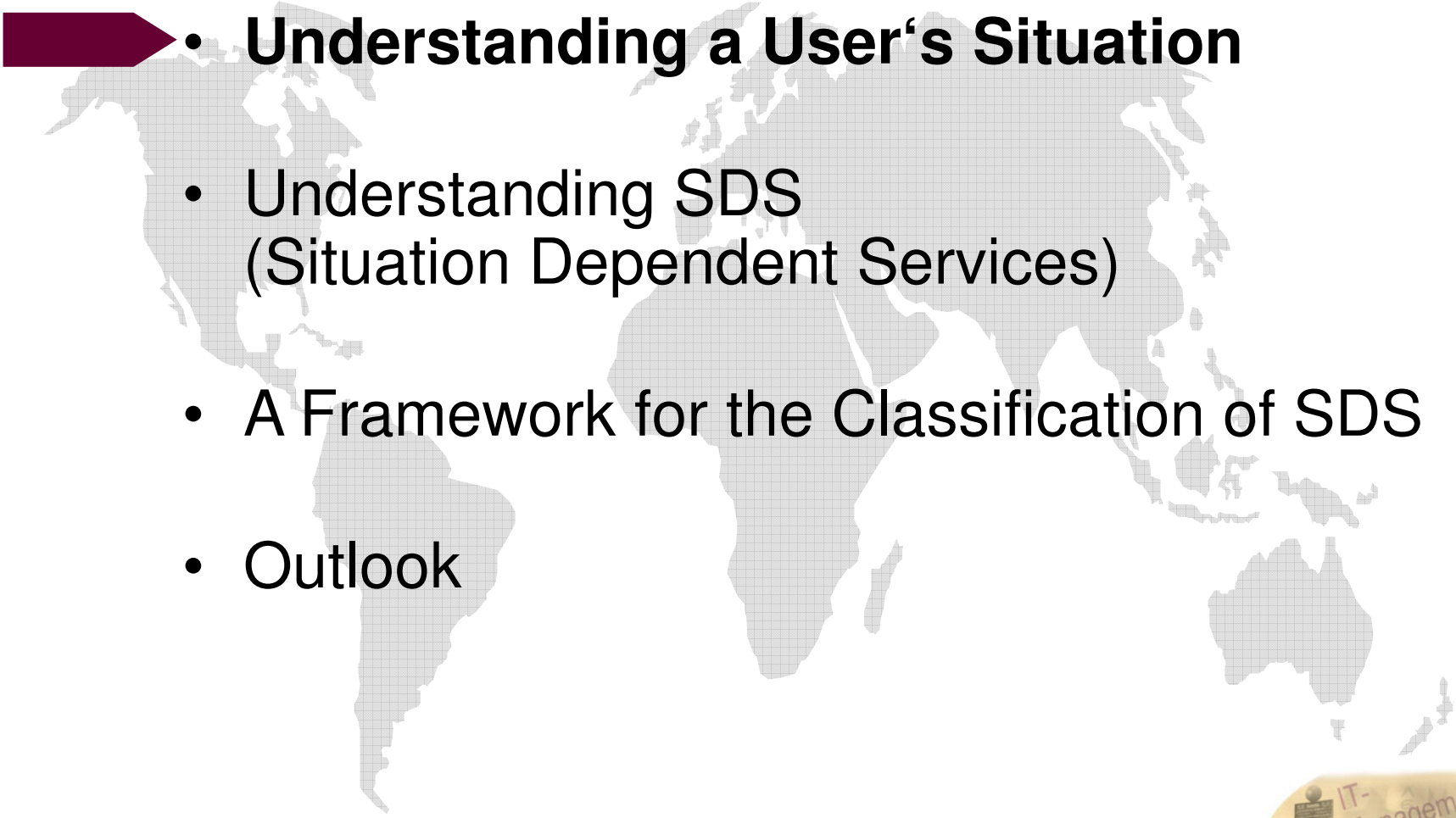
Dipl. Kfm. Jens Wehrmann

Prof. Dr. Michael Amberg

Business Information Systems III
University of Erlangen-Nuremberg, Germany



Agenda

- 
- **Understanding a User's Situation**
 - Understanding SDS
(Situation Dependent Services)
 - A Framework for the Classification of SDS
 - Outlook





Comparison of different Situation Classifications

Understanding a user's situation

Proposed here	Figge (2001)	Scheer et. al. (2002)	Gessler and Jesse (2000)
- Time	- Time	- Time Context	- Time
- Position	- Position	- Local Context	- Location
- Static Profile	- Person	- Personal Context	- User Context
- Dynamic Profile		- Action Based Context	- Object Context
			- General Context





Example: Situation Determinants ⁴ in mobile Networks

Understanding a user's situation

- **Situation Determinant: Time**
 - Co-ordinated Universal Time (UTC)
 - Greenwich Mean Time (**GMT**)
- **Situation Determinant: Position**
 - Degree of Longitude and Latitude according to the **World Geodetic System** – 1984 (WGS84)
 - Network based, Terminal based
- **Situation Determinant: Identity**
 - Mobile Subscriber International Subscriber Directory Number (**MSISDN**)
 - Subscriber Identification Module (**SIM**)
 - System Signalling 7 (SS7)-Protocol





Agenda

- Understanding a User's Situation
- **Understanding SDS
(Situation Dependent Services)**
- A Framework for the Classification of SDS
- Outlook





Understanding Situation Dependency

- **Situation Dependency can be used for**
 - customising,
 - personalising and
 - adapting**any kind of services (e.g. mobile Services, Software).**
- **Situation Dependent Services should be intuitive and adaptive.**
- **Situation Dependency may become a significant influencing factor for many future services.**





Adaptation Targets

Understanding Situation Dependent Services

- **Adaptation concerning the Location**
 - Location Based Services (**LBS**)
 - Points of Interests (**POI**)
- **Adaptation concerning the Time**
 - Day- and Weektime, Public **Holiday**
 - Leisure and **Working Hours**
- **Adaptation concerning the Static Profile**
 - User **Identity**
 - User **Profiles** and **Preferences** (Knowledge, Interests)
- **Adaptation concerning the Dynamic Profile**
 - User **Behaviour**
 - User Specific **Context**





Interpretation of Situation Determinants

Understanding Situation Dependent Services

Input

Interpretation

Output

Situation determinants

Access Time:
08/08/02 15:53

Access Position:
6,7° / 51,2°

Identity:
+49 170 1234567

Logs:
http request "xyz"



	General Attributes	Personal Attributes
Time	General calendar (events, public holiday, etc.)	Personal calendar (dates, travel, vacation, etc.)
Position	Digital maps, Points of Interest	Location preferences (home, work, etc.), Routes (way to work, etc.)
Static Profile	Demographic databases	Personal profile (hobbies, age, occupation, etc.)
Dynamic Profile	Interpretation and Knowledge databases	Personal Behaviour (special context, used Services, etc.)



Situation description

Day Category: Workday
Context: Business Travel

Country: United States
City: Dallas
Nearest Site: Airport

Age: 27
Gender: Male
Interests: Sports
Context: Business Man

Service Usage: very often
Navigation speed: fast
Probability of Buy: high





Agenda

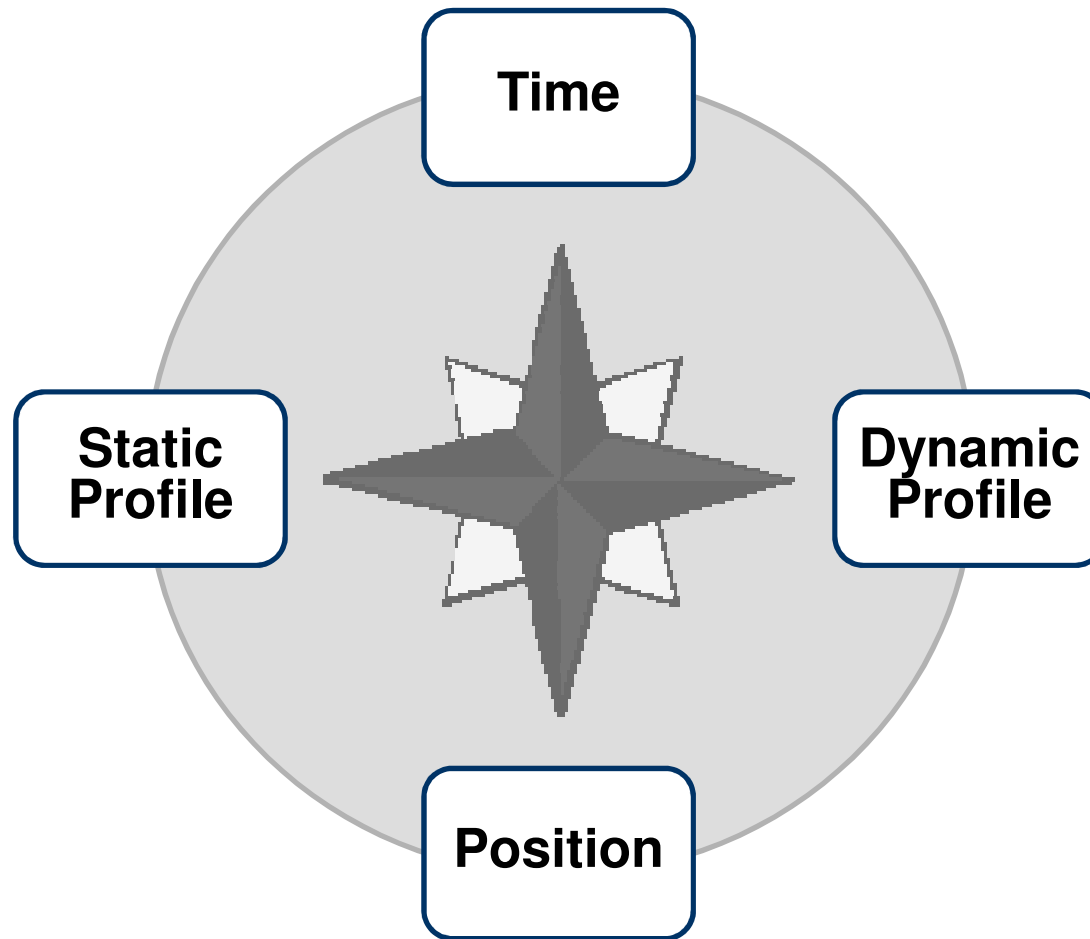
- Understanding a User's Situation
- Understanding SDS
(Situation Dependent Services)
- ▶ • **A Framework for the Classification of SDS**
- Outlook





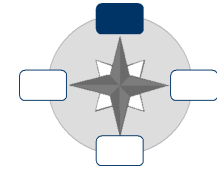
Dimensions of a Situation

A Framework for the Classification of Situation Dependent Services





Situation Dimension: Time



11

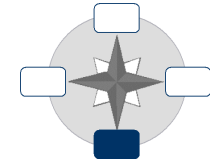
A Framework for the Classification of Situation Dependent Services

- **Measuring the Time**
 - Co-ordinated Universal Time (UTC)
 - Greenwich Mean Time (**GMT**)
- **Finding the Time Context**
 - **Time depends** on other dimensions (particularly Position)
 - **Context depends** on other dimensions (particularly Static Profile, e.g. personal calendar)
- **Example:**
Appearance of services depends on
 - Daytime, Opening Hours, Public **Holidays**
 - **Working Hours**, Leisure





Situation Dimension: Position



12

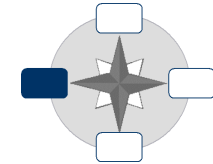
A Framework for the Classification of Situation Dependent Services

- **Measuring the Position**
 - Degree of Longitude and Latitude according to the World Geodetic System – 1984 (**WGS84**)
 - **Terminal** based Technologies (e.g. GPS, A-GPS, E-OTD)
 - **Network** based Technologies (e.g. COO, CGI-TA, TOA, TCP/IP Networks: LAN, W-LAN, Internet)
- **Examples:**
 - Location Based Services (**LBS**), e.g. **Advertising**
 - Location based yellow pages or Shopping Assistants
 - Route **Navigation** Assistants
 - **Fleet** Management





Situation Dimension: Static Profile



13

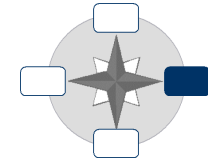
A Framework for the Classification of Situation Dependent Services

- **Determine the Identity**
 - **Phone Number**, Subscriber Identification Module (**SIM**)
 - Mobile Subscriber International Subscriber Directory Number (**MSISDN**)
 - IP-, **MAC-Address**
- **Connection to the Static Profile**
 - **Cookies**
 - Open Profiling Standard (**OPS**)
 - Platform for Privacy Preferences Protocol (**P3P**)
- **Examples:**
 - **Target Group** specific Service Layout (Age, Income, ...)
 - Collecting Long Term Information (Interests, Skills, ...)





Situation Dimension: Dynamic Profile



14

A Framework for the Classification of Situation Dependent Services

- **Dynamic Profile**
 - Collecting and Storing **Logs** about the User's Short-Term Behaviour
 - Analysing this **Log-Information**
 - **Interpretation** of the User's behaviour
- **Connection to the Static Profile**
 - Accumulating Additional Information from the Static Profile
 - **Evolutionary** Services
- **Examples:**
 - Context Sensitive Navigation Adaptation (Microsoft)
 - Context Dependent Advertisement (e.g. Google)





A Framework for SDS

A Framework for the Classification of Situation Dependent Services

Dimension	Metaphor	State of the Art Technologies	Current Usage	Major Problem	Examples
Time	<i>When?</i>	Clock, Calendar	Seldom used	Finding suitable Applications	Time dependent appearance of websites
Position	<i>Where?</i>	<i>Terminal based:</i> GPS, A-GPS, E-OTD <i>Network based:</i> COO, CGI-TA, TOA	Often used by explicit User Request	Protection of Privacy	LBS, Fleet Management, Navigation Systems
Static Profile	<i>Who?</i>	Cookies, OPS, P3P	Often used	Protection of Privacy	GMX, Yahoo, Amazon
Dynamic Profile	<i>In what context?</i>	Netlogs	Only used for simple Applications	Data Analysis	Google





Agenda

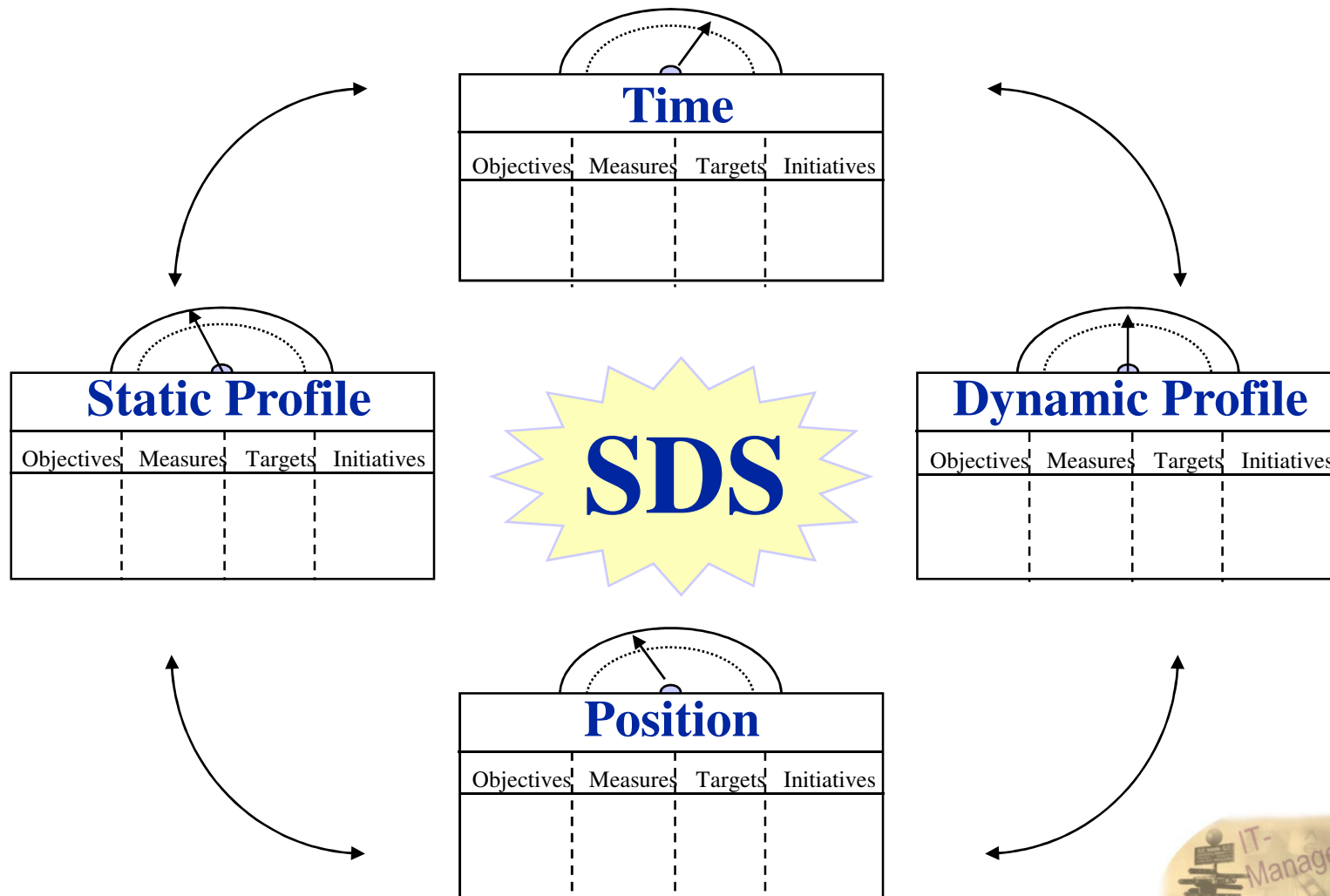
- Understanding a User's Situation
- Understanding SDS
(Situation Dependent Services)
- A Framework for the Classification of SDS
- **Outlook**





A Balanced Scorecard for SDS

Evaluation of Situation Dependent Services





Chances and Risks of SDS

Experiences and Evaluation of Situation Dependent Services

	Service Provider	Customer, User
Chances	<ul style="list-style-type: none"> • New Services for new Networks (UMTS) • Controlling of Services • Enables new Marketing Methods (e.g. proactive Push Services) 	<ul style="list-style-type: none"> • Personalised Services • Better Service Comfort • Demand-oriented Services (e.g. Software, Mobile,...) • Effective usage of the existing infrastructure
Risks	<ul style="list-style-type: none"> • Legal and Security Concerns may cause User Restraints • Little Experience • Technical Problems 	<ul style="list-style-type: none"> • Protection of Privacy (Transparent Individual) • Incorrect Adaptations • Low Performance

