Knowledge Worker Support by Task Management
The Social Semantic Desktop

Uwe Riss, CEC Karlsruhe

DLAC Workshop

19-06-2008

social semantic desktop
NEPOMUK

Information Society
Technologies

SAP

Target Group: Knowledge Workers

- High degree of variability of work and handling of exceptions (Personal character)
- Strong communication (Social character)
- Networks, processes, and communities (Network character)

What is the Social Semantic Desktop?

- Desktop: Unify information object management on the desktop as personal work environment via cross-application linking

- Semantic: Support the personal information handling via personal work-process management and efficient ontology-based knowledge representation

- Social: Enable knowledge sharing and structured communication within social networks

Knowledge Management (KM) at the Core

- Central Goal: Make a better use of existing knowledge in an organization

- Technology-centric approaches to KM have mainly focused on the management of information objects such as documents

- However, knowledge is more than what we find in document
    - Knowledge is actualized in work processes on the basis of information as a tool
    - In KW the separation between information objects and work activities is artificial and generates barriers in KM

Conclusions

- It is necessary to combine Information management with task management to overcome this separation

- Use semantic representations as the common basis for both

- This requires work activities to be formally described in a task model

What is the Contradiction?

- Work activities are concrete actions based on interaction with the world
  - As such they are beyond representation
- Describing work activities requires additional efforts by the knowledge workers
  - It is far from trivial for the knowledge worker
  - It only yields approximate description real actions
  - It does not directly support action
- We find this in the distinction of productive and supportive activities

Task Management Approach

Observed Barriers

Isolation of formal task handling from actual objects of work

Additional metadata handling required

Task handling requires switching between applications

Applied Approach

Use the NEPOMUK Infrastructure to offer tasks as information nodes in the semantic network

Generate metadata on the basis of user activities, e.g., task creation from an email
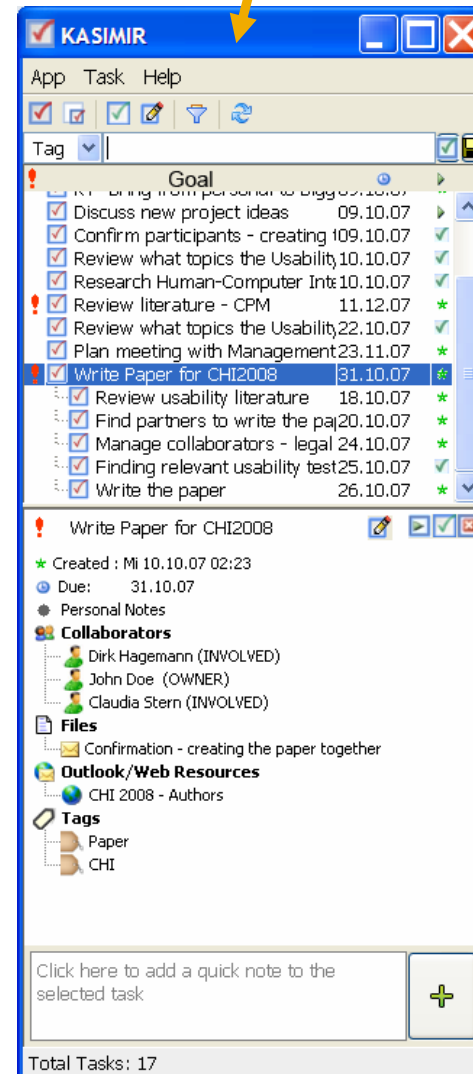
Bring the task management closer to the applications via plug-ins

Theory Implemented

Microsoft Outlook Task Plug-In
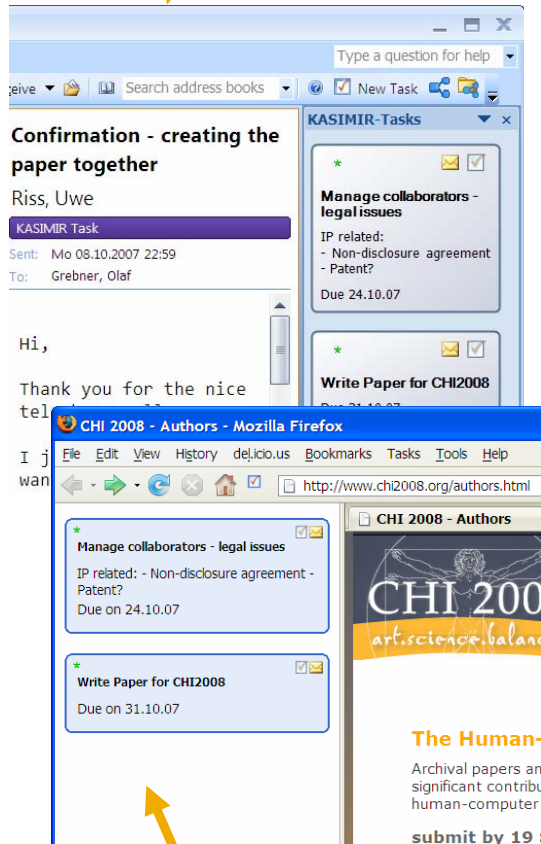
Mozilla Firefox Task Plug-In

Task sidebar

SAP RESEARCH

Experience Management on Top of Task Management

Experience Management

yields support

is the basis for

Enhanced Task Management

Extracting work experience

- Collect user experience
- Provide abstraction mechanisms

Guidance for task execution

- Reuse of collected work experience as User Guidance via **Task Patterns**

Simplify and enhance task management experience

Support for Knowledge Workers' Personal Task Management

- Manage (i.e. create, delete, …) tasks
- Task Planning – task decomposition – define sub-tasks
- Time Management – efficient prioritization of tasks
- Task Tracking of e.g. (delegated) task threads

SAP RESEARCH

social semantic desktop
NEPOMUK

Information Society
Technologies

Task Patterns as Social Constructs

Explicit Information

- Initial semi-automatic creation of a pattern of execution (subtasks, guidelines, templates etc.) based in individual execution
- Provide these patterns to consumers/learners as general guidance and let/make them improve them

Beyond Explicit Information

- Provide context information from real cases: situation description, problems, decisions, „sideways"
- Give the learner access to this context on a person-2-person basis to get details

The key ideas

- Separate public abstract pattern and private context information actions
- Pattern maintenance is mainly based on user actions
- Reduce public data availability get details by establishing trusted communication

Summary - Action focused User Model

Transfer of Knowledge

Knowledge as Integration of Information and Action

Concrete Human Activity

Activity Based Task Handling

Metadata Generation

Application Integration

Social Experience Management

Use of Semantic Technologies

Action Formalization
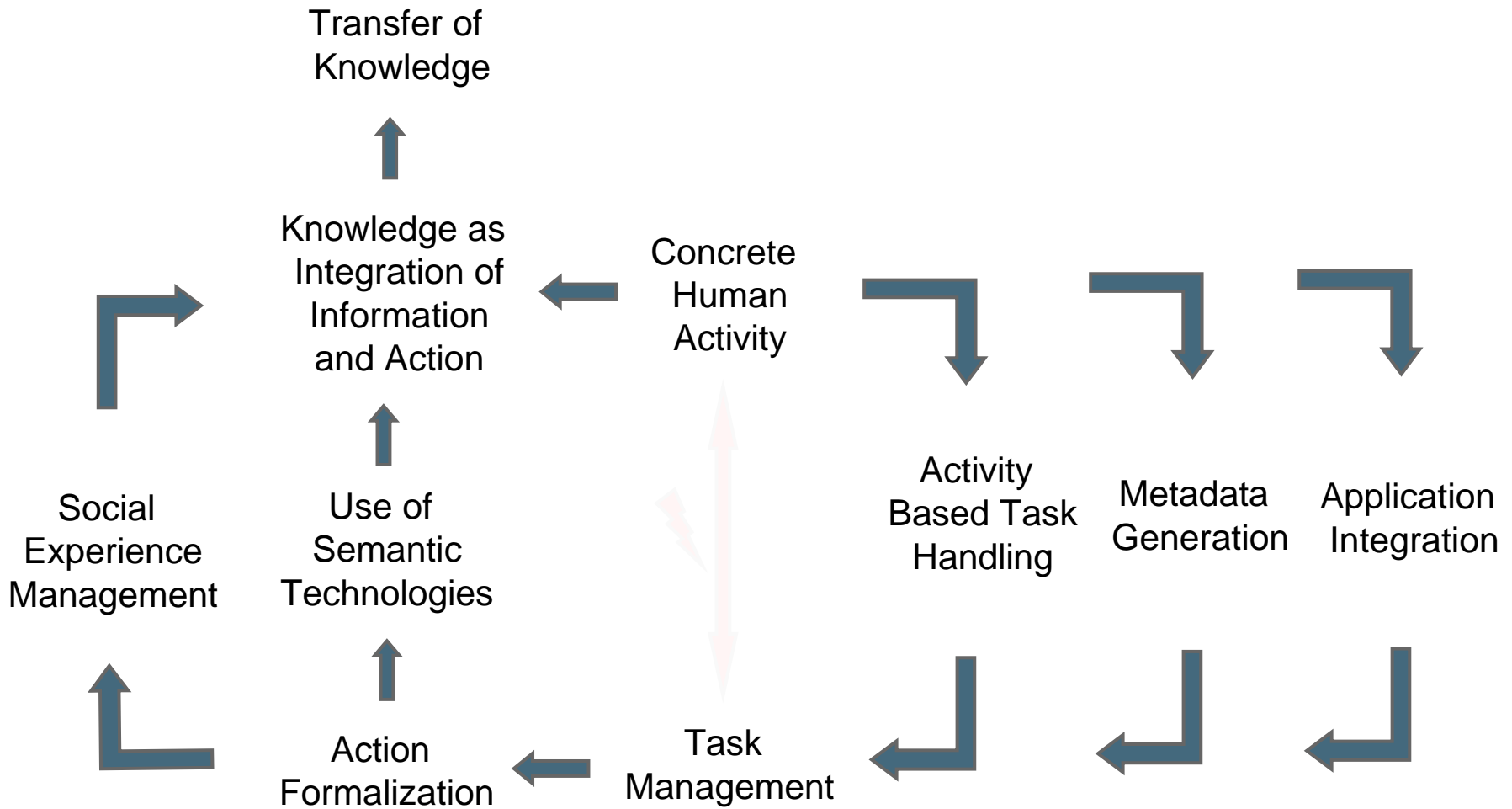
Task Management

Thank you

Backup

How to Work with Task Patterns

Public   **Private**

Pattern Repository

Identify Pattern

Static Pattern

Provide Process Guidance by Pattern

Forward Information Request

Access to Task Specific Information

Request Pattern

B

C

D

B[1]

C[1]

Request Task Information from Context

D[1]

Task A

Establish Contact on a Person-2-Person Basis

Task B

Task C

Task D

SAP RESEARCH

NEPOMUK – Core Components
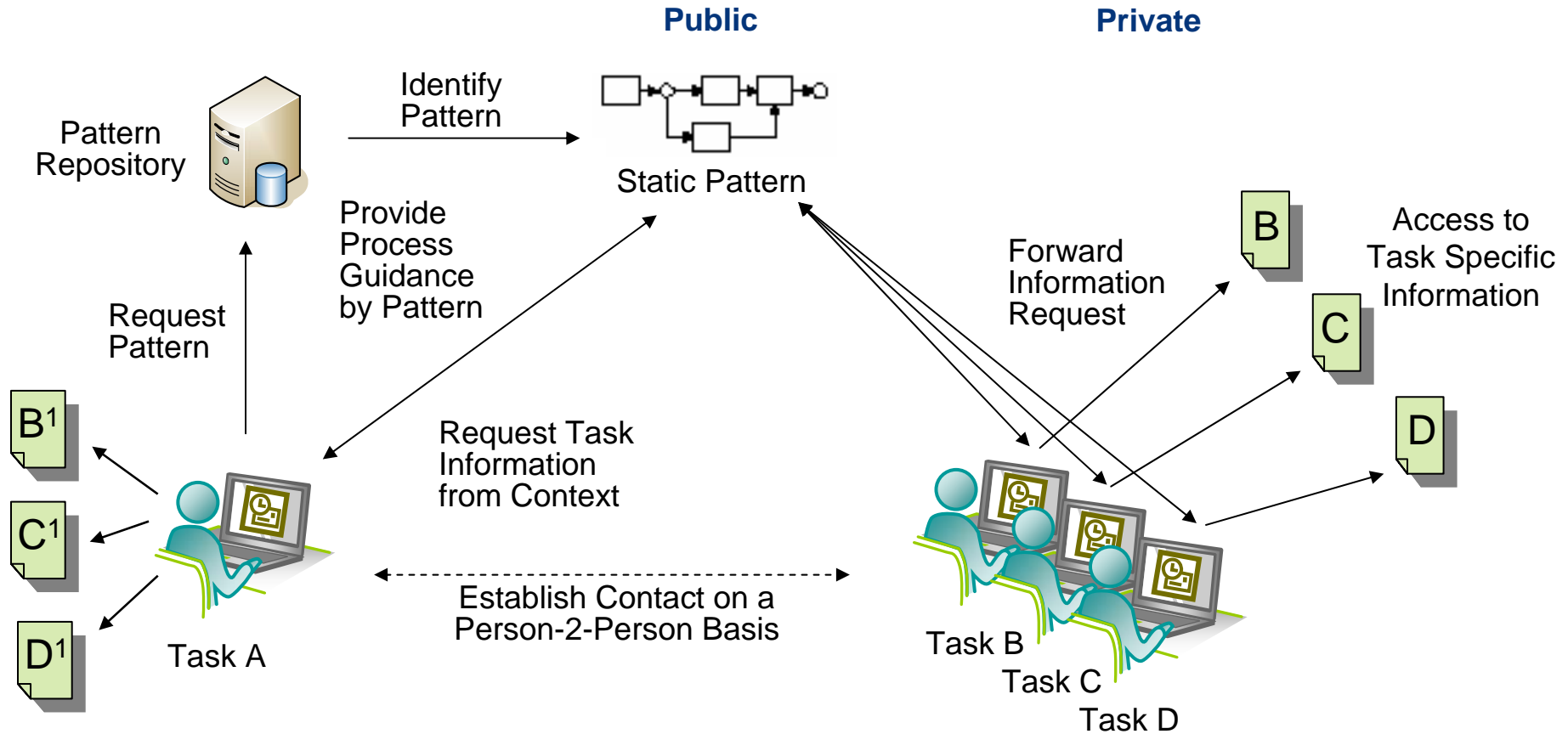
Application

- iMapping
- Specialised applications
- Desktop widget - Kasimir, plug-ins (KAR)
- Productivity suites
- Desktop integration

Task Management Framework

Social Task Management

- Task delegation & transfer
- Collaborative Tasks
- Task Synchronisation

Task Pattern Management

- Task pattern abstraction
- Similarity measures
- Contextual information
- Pattern lifecycle integration

Personal Task Management

- Core task management
- Task enrichment
- Task log and history
- Domain ontologies
- Time management
- Task monitoring
- Task resources & relations

Nepomuk Services

▸ RDF repository, PIMO service, Local / Distributed search, User context, Data crawler, Community mgmt, Recommender

social semantic desktop
NEPOMUK

Information Society
Technologies

User Functionality for Task and Task Pattern Handling
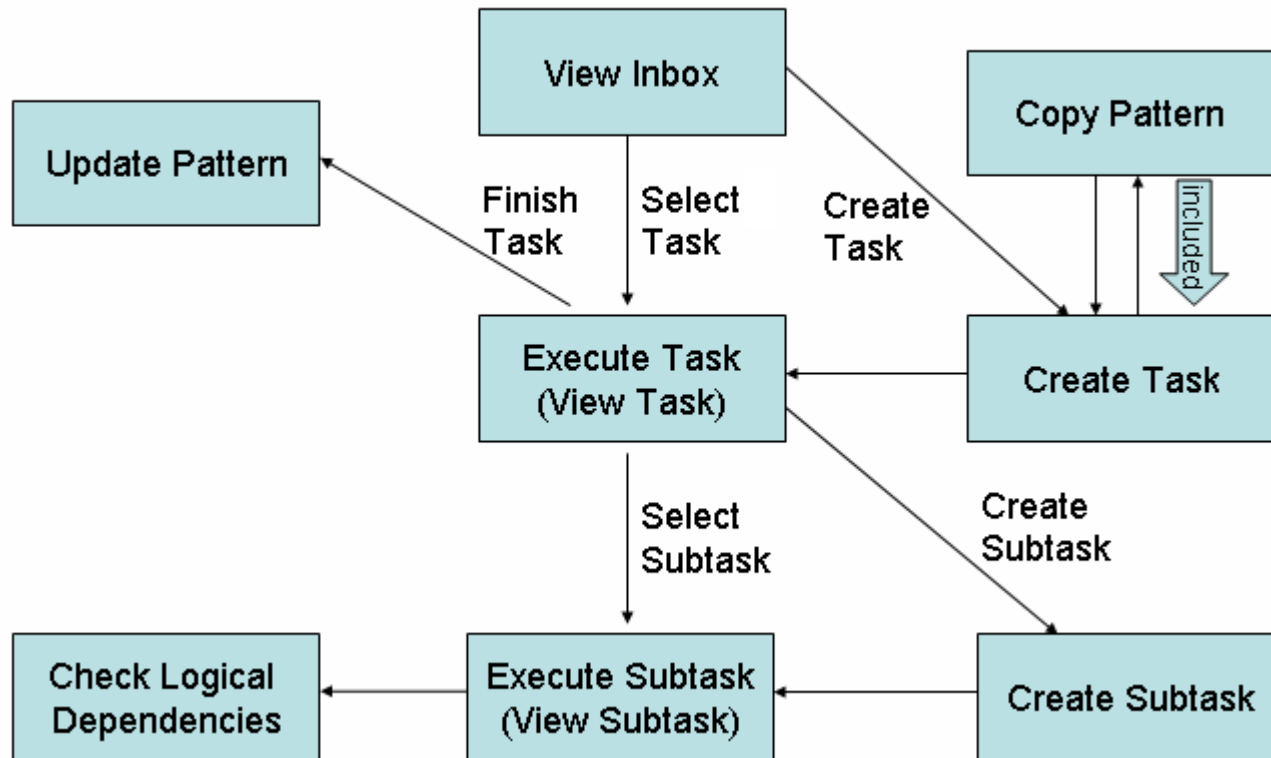
General Task Management Conception

```
                          ┌──────────────────┐
                          │   Task Pattern   │
                          └──────────────────┘
```

Individual Aspects

- Task Email Management
- Task Time Management
- Task Context Management *
- Task Modeling

Task Execution

Task Tracking

Network Aspects

- Task Delegation
- Task Collaboration
- Task Semantics

Task Business Rules *

* Not addressed by NEPOMUK

SAP RESEARCH

social semantic desktop
NEPOMUK

Information Society
Technologies

Task Management – Customer Requirements

Requirements for Task Management

Central Access to all kinds of tasks (+)

Support for the identification of executors (+)

Integration of email, telephony, chat (+)

Provision of task related information (+)

Bringing tasks to mobile devices (-)

Rule based task handling (-)

Monitoring and tracking of tasks (-)

(+) will be supported by NEPOMUK; (-) will not

SAP RESEARCH

social semantic desktop
NEP⌖MUK

Information Society
Technologies