Business Values of Automating Unstructured Decision Processes with Dynamic Enterprise Mashups

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Gen. Stanley A. McChrystal, the leader of American and NATO forces in Afghanistan, was shown a PowerPoint slide in Kabul last summer that was meant to portray the complexity of American military strategy.

Motivation
From Automating Transactions to Peer Production

Automating Transactions
- Adoption of ERP, CRM, SCM
  - User assigned by management
  - Users must comply with rules
  - Often complex technology investment

Enabling Collaboration and Participation
- Adoption of Web 2.0 tools
  - User groups can form unexpectedly
  - Users engage in high degree of participation

Enterprise Mashups

An enterprise mashup is a web-based resource that combines existing resources, be it content, data or application functionality, from more than one resource by empowering the actual end users to create individual information centric and situational applications.”
Motivation
“Yes, we can!“ – Empowering the Non-Technical User

New approaches/tools aim at enabling the mass of end-users to create enterprise-level applications according to their individual needs

- “Enterprise Mashup[s] … unleash a tremendous amount of value” (Forrester)
- Top 10 Strategic Technologies for 2009 (Gartner)
- $700 Million Market by 2013 (Forrester)

Practical Relevance

Market Potential (Forrester)

Market Research Surveys
Enterprise Mashups
Enterprise Mashup Stack and User Roles

**Mashup**
- **Composition of Widgets**
  (Wiring) to enterprise-class applications

**Widget**
- **User-friendly Building Blocks**
  - Provide graphical and simple user interaction mechanism
  - **Abstracting** from the complexity of the underlying resources

**Resource**
- **Core Building Blocks**
  - Represent actual content, data or application functionality
  - Encapsulated via **well-defined interfaces** (APIs)

**User Roles**

**End users run Mashups**
- Consume Mashup
- Personalize Mashup (e.g., change background color)

**Key users create Mashups**
- Add pre-build widgets (from the catalogue)
- Connecting widgets by wiring their in-/out- ports

**Consultants create Widgets**
- Binding generic User Interfaces to resources
- Transforming and aggregating data (piping)

**Developers implement the services**
- Create and deploy services
- Make resources available (e.g., RSS Feeds, SAP Enterprise Services)
Case Study
Industry and Scenario Background

Defense Industry Background

- Support of the knowledge worker (represents 5-10% of all defense employees)
- High business process variety can not be modeled in advanced by traditional IT concepts (such as Service-Oriented Architecture)
- Processes are oriented on the current tactical situation ("ad-hoc processes"/ unstructured processes)

Scenario Background

- Focus on administrative issues (resource management such as material, personnel, etc.)
- Unstructured process which requires ad-hoc reaction on events
- Scenario represents a typical decision process in the management area of the defense industry
- Process organization according to Boyds’ OODA loop (Observe, Orient, Decide, Act)
- Experiences and results can be transferred to other defense processes
Case Study
Scenario (Unstructured Decision Processes)

- Observe your environment
- Seamless composition of company internal and external resources
- Combine structured (table) and unstructured content (i.e., map)
- Orientation
  - Guide the user to identify the source of an unexpected event/alert
  - Providing information related to the individual context of the knowledge worker
- Real-time decision
  - Development and evaluation of decision alternatives
  - Real-time collaboration across different (external) organizational roles
- Action
  - Perform the action based on the made decision

ODOA Loop

Observe
- Show all aggregated information on GIS map
- Show NATO water traffic and current status
- Show weather information for the region
- Show status of tank battalion (functional unit)
- React on ad-hoc alert or event
- Event source? (Content)

Orient
- Analyse current personnel situation
  - Staffing of personnel (in %)
  - Staffing of personnel (in #)
- Analyse current material situation
  - Material status
  - Check stock
- Analyse current situation

Decide
- Decide on personnel/material/other event
  - Coordination required?
    - No
    - Yes
- Additional information required?
  - Yes
  - No

Action
- Purchase Order

Orientation
- Guide the user to identify the source of an unexpected event/alert
- Providing information related to the individual context of the knowledge worker

Real-time decision
- Development and evaluation of decision alternatives
- Real-time collaboration across different (external) organizational roles

Action
- Perform the action based on the made decision
Case Study
Enterprise Mashup Solution

YouTube Video (6:30 min): http://www.youtube.com/watch?v=Rtc_ulwimYA
Evaluation: Unstructured Decision Processes
Enterprise Mashup Solution

User Profile (039928)

Personal
- Username: Captain Tom
- E-Mail: CaptainTom@germanarmy.com

Business Details
- Country: Germany
- Position: Captain
- Department: Army
- Industry: Aerospace and Defense

Material Requirement (Business Objects) 50000109

Recommendations by:
- By colleagues
- By environment
- By business purpose

Material Purchase Order
Send a material purchase order

Context-related Widget
Show less Widgets | Show more Widgets

SAP RESEARCH
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Evaluation: Unstructured Decision Processes
Enterprise Mashup Solution

Major Jack Turner
Platform: SAP 12Sprints Platform

Captain Tom Smith
Platform: SAP Research RoofTop Marketplace

12Sprints Item: We need to order 13 transceiver portable ad-hoc. Please approve!

12Sprints Item Details: EZ-09smith61gdPRL619

Decision/Rooftop

Decision Process

Activity Updates

Add Content Add Tools Tools Catalog Add Participants

Discussion
Updated by Captain Tom less than a minute ago
Major Jack 1 minute ago
Hello Captain Tom, have you already contacted Captain James from the 112 tank battalion to find out if his unit could provide the missing material?

Captain Tom less than a minute ago
Yeah, unfortunately, transceiver portable are out of stock at the 112 tank battalion as well.

Say something...

We need to decide...

We need to order 13 transceiver portable ad-hoc. Please approve!

We decided...

Your request is approved. Major Jack.
Case Study
Business Values

Results

- Application of the IT business value framework of Mooney et al. (1996)*
- Automation of unstructured decision processes
- Speeding up the observe and orient phase
- Improve decision quality by providing real-time and aggregated information from various sources
- Structuring along the OODA loop allows generalizing of the results (defense processes)

Three Agent Roles well known from Electronic Markets and Service-Oriented Architectures (SOA)

- **Provider** implements and hosts a mashable component (Mashup, Widget, Resource)
- **Intermediary** mediates between providers and consumers (improving navigation, transparency and governance)
- **Consumer** is able to retrieve and compose Mashup components according to his individual needs
Characteristics of the interactions between the three agent roles

- Market transaction phases
- Permanent loops between the converging design and run time phases
Thank you!

Contact

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