

Business Values of Automating Unstructured Decision Processes with Dynamic Enterprise Mashups

SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS



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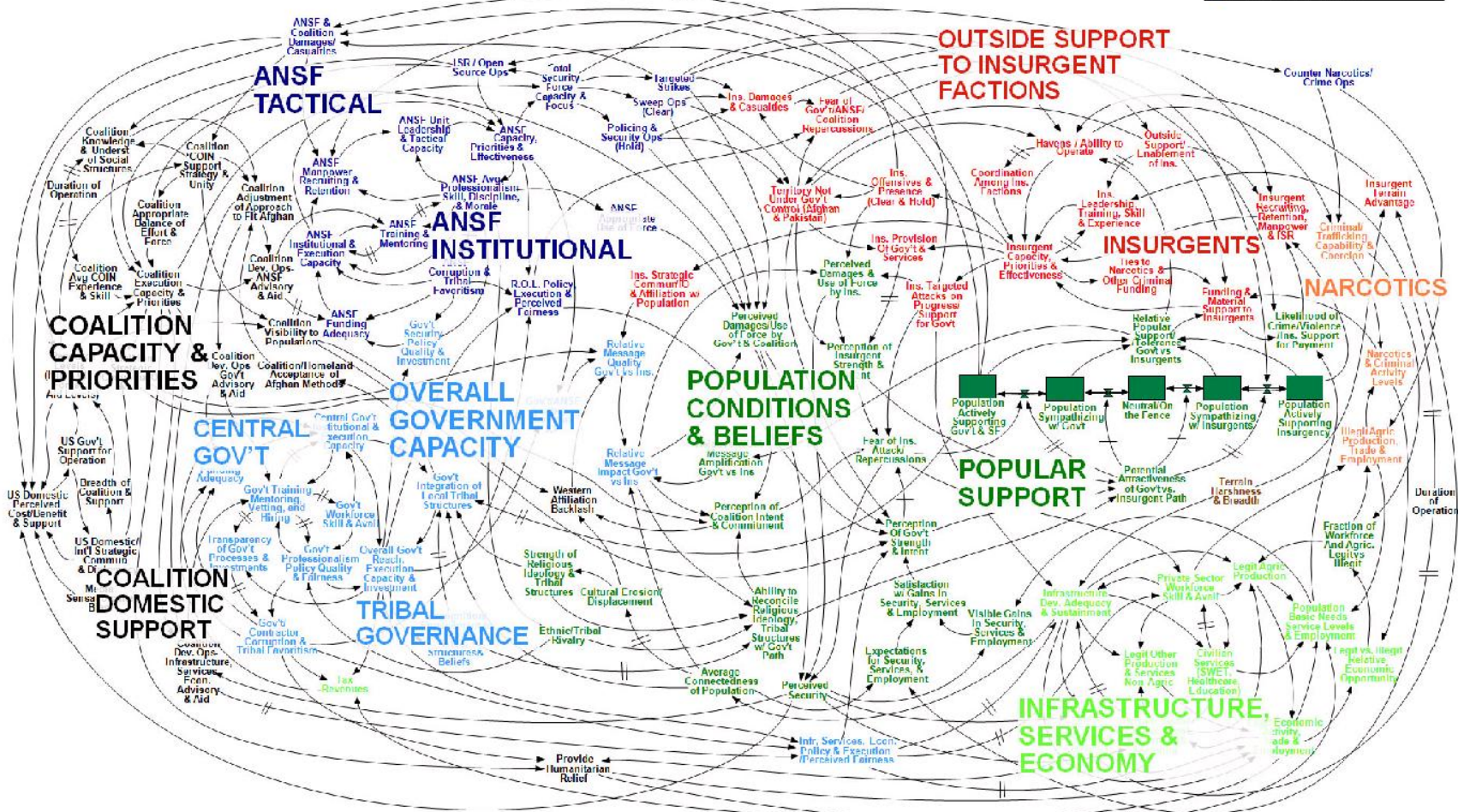
Gen. Stanley A. McChrystal, the leader of American and NATO forces in Afghanistan, was shown a PowerPoint slide in Kabul last summer that was meant to portray the complexity of American military strategy



Afghanistan Stability / COIN Dynamics

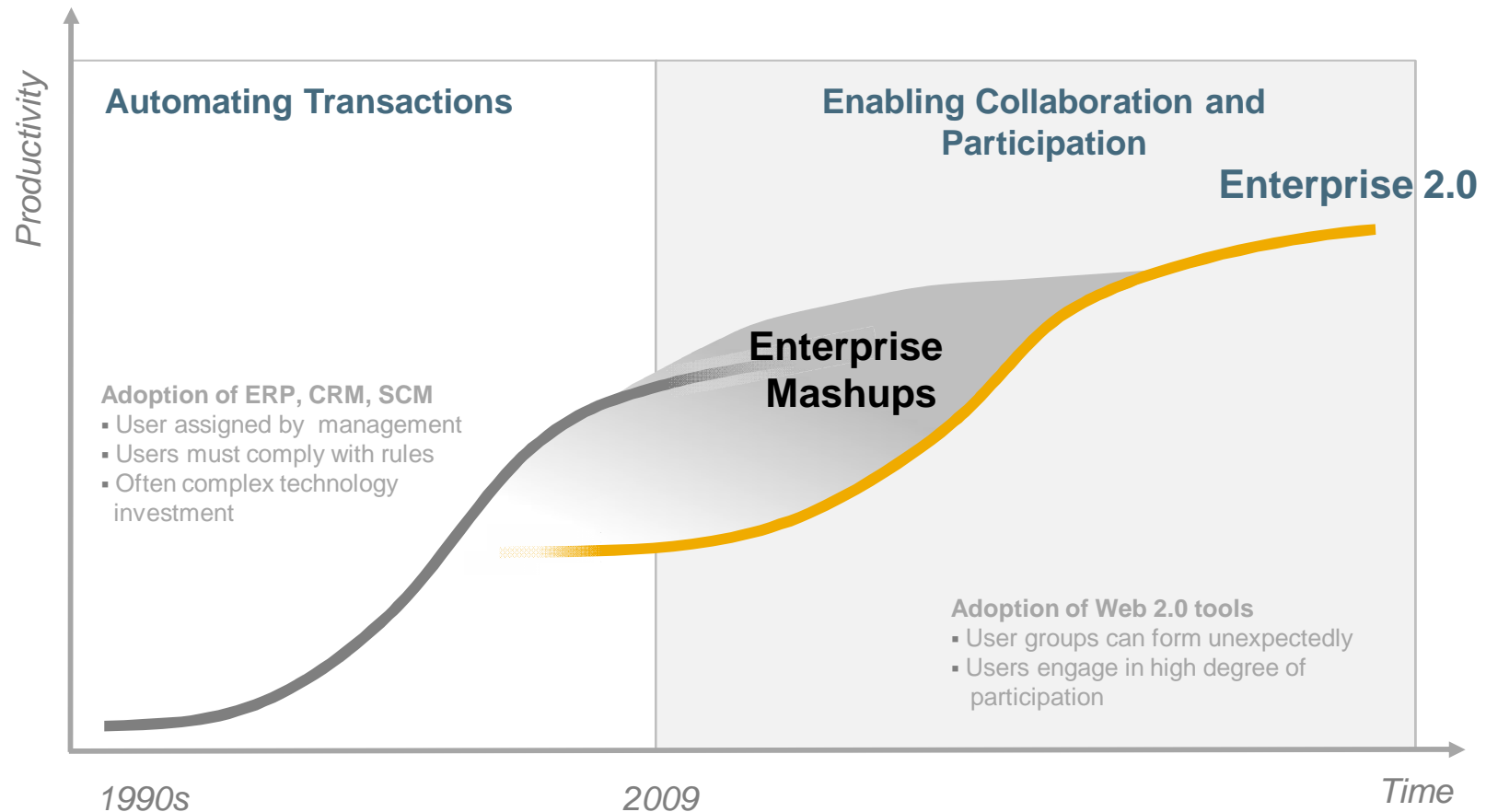
= Significant Delay

- Population/Popular Support
- Infrastructure, Economy, & Services
- Government
- Afghan Security Forces
- Insurgents
- Crime and Narcotics
- Coalition Forces & Actions
- Physical Environment



Motivation

From Automating Transactions to Peer Production



*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**”.*

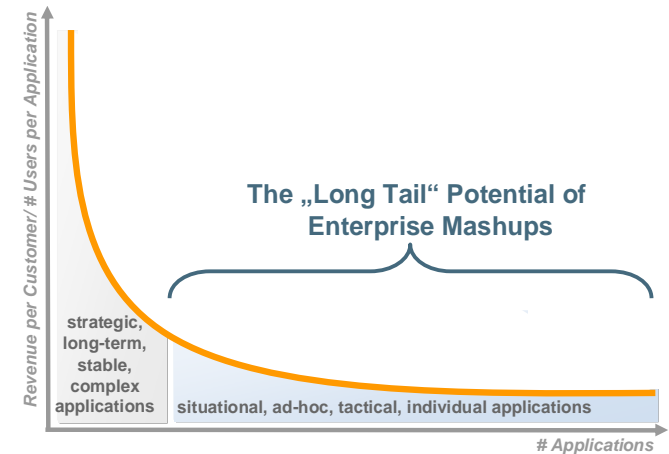
Motivation

“Yes, we can!” – Empowering the Non-Technical User



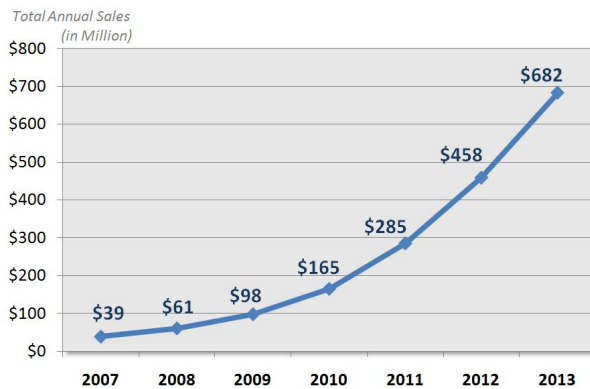
New approaches/ tools aim at enabling the mass of end-users to create enterprise-level applications according to their individual needs

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

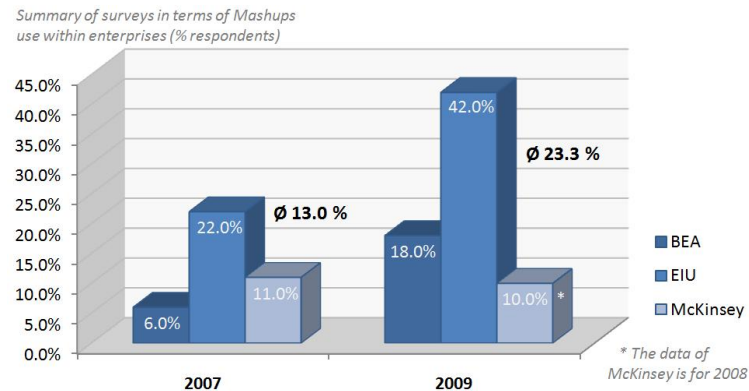


Practical Relevance

Market Potential (Forrester)



Market Research Surveys



Enterprise Mashups

Enterprise Mashup Stack and User Roles



Enterprise Mashup Stack

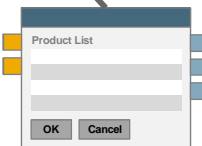
Mashup

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



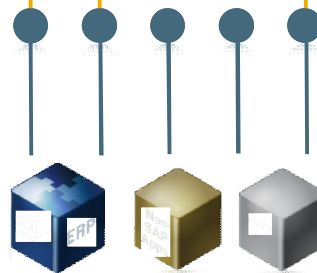
Widget

- **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)

Defense Industry Background

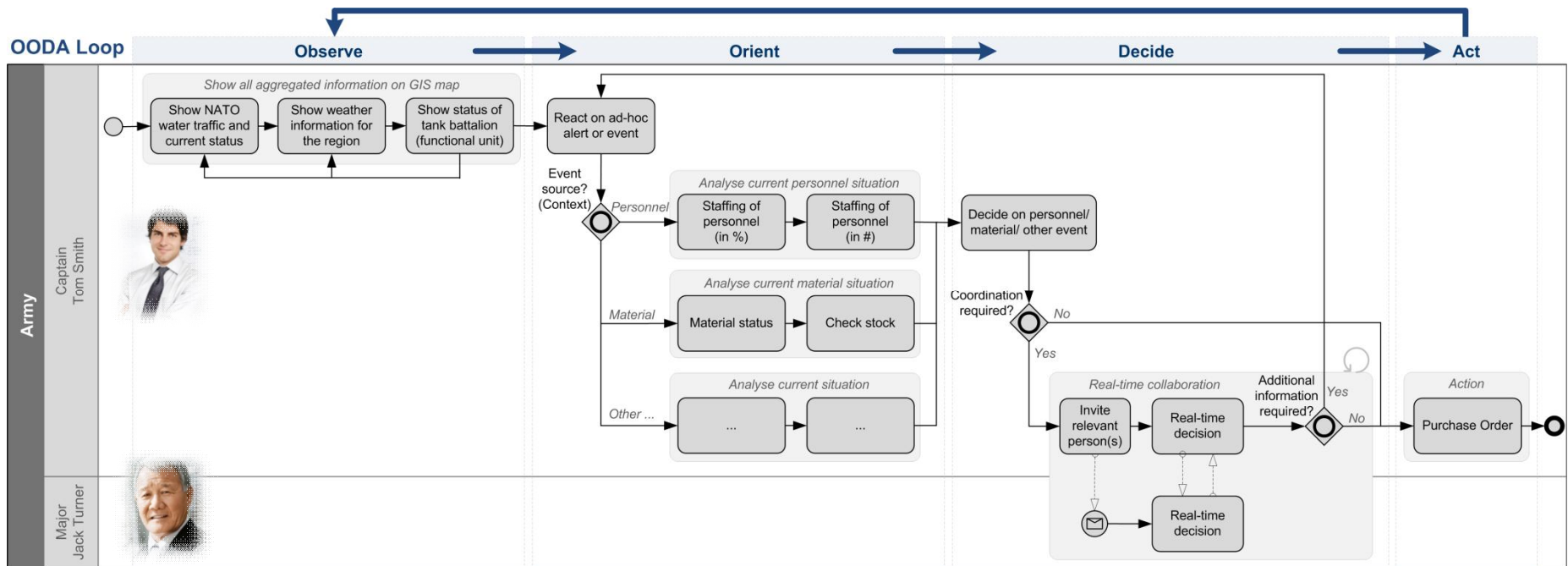
- Support of the knowledge worker (represents 5-10% of all defense employees)
- High business process variety can not be modeled in advanced by traditional IT concepts (such as Service-Oriented Architecture)
- Processes are oriented on the current tactical situation (“ad-hoc processes”/ unstructured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

Case Study Enterprise Mashup Solution



The screenshot displays a complex SAP Research Enterprise Mashup Solution interface. The main component is a map of the Netherlands, showing various locations and routes. Overlaid on the map are several data widgets:

- User Profile (1039928):** A window showing personal and business details for 'Captain Tom', including username, email, country (Germany), position (Captain), department (Army), and industry (Aerospace).
- Material Requirement (Business Objects) 50000109:** A widget displaying a list of material requirements with a bar chart. The items include: 2 CM GUN, Armoured Recovery Vehicle, Armoured Personnel Carrier, Jeep, Transceiver Portable, Handheld Radio, Main Battle Tank, Machine gun, and Pistol 9mm.
- Material Purchase Order MPO_00000002:** A form for creating a purchase order, with fields for Item ID, Item Name (Transceiver Portable), Quantity (13), Orderer (Major Tom), and a Submitted! button.
- Discussion:** A window showing a conversation between 'Major Jack' and 'Captain Tom' regarding the availability of transceiver portables at the 112 tank battalion.
- Weather Data:** A widget showing weather information for a specific location.
- 12Sprints Items:** A widget displaying a list of items and their status.
- Material Requirement (Business Objects) 50000109 (Recommendations):** A widget providing recommendations for the material requirement, such as 'Send a material purchase order'.

YouTube Video (6:30 min): http://www.youtube.com/watch?v=Rtc_ulwimYA

Case Study Enterprise Mashup Solution



SAP RESEARCH
Rooftop Marketplace (Enterprise Mashups)

Search Widgets: Go | Tag Cloud | Information | My Profile (Hi, Captain Tom)

Add Content | My Favorites | My Mashups

Change View | New | Save | Deploy

GisMaps

NATO Track Stores by NIRIS

Track Store ID	Track Amount
NC3A-NL ADS-B (IFF Mode-S) Receiver	0
NC3A-NL AIS-Receiver	272
SWEDEN	0
FINLAND	0

Functional Units: 50000107

ID	Name	Capability Name	Country
50000107	113th Tank Battalion	Armored Corps	BL
50000108	114th MechInf Battalion	Mechanized Infantry	BL
50000109	111th Tank Battalion	Armored Corps	BL
50000110	112th Tank Battalion	Armored Corps	BL
50000111	12th Mechanized Infantry	Mechanized Infantry	BL
50000112	115th Tank Artillery Battalion	Field Artillery	BL
50000113	116th Tank Reconnaissance	Armored Cavalry	BL
50000115	1st Logistic Battalion	Supply Corps	BL

Functional Unit Status: 50

- Material Status
- Personnel Status

Material Requirement (Business Objects) 50000109

Equipment Type	Quantity
2 CM GUN	~1
Armoured Recovery Vehicle	~5
Armored Personnel Carrier	~10
Jeep	~15
Transceiver Portable	~13
Handheld Radio	~25
Main Battle Tank	~45
Machine gun	~48
Pistol 9mm	~50

Weather Data x: 4.2223 y: 52.0407

Day	Mo	Tu
Temp (°C)	18.1	19.1
Temp (°F)	64.6	66.4
Wind (mps)	6.2	4.1

Textbox

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

12Sprints Items We need to order 13 trans...

Name	Creator	Last update
Decision@Rooftop	Captain Tom	

12Sprints Item Details: EZv3hmrtrK1gdhRDbJ619

Element	Text
Goal	We need to order 13 transceiver portable ad-hoc. Please approve!
Decision	Your request is approved. Major Jack.

Material Purchase Order MPO_00000002

Item ID	MPO_00000002
Item Name	Transceiver Portable
Quantity	13
Orderer	Major Tom
Submitted!	<input type="button" value="Submit"/>

Assisted Mode: On/Off | Events: mouseOver/Click | Emulated Development Environment: Start Page [Change] | Desired Business Purpose: Enterprise Resource Planning [Change]

Evaluation: Unstructured Decision Processes Enterprise Mashup Solution



The screenshot displays two overlapping windows from the SAP Enterprise Mashup Solution. The left window, titled "User Profile (1039928)", contains the following information:

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

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

Buttons for "Save" and "Close" are located at the bottom of the User Profile window.

The right window, titled "Material Requirement (Business Objects) 50000109", shows a "Context-related Widget" with the following content:

Recommendations by:

- By colleagues
- By environment
- By business purpose

- Rating


Material Purchase Order ★★★★★
Send a material purchase order

Show less Widgets | Show more Widgets


Below the widget, a horizontal bar chart shows a value of approximately 45 for "Pistol 9mm" on a scale from 0 to 50.

Evaluation: Unstructured Decision Processes Enterprise Mashup Solution





Major Jack Turner
Platform: *SAP 12Sprints Platform*



Captain Tom Smith
Platform: *SAP Research RoofTop Marketplace*

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

12Sprints Items We need to order 13 trans...

Name	Creator	Last update
Decision@RoofTop	Captain Tom	

12Sprints Item Details: EZv9hmthjK1gdHRD6J619

Element	Text
Goal	We need to order 13 transceiver portable ad-hoc. Please approve!
Decision	Your request is approved. Major Jack.

12 SPRINTS beta Activities ▾ Updates Profile Extensions Action Items

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 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...

Click to add a description...

Decision@RoofTop
Updated by Major Jack less than a minute ago

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



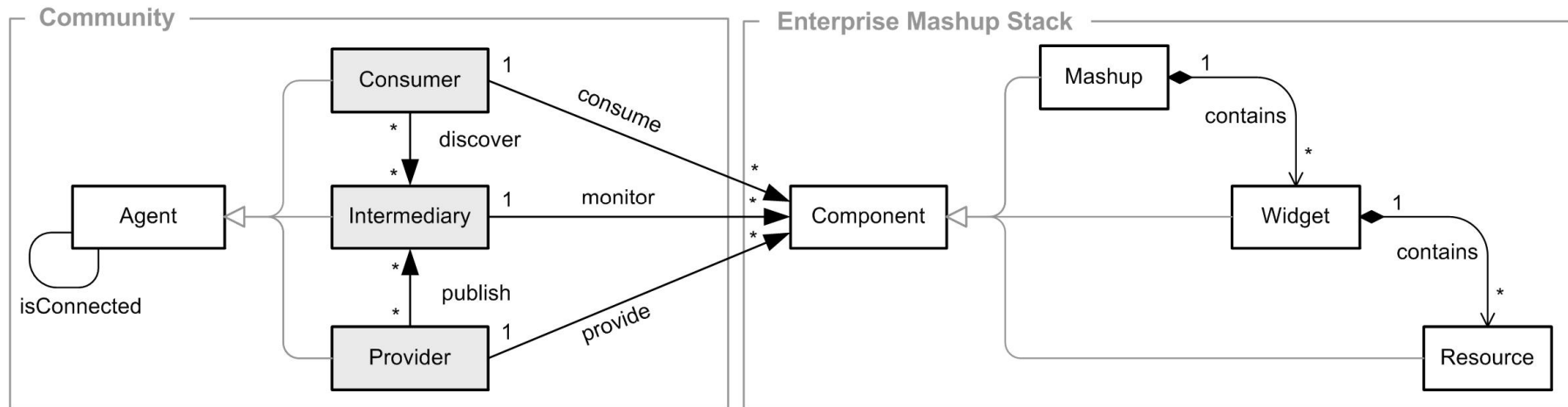
Effect Type	Observe	Orient	Decide	Act
Automational				
Processing time	6 → 1 min (-83%)	12 → 3 min (-75%)	6 → 4 min (-33%)	2 → 1:20 min (-38%)
Collaboration & sharing	++	+++	+	+
Informational				
Process breaks	5 → 0	3 → 0	3 → 0	1 → 0
Decision quality	++	+++	++	0
Transformational				
Competiveness	++	+++	+	+

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)

Design: Multi-View Scientific Reference Model

Operations View: Community*

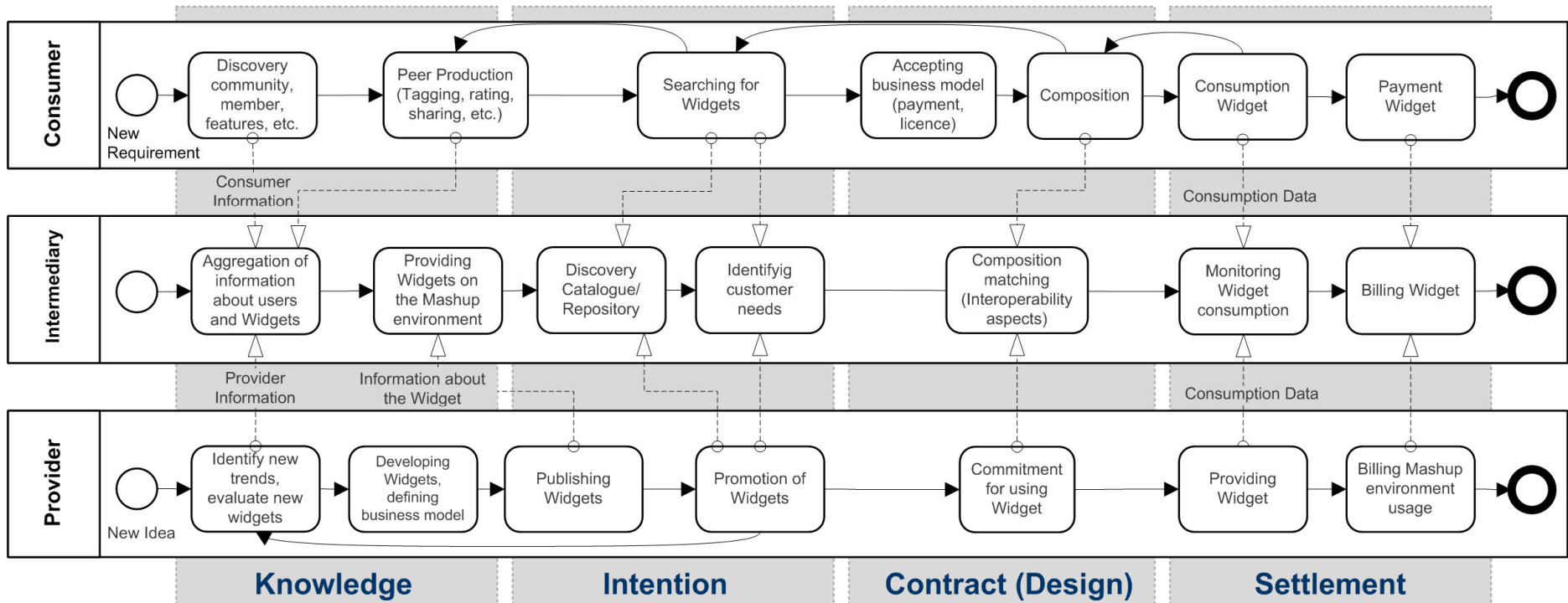


Three Agent Roles well known from Electronic Markets and Service-Oriented Architectures (SOA)

- **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

Design: Multi-View Scientific Reference Model

Operations View: Interaction*



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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