

Integration of a DAU-System in Workflow Management Systems

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Overview

- DAU (Document Analysis and Understanding)
- Project VirtualOffice
- Synergetic effects
- Application scenario and example
- Outlook

Document Analysis

- Extracting information from paper sources
- Translation into a structured representation

Steps:

- Structure analysis: e.g. filtering, page segmentation
- Text recognition: OCR (Optical Character Recognition)

Understanding

Gaining contained information and semantic

Processes:

- Message type classification
- Parsing (e.g. extraction of sender)
- Pattern matching (e.g. recognising typical text phrases)

DAU: Benefits

Support in
filtering, sorting, information extraction, data capturing

Applications:

- Payment document processing (e.g. bank drafts, checks)
- Forms processing (e.g. tax forms, insurance)
- Mail sorting (by address field extraction)

VirtualOffice

- DAU with flexible specialists
- Planning and learning concept
- Integration in commercial WFMS
- Use of the current context of the WFMS
- Generic approach
- Business letters as domain

DAU-system

- Specialists: each performing a specific DAU process
- Reactive Planner:
 - plans effective use of specialists
 - invokes specialists

invoked by:

- in-tray-server (incoming document)
- workflow activity (DAU-task request)

DAU-system

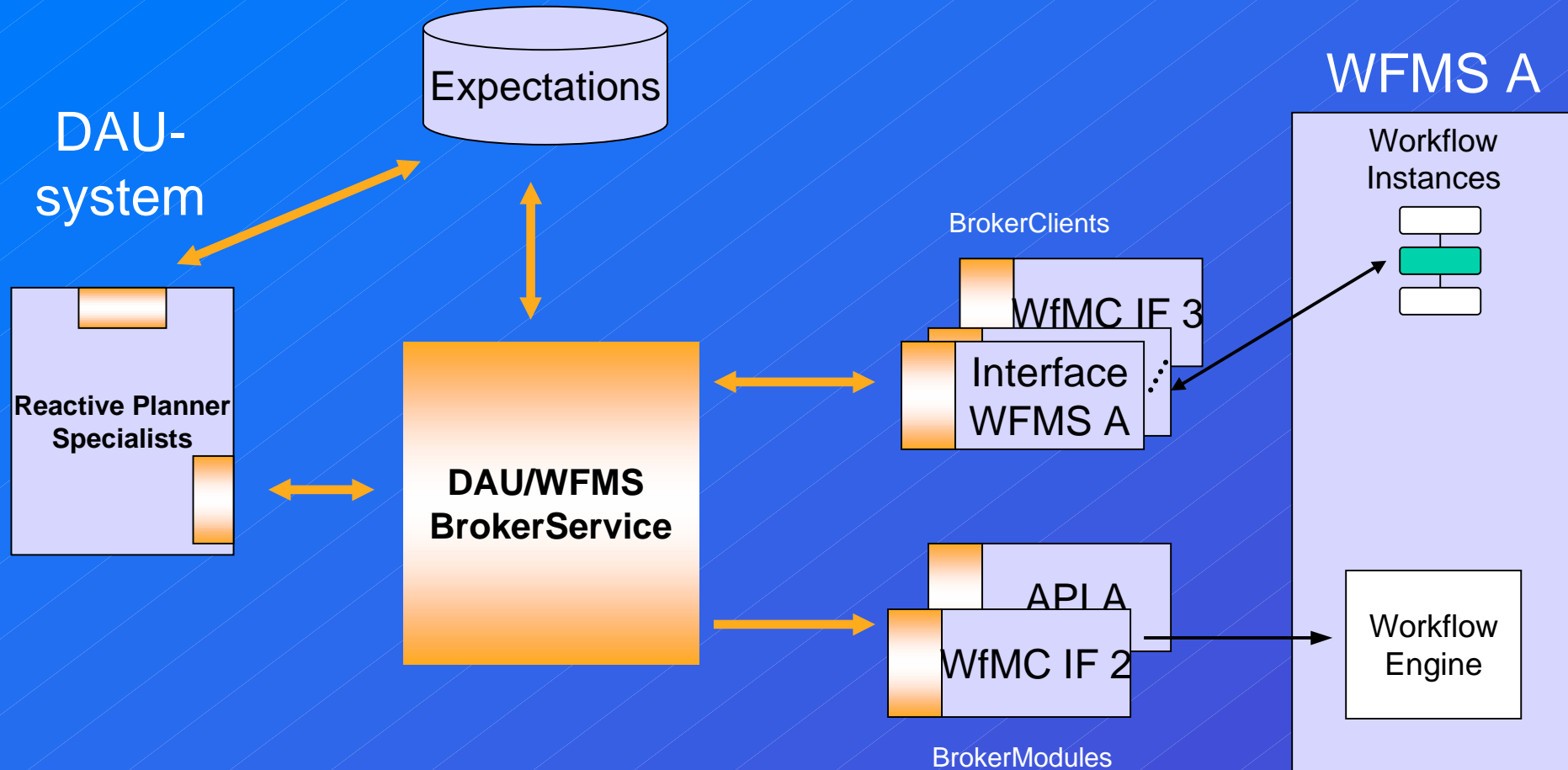
use of:

- Expectations stated by the workflow activities waiting for a document
- Document knowledge, e.g.
 - structure of an invoice
 - structure of an invoice of a specific company
- Corporate knowledge (addresses, product lists, ...)

DAU/WFMS BrokerService

- Mediates between DAU and WFMS
- Implementation with CORBA (Common Object Request Broker Architecture)

DAU/WFMS-Broker Architecture



CORBA   Communication via ORB

Synergetic Effects

- Integration of the paper-based part in the WFMS
- DAU support by knowledge from the WFMS
- Assignment of documents to the respective business process
- Support of the data capturing
- Flexible and enhanced use of DAU in the WFMS

Scenario

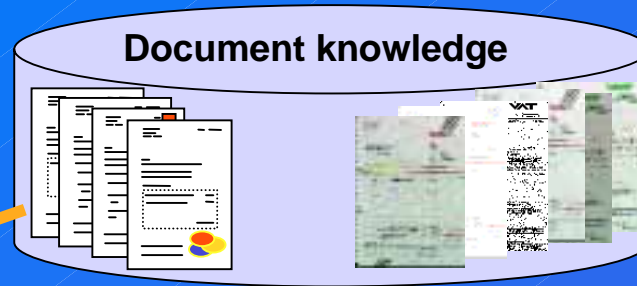
- Purchasing process
- Documents: invoice, delivery note, offer, ...
- Media: paper, fax, e-mail
- WFMS

Tasks:

- Assign incoming documents to waiting workflows
- Data capturing and transfer to workflow

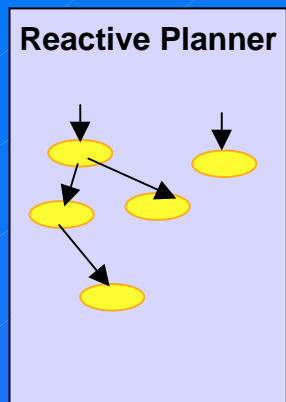
Example

PurchaseTecEquipment
ProcessID: 3011



Expectations

EID	DAUtask	processID	activityID	sender	message type	orderDate	...
456	GetInvoiceNo	3011	10	VAT	invoice	1998-10-10	...
...							



Corporate knowledge

⁹ Fax order

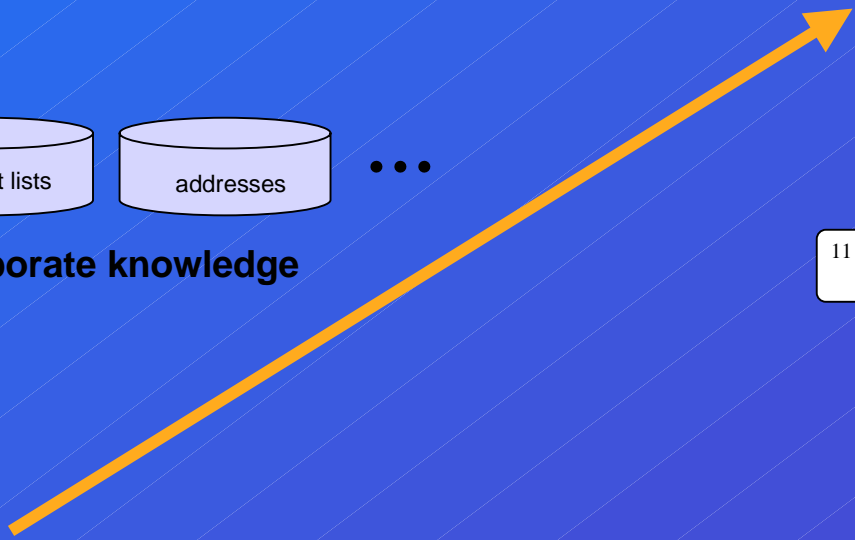
¹⁰ Waiting for invoice

¹¹ Verify data

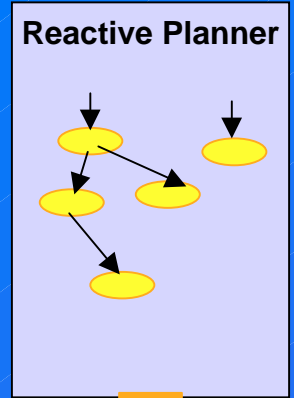
type: invoice
sender: VAT
reference: order, 1998-10-10



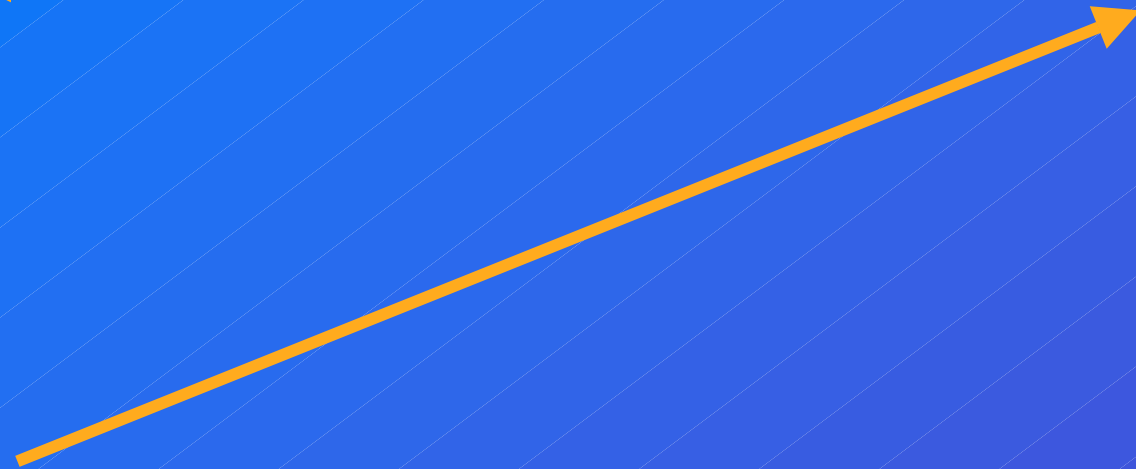
DAU-task (GetInvoiceNo): 4315/67



DAU-task Request



DAUtask(GetProductList, DocumentID)



²³ Product List

²⁴ Verify Data

²⁵ Check inventory

- DAU-task (GetProductList):
- 1. Computer VAT3 3415,67
 - 2. Monitor 21" 2700,00

Outlook

Implementation

- Staffware 97 Staffware plc, UK
- COSA Workflow, Software Ley, Germany

Goal

- Implementation of WfMC Interfaces
- CORBA Workflow Management Facility
- CORBA Vertical Domain Facility