

EMC Documentum Powering a SOA-Platform for an Operational Military HQ

Capt Alexandra Larsson

Concept Lead, Joint Concept Development and Experimentation Centre (JCDEC)

Swedish Armed Forces

alexandra@jcdec.se



JCDEC Approach

Momentum

- Address challenges top-down and bottom-up
- Capability development goals and user requirements
- Concept Development & Experimentation (CD&E)
- Focus on the Joint level (operational level on command)
- Integrated Project Teams (IPT)
- Collaborate with national agencies
- Multinational Collaboration (PfP, MNE, NORDEFCO, EU, NATO)





Current conflict environment

Momentum

- Changed character of warfare
- Vast variety of state and non-state actors.
- Civil-military harmonization (multifunctional ops)
- Complex underlying structures and factors driving the conflicts.
- Irregular/hybrid warfare dynamic situation
- Strategic communication and media efforts are very important.



Improvement areas



- Improve information and knowledge management (IKM) and the reuse of available information with preserved tracebility.
- Minimize stove-piped information which is very labor-intensive to manage.
- Improve process integration and collaboration within a military HQ
- An ability to handle vast amount of information to better understand a complex and dynamic operational environment.
- An ability to quickly change thematic focus of the analysis.
- Provide a JFHQ with tools on a common info architecture
- Create intuitive and usable visualizations based on the underlying information architecture.



Fixing Intel in Afghanistan

Momentum

"The format of intelligence products matters. Commanders who think PowerPoint storyboards and color-coded spreadsheets are adequate for describing the Afghan conflict and its complexities have some soul searching to do."

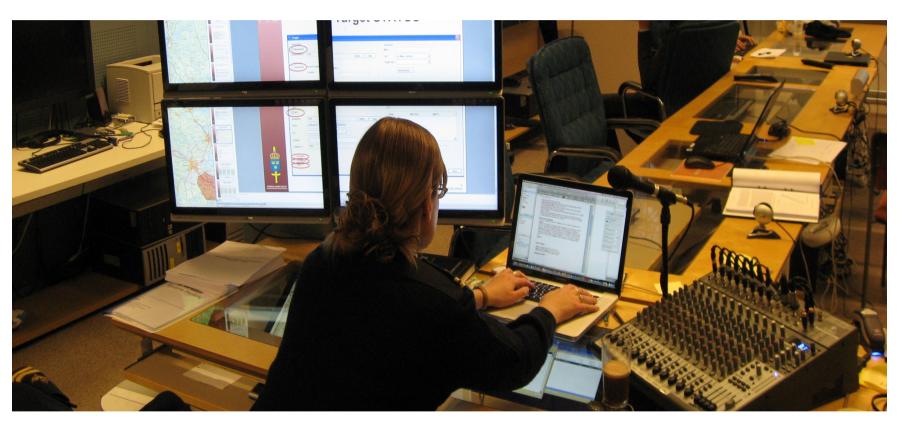


Maj Gen Michael Flynn, Top US Intelligence Officer in Afghanistan



EBAOnet Experimentation Platform





Concept Development – Experimentation – Requirement generation



The Joint Forces HQ Environment

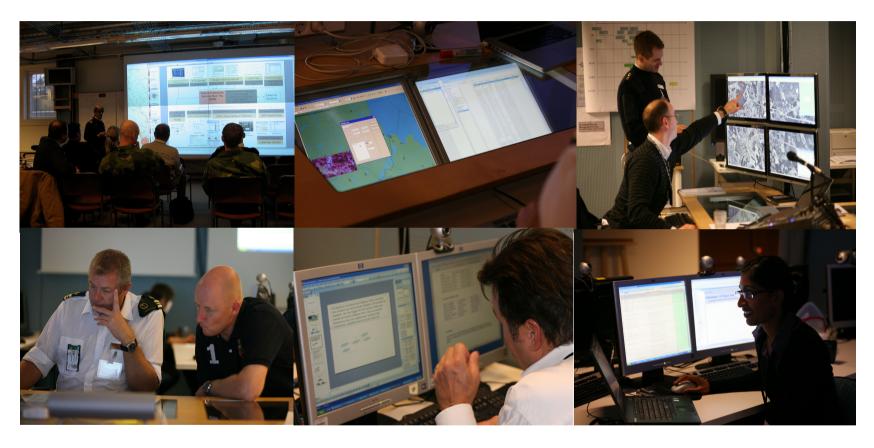


Containers or air conditioned tents with "office-like" environment.



Joint Forces HQ Environment



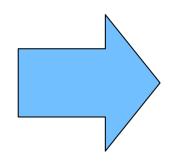


JCDEC Battle Lab



Basic perspectives on information

Theme (category/taxonomy/ontology)
Temporal (time, time span etc)
Spatial (GIS/maps)
Relationship (links between objects)
User interaction tracking



Components of visualization based on filters



Integration Approach



- Service Oriented Approach (SOA)
- Enterprise Service Bus (ESB)
- Message hub using XML
- Eliminates point-to-point "spaghetti integration"
- Makes services reusable in many combinations
- No information is stove-piped the same object in all systems
- Expose out-of-the-box services (Documentum Foundation Services) on the ESB
- Develop customizations as services and expose them on the ESB



Logical Data Model + Services

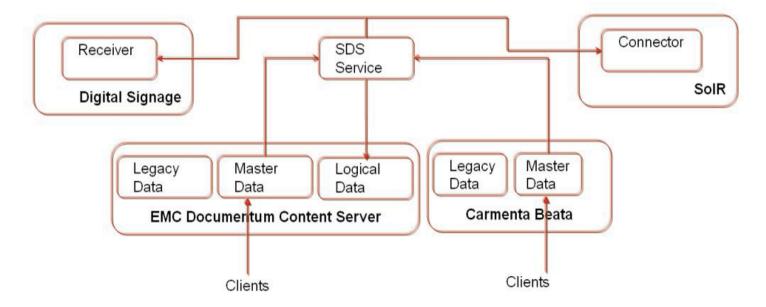
- Provides a business-level model representing of all relevant objects
- Non-technical names for object types and attributes
- Transforms to/from legacy system data models
- New components can use LDM as primary data model
- Integration point for interoperability work (JC3IEDM, AIntP-3, ADatP-3, APP-11 etc)
- Dynamics added to quickly add values and later on attributessnd object types
- Support full versioning on all objects inkl relationships.
- Central Forms service for consistent UI and less development time
- Plans for central symbol/icon server for object and attribute combo



Master Data Management

Components - Synchron Data Service

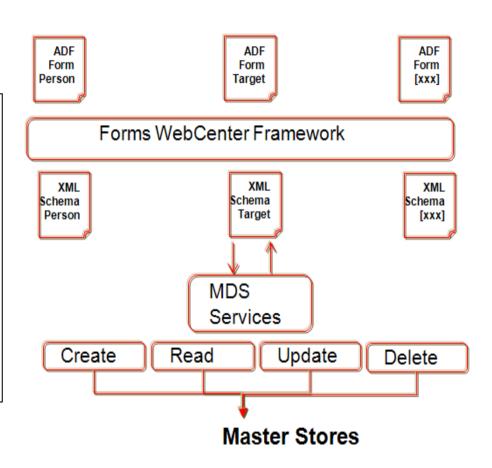
- · Syncron Data Service
- Next version of Changed Object Service (COS)
- Each master system and sub sysem is enabled for retreival of changed information
- · Version control enabled



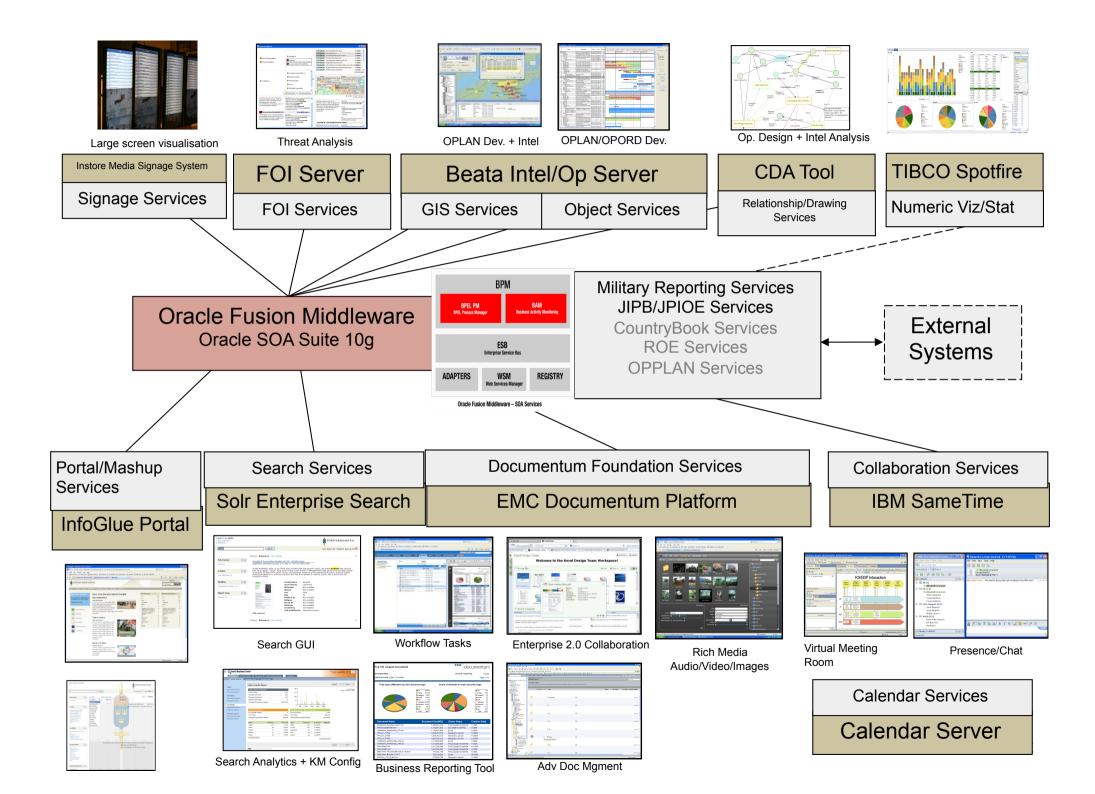




- Oracle WebCenter Framework
- Based on ADF and JSF
- An UI extension to MDS service
- MDS service delegates the operation to master data system
- Support for Create & Read & Update
- Supports RIA (incl. Flex)



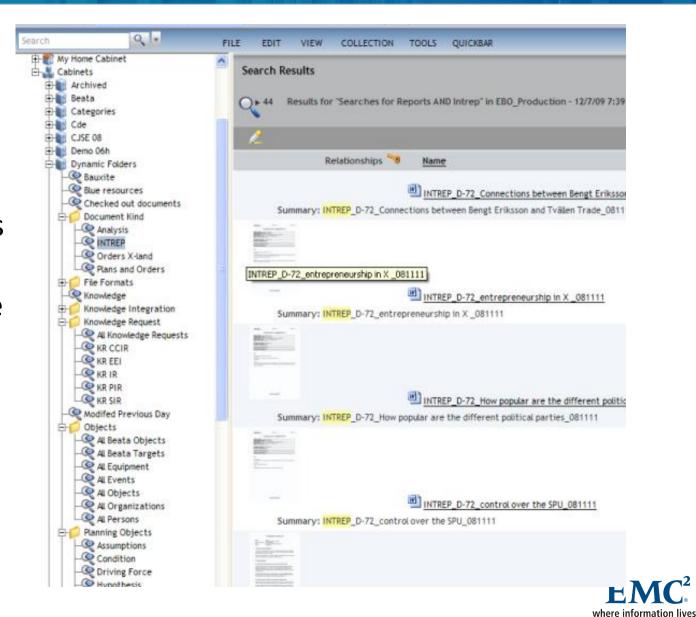






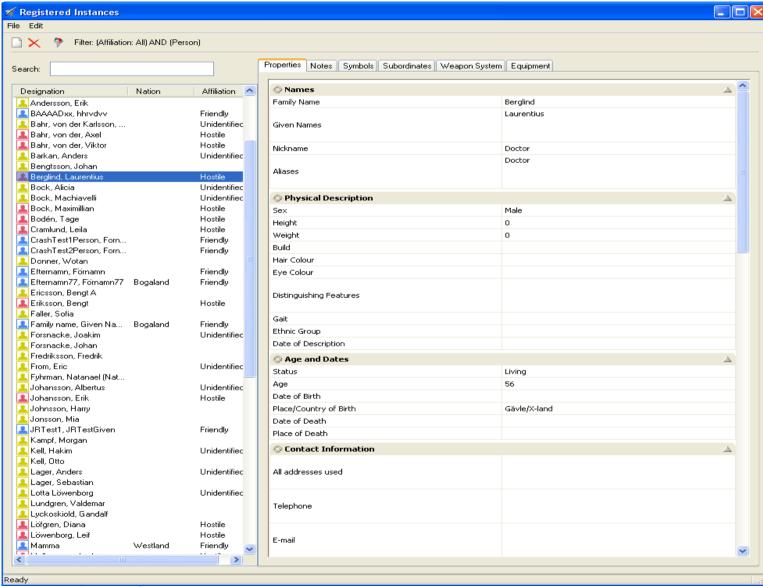
Dynamic Folders in DAM 6.5

Saved Searches exposed as "folders" in the Tree Structure in DAM.





Editing Persons in Beata GIS

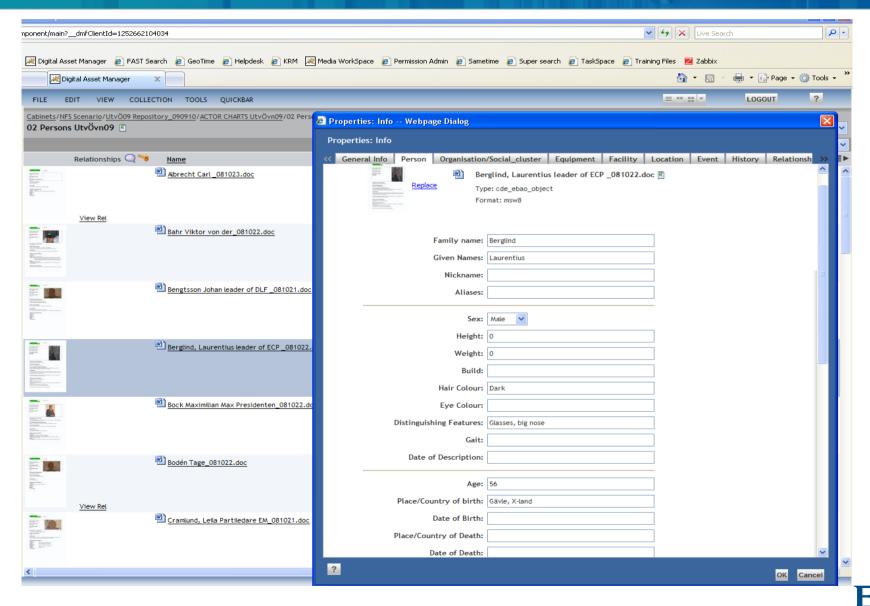






where information lives

Editing Persons in Documentum



1

Viewing Persons in Solr Search

Logged in as alelar

- » Administration
- » Statistics

berglind

Person (1)



File Format ? V WIZ (1) ? V Creator Jan Röjerdal (1) Modifier ? V Alexandra Larsson (1) Object Type ? 🔻



Sort by: Relevance Last modified

Berglind, Laurentius leader of ECP 081022.doc Modified by Alexandra Larsson on Fri Sep 11 13:57:34 CEST 2009

XLAND SCENARIO 2008-10-22 OPFOR ROLE CHARACTER Role person's name: Laurentius Berglind Role person's title: Party Leader, "Doctor" Role person's face Known SHAPE * MERGEFORMAT Role person's work/mission Leader of the Echo Christian Party (ECP). Person characteristics Preserver of the established structure. Personal publicly stated goal/objective To unite the Xlandians and help the president to lead the country into a democratic and prosperous future

Berglind



Given Names Laurentius Nickname Not available Not available Aliases Sex Male 56 Age Not available Political ID Religion Not available Social ID Not available Ethnicity Not available Created by Jan Röjerdal Last modified by Alexandra Larsson

Family Name

Add comment

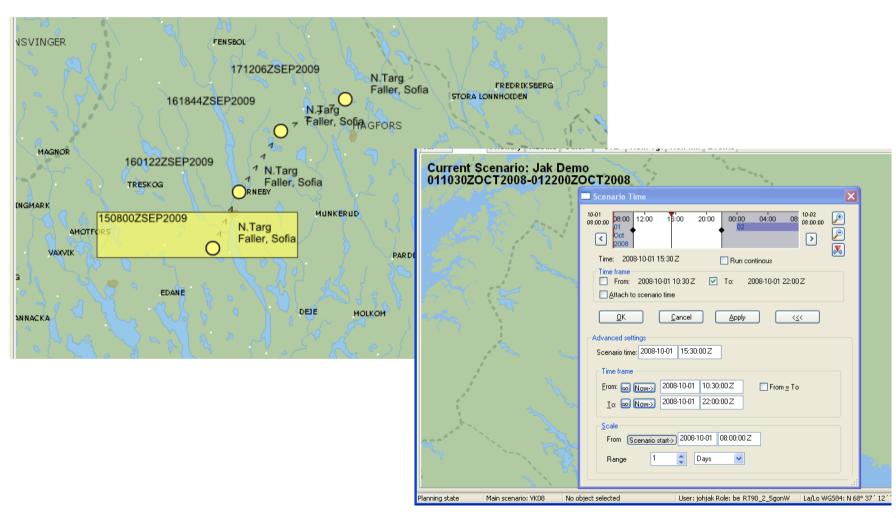
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Objects in time + space







Customized dm_relation

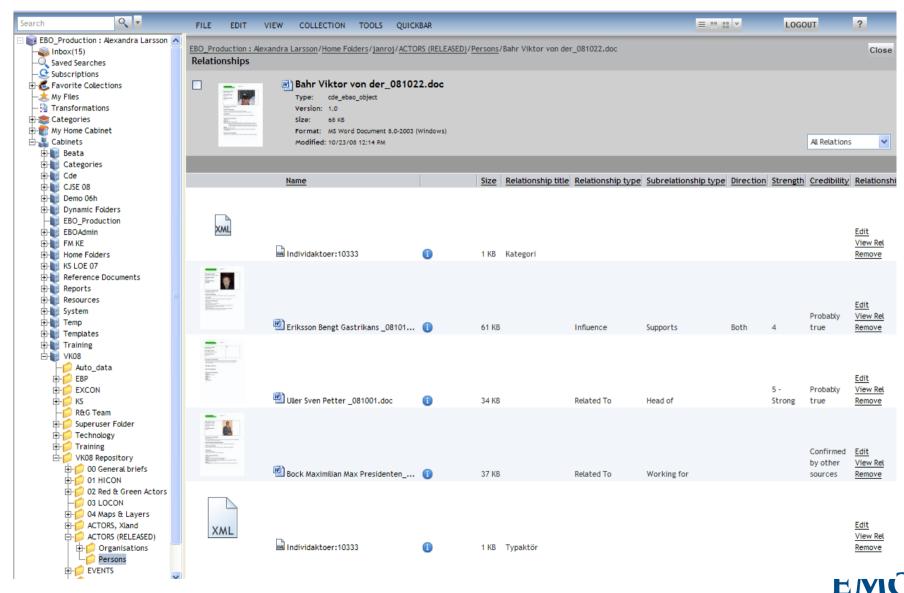
Properties: Info	
	Info
	Type: ebo_relation Format: Shortcut last refreshed: Go to target
	title:
	relationship_type: Related To
	subrelationship_type: Working for
	key_driving_foce:
	direction:
	strenght: 3
	notes: Based on reports also linked to the person
	credibility: Confirmed by other sources



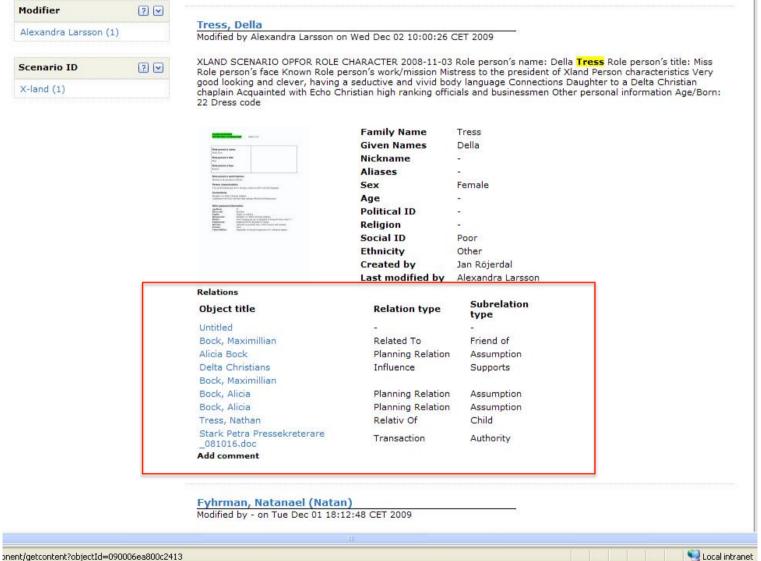


where information lives®

View Relationship in DAM

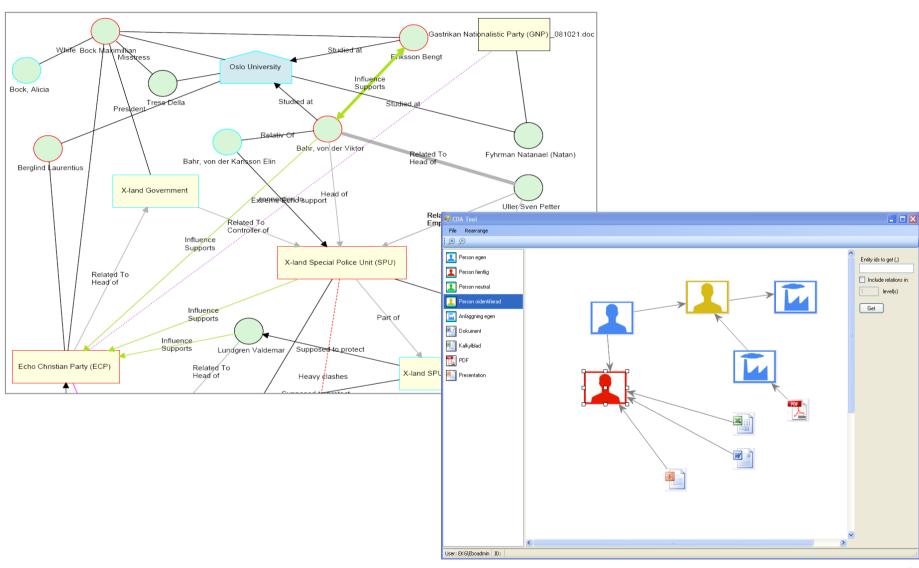


View Relationships in Search



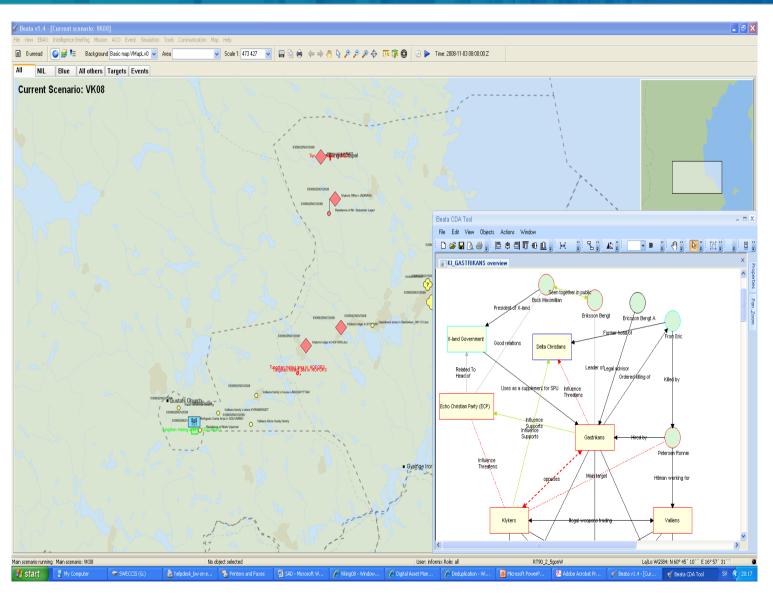


Relationship Interface



Two perspectives: map and relationship view







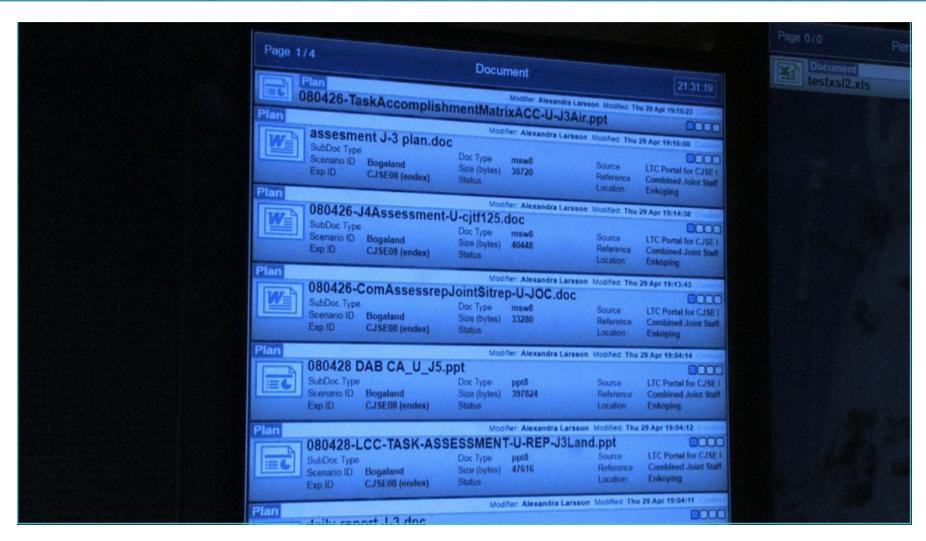
Digital
Signage
System
with ESB
integration.







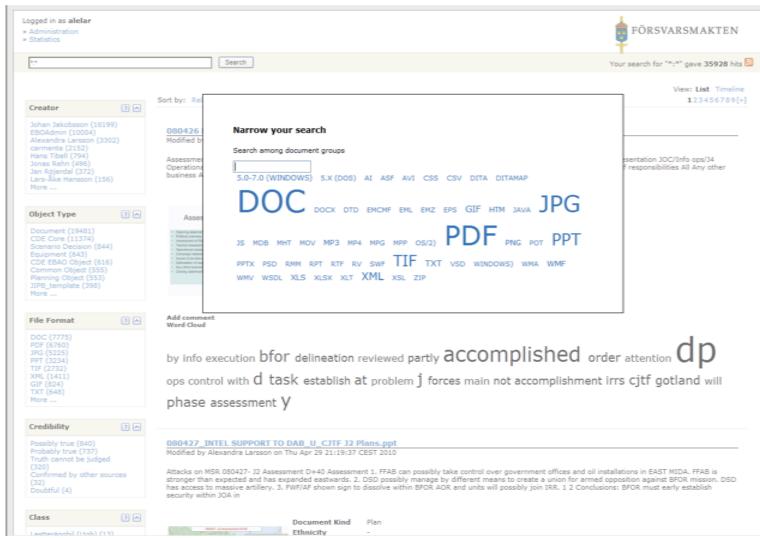
Documentum Activity Stream



Digital Signage system visualizing events from Documentum over the ESB

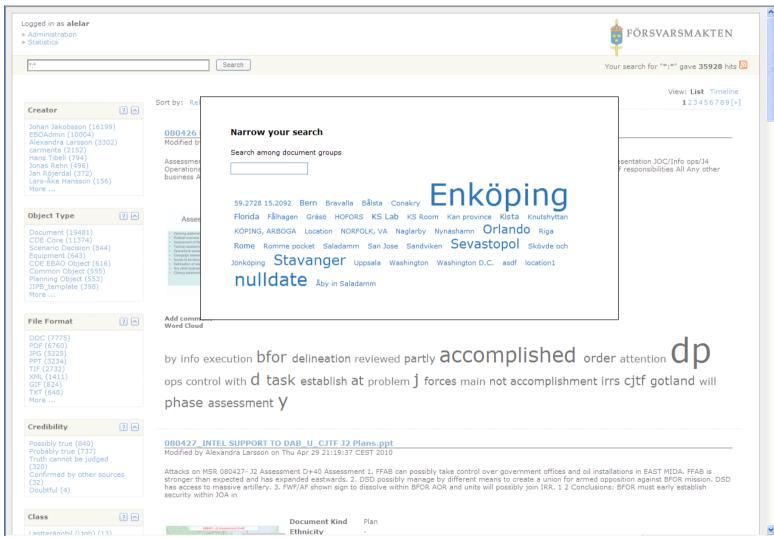


Content Analytics in Solr

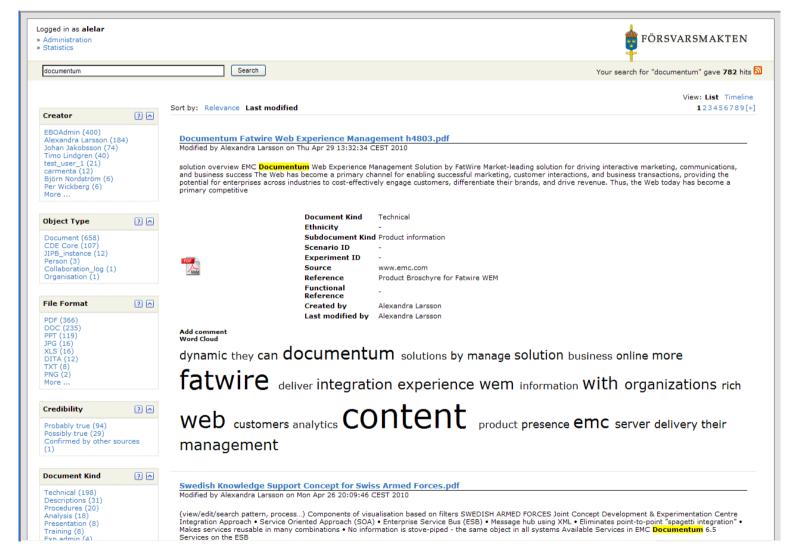




Content Analytics in Solr



Word Frequency Analysis





MT

Momentum

Content Analytics with Spotfire

- Utilize massive Audit Trail Data
- Utilize all metadata on content objects
- Replaces Documentum Reporting Services
- Interactive visualisations
- No need to use DQL
- Statistics/data mining back-end if needed



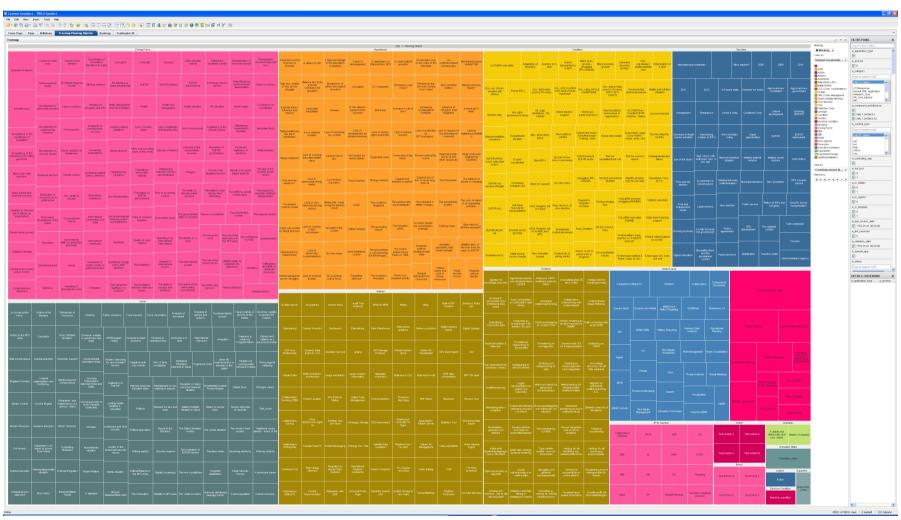


Content Analytics with Spotfire





Content Analytics in Spotfire



Treemap based on Planning Objects and distribution of different kind of them.



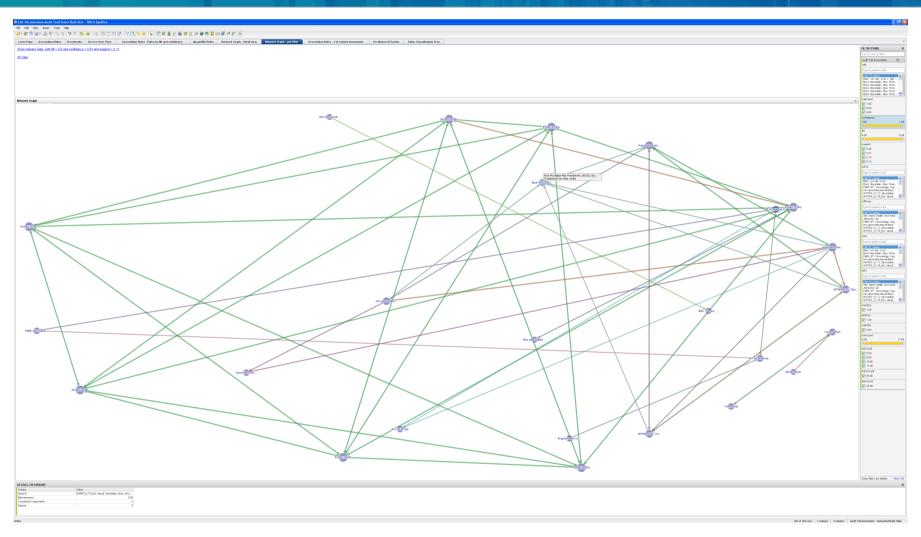
Likelyhood of documents being access together







Spotfire Network Visualization



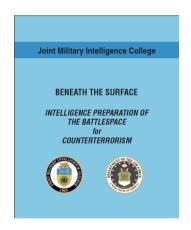
Links between commonly access documents.

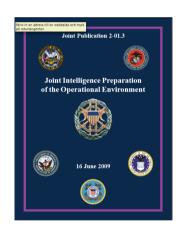


Example of a Composite Service



Joint Intelligence Preparation of the Operational Environment (JPIOE)









What is JIPOE?



An ongoing process in a Joint Forces HQ.

A method described in existing NATO & US publications.

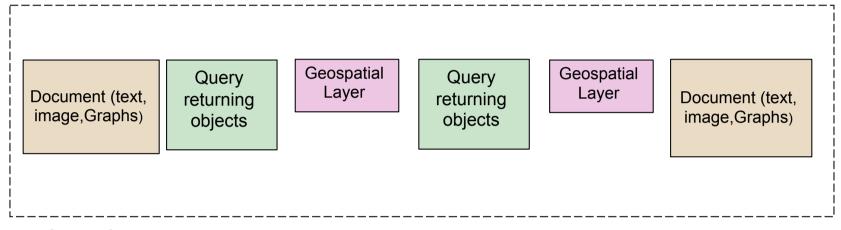
A set of products intended to be used in military operational planning.

An analytical framework mainly for intelligence personell.



Creating a JIPOE Product based on DITA templates with a twist





JIPOE Definition Template in DITA XML (edited using XMetaL Author Enterprise)



Template Resolved by Enterprise Service Bus (Combining static and dynamic data)



Momentum

Reusable Services Used in JIPB Service

GeoInformationObject (GIO)

- Defines a dynamic GeoLayer to be included in final product.
- -Returned as an image file.
- InformationQuery (IQ)
 - Returns objects and can present metadata attributes in tables.
 - Queries are both full-text and attribute search.
 - Queries both Solr Search and Documentum Search.
 - Can contain a geo location to limit search results.

InformationObject (IO)

- Includes a text object (Word-file or DITA Topic)
- Includes an image.
- Combined IQ-IO Service
 - Returns a list objects where the actual content is included.
 - Handed over to (IO) where each content object is included. (Is used to create "hot folders" that users can drop content to be included.



Customizations

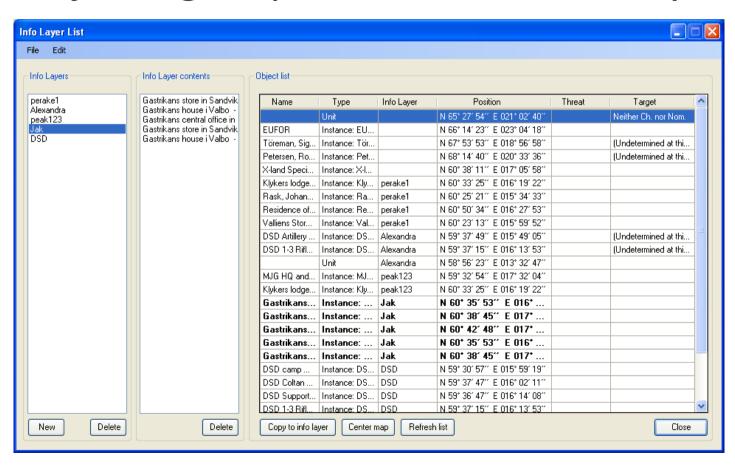


- New tags that become service requests.
- Server-side version of xDoc to create DITA-renditions of Word-files
- Customizations of DAM
 - Copy DITA references to Documents
 - Copy DITA references to Images
 - Create JIPB/JIPOE service request
- DRL instead of HTTP-links created problems in DITA to PDF generation.





Objects grouped for further analyis





Momentum

GeoLayer – A pointer to data in 4D

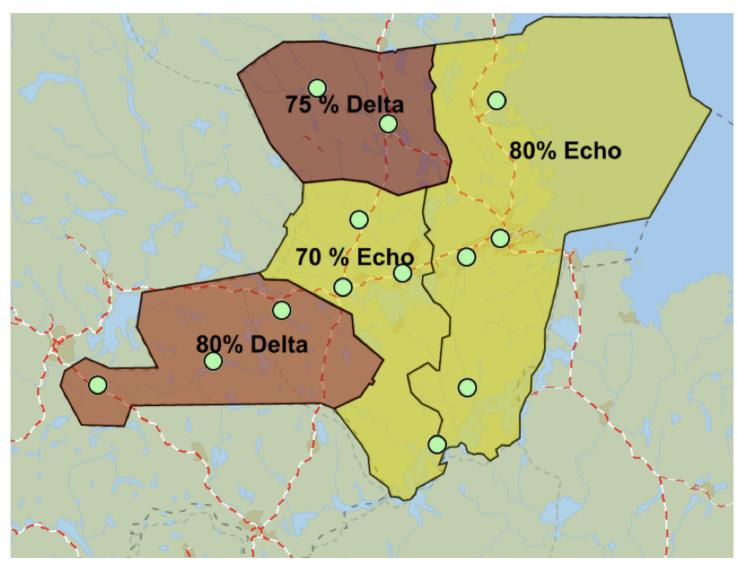
- Created in GIS-system
- GIS-system uses objects from Logical Data Model
- GIS-system provides additional fine-grained attributes on objects
- Each object can be "observed" multiple times
- A Geolayer's name is exposed externally on a service
- Output of GeoLayer is saved in Documentum as PNG

- Geo Layer contains
 - Map center location
 - Scale
 - Raster background
 - Vector data
 - Time span filter
 - Selected Information
 Layers (each containing objects)



Geolayer Example





From DITA Template to PDF via Service requests.



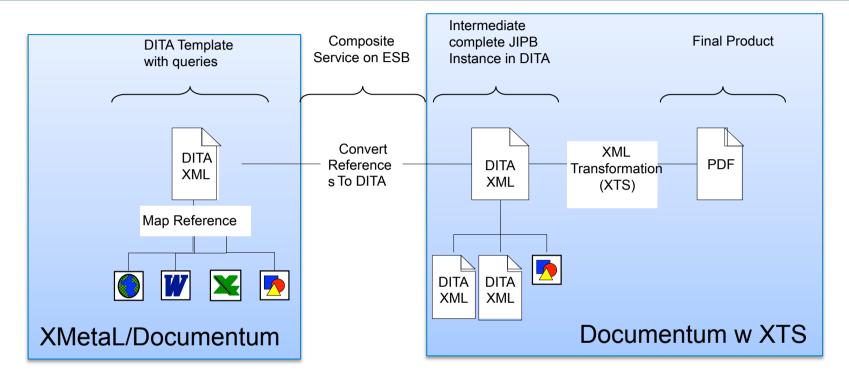




Image object



Named Dynamic GeoLayer



XML Document



Word Document

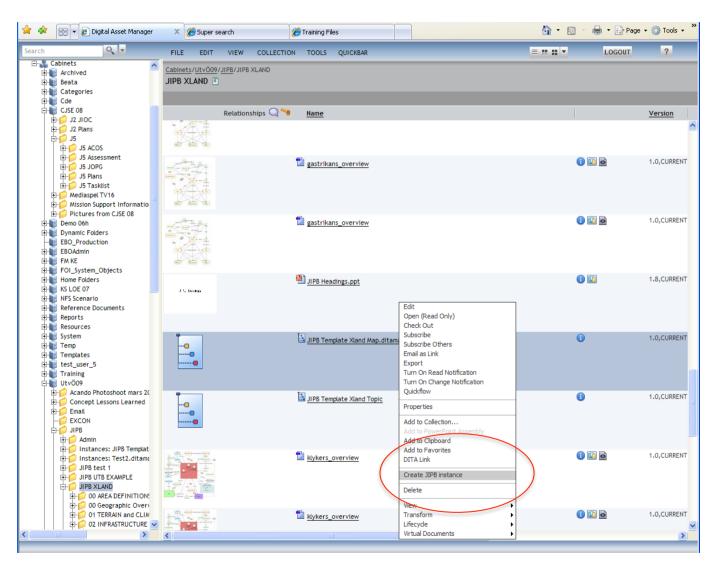


DITA XML





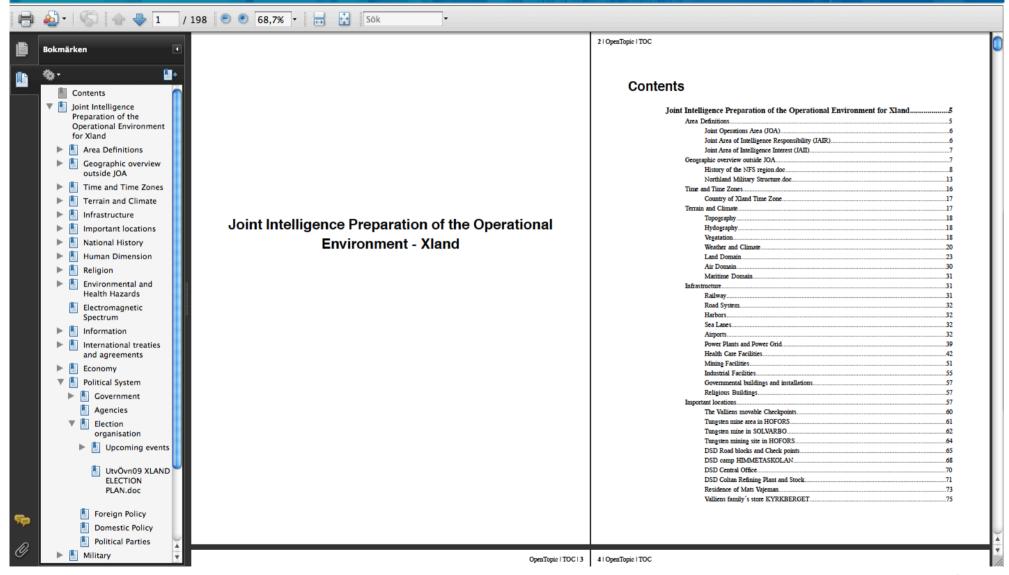
Initiate JIPB Service from DAM





Momentum

Finished Product in PDF (so far)





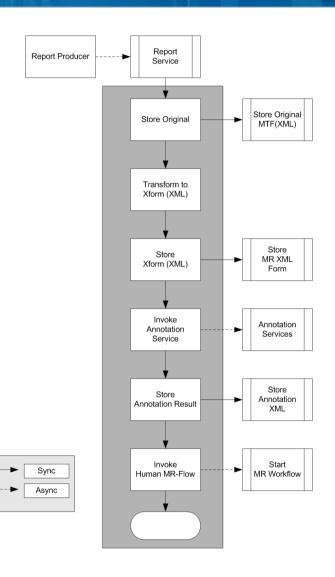
- We asked for an JIPB/JIPOE creation service but got a generic composite document creation service.
- Seem to save huge amount of time otherwise used to collate information in large military HQs.
- Can be used to also create OPPLAN, OPORDER or any situation where a large set of info is being collated and especially where the end product needs to be updated often.
- Legacy content needs proper attention to be converted to reusable pieces.
- Basically we got a DITA-production workflow on steroids!
- Need to look into xProc, xDb and Diff Engine for future work



Military Reporting Beta

Momentum

- Service interface to recieve NATO-formatted reports in XML-format.
- Each report iniatiates a workflow using a Process Template
- Inititial report goes through entity extraction for initial analysis
- Taskspace was selected as main client
- Report and entity extractions (people, organisations, locations, events) are reviewed for approval
- Visual markup on text
- Entities extracted:
 - Create new object if previously not seen
 - Create a relationship between text markup in report and object
 - If existing object create a new relationship between markup and object







Email: alexandra@jcdec.se

Blog: contentperspective.se

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